INTERACTION BETWEEN REGIONAL INTELLECTUAL CAPITAL AND ORGANIZATIONAL INTELLECTUAL CAPITAL: THE MEDIATING ROLES OF ENTREPRENEURIAL CHARACTERISTICS

Csaba Deak

University of Miskolc, Miskolc-Egyetemváros, HU3515, Hungary.

E-mail: deak.csaba@uni-miskolc.hu

Stefania Testa

University of Genova, 13 Viale Causa, 16100 Genova, Italy.

E-mail: stefania.testa@unige.it

Abstract: Intellectual Capital (IC) or the ability to utilize knowledge resources is largely recognized by scholars and practitioners as the fundamental source and driver of an organisation's competitive advantage. The concept of regional cognitive and intangible resources is particularly relevant when facing SMEs (Small and Medium Enterprises). For the present research, two food industries have been selected and compared: the food industry in Northwest Italy and in North Hungary. Our hypothesis: depending on the characteristics of the founders/owners, not all SMEs participate in equal intensity in regional and organizational IC exchange. Some of them play an essential role in knowledge generation and diffusion, others operate in egoistic terms and others remain totally isolated. The research methodology employed is based on the analysis of several business cases. Through an examination of 32 cases in two different contexts, this research confirms the existence of different behaviours.

Keywords: intellectual capital; small and medium enterprises; innovation; competitiveness; food industry; knowledge-using; IC exchange; Give&Take.

Introduction and objective

Intellectual Capital (IC) or the ability to utilize knowledge resources is largely recognized by scholars and practitioners as the fundamental source and driver of an organisation's competitive advantage (for example Sullivan, 1998). Recently, several researchers have begun to speak about IC not only in reference to business organisations but also to other contexts (Bounfour and Edvinsson, 2005). For example, Smedlund and Poyhonen (2005) deal with IC at cluster and regional levels while Malhotra (2001) deals with IC at a national level. When facing regions and nations, the same fundamental components used for organizations are mentioned, while adopting extended and refined definitions. According to Stewart (2001), within the field of strategic management, IC includes three

main components: human capital, structural capital and relational capital. Human capital is embodied in the skills, knowledge and expertise that individuals have; structural capital comprises the general system and procedures of the organization as well as physical infrastructures; and relational capital is made of the relationships that an organisation has with the environment in which it operates.

The concept of regional cognitive and intangible resources is particularly relevant when facing SMEs (Small and Medium Enterprises). SMEs are often limited by resource availability and must heavily rely on external knowledge and skills, which often embedded in their local area. Thus the issue of how SMEs exploit the elements of regional IC, combined with their own organizational IC, in order to gain a competitive advantage has been addressed by numerous studies. Such combination of and interaction between regional and organizational IC and more generally, the knowledge exchange phenomenon are usually described by means of two main yet opposing explanatory approaches (Giuliani, 2005). The one describes the phenomenon as a quasi-automatic mechanism (for example the economists´ perspective on 'localized knowledge spillover') based on geographical proximity, the other points to the necessity to include specific features of the firms and of firm-level learning. As an example, Giuliani and Bell (2005) claim that such an interaction is characterized by a pronounced heterogeneity deriving from differences in the companies' knowledge bases. In the same vein, Steiner and Ploder (2008) introduce the position of firms within networks as another determinant in the nature and intensity of knowledge exchange. Nevertheless, such authors claim the need to take other aspects into consideration, such as those related to the organizational context. Stimulated by such considerations and on the basis of evidence collected in previous research (Massa and Testa, 2008; Massa and Testa 2010; Massa and Testa 2009), further investigation started to add new insights on the topic. In the above mentioned research, the authors found evidence that aligns with that of both Giuliani and Bell (2005) and Steiner and Ploder (2008). Results showed that some companies actively contribute to the development of local IC. This is because the firms' boundaries are porous and they let inside knowledge out, while others remain cognitively isolated or just act as knowledge takers. The present research aims at investigating the possible determinants of such heterogeneity by both enlarging the observation to a wider sample and deepening the analysis. The possible determinants have been searched for in the personal characteristics of the business owners.

The focus of researchers investigating issues of knowledge resources is often on knowledge intensive sectors (Smith, 2002) since knowledge is assumed to be more critical in those sectors due to the necessity to be more innovative (Ruiz Mercader et alii, 2006). Thus, a lack of investigations into non-knowledge intensive sectors is claimed. Indeed, Cooke (2002, page 3) underlines that 'all human economic activity depends upon knowledge, so in a trivial sense, all economies are knowledge economies'.

For the present research, two food industries have been selected and compared: the food industry in Northwest Italy and the food industry in North Hungary. There are multiple reasons that lead to this choice. Firstly, the food industry is included in the low-technology manufacturing category by the OECD (1999) classification of knowledge–based industries, even though some authors speak about misplacement (see for example Cooke, 2002). Secondly, the food industry is a mature industry and faces an increasingly heightened competitive environment due to a variety of reasons such as globalisation, mature markets, need of cost reduction and so on. (Puliafito et alii, 2008). Companies in this industry are forced into change to avoid decline, ever more often than in the context

of emerging industries, thus supplying the potential of a renewed role for entrepreneurship (Cassia et alii, 2006). Thirdly, the food industry is mainly a knowledge-using rather than knowledge-creating industry but it has become recently more scientifically knowledge embedded. The food industry mainly relies on a synthetic knowledge base which, according to Asheim and Gertler (2005), refers to activities where innovation mainly takes place through the application of existing knowledge or through the new combination of knowledge. This often occurs in response to the need to solve specific problems that arise during interaction with clients and suppliers. Novel knowledge is mainly created by an inductive process of testing and experimenting or through practical work. Such knowledge is mainly tacit due to the fact that it often results from experience gained at the workplace and through learning by doing, using and interacting. The need for concrete know-how, craft and practical skills in the knowledge creation process makes the regional dimension and spatial proximity more important than in other kinds of industries which, in turn, make regional IC very central. Fourthly, both geographical areas examined in this research have a high regional IC as regards the chosen industry (that is the selected companies operate in areas where their knowledge is the dominant knowledge and it has been accumulated over many years), as will be highlighted in following sections. Fifthly, both Italy and Hungary are ranked low by several international evaluations (for example the World Economic Forum for the 2007-2008 period) in terms of competitiveness (respectively 46th and 47th position) and innovation ability. As a result, they urgently need national and regional strategies that can help overcome such weaknesses. Lastly, the food industry is among the three most important sectors both in Italy and Hungary and it has a significantly positive foreign trade balance in both countries.

This paper is organized as follows. Firstly, the investigation framework is provided. Secondly, some details on the methodology used are presented. Thirdly, the research setting is described with reference to the IC of the areas under consideration. Fourthly, empirical evidence from the cases is discussed and lastly, some conclusions are drawn.

Investigation framework

Without undertaking an extensive review of works devoted to SME behaviour, it is clear that a rather broad consensus exists on the fact that the organizational dimensions of SMEs often overlap with their entrepreneurial dimensions (Kickul and Gundry, 2002) and that owners play a preponderant role in shaping SME behaviour. Variables taken into consideration include owners' personality traits, motivations and competencies as well as personal demographic variables. Cardon et alii (2005) even speak about identification between an entrepreneur and his/her venture and Chapman (2000) emphasizes this aspect in the title of her article: 'When the entrepreneur sneezes, the organization catches a cold'. Thus, when discussing about SMEs organizational IC it is not surprising that authors often measure the human capital dimension as the education, experience and level of motivation of the entrepreneur himself (Peña, 2002).

In order to reach a complete understanding of SME behaviour, contextual and external factors also have to be taken into consideration; however, for the purpose of the present research, the focus is on entrepreneurial characteristics only, adopting the so-called personality-dominated approach (Gibb and Davies, 1990). Following this approach, several contributions to the literature exist that focus on a SME propensity to

knowledge exchange. For example, Baron and Markman (2000) identify social skills, among individual competencies, as a factor predisposing companies to effective interaction with others.

The insights gained by the considerations put forth here allow the formulation of the following tentative hypothesis and serve as guiding principles for the ensuing analysis.

Hypothesis 1: Depending on the characteristics of the founders/owners, not all SMEs participate in equal intensity in regional and organizational IC exchange. Some of them play an essential role in knowledge generation and diffusion, others operate in egoistic terms and others remain totally isolated.

Methodology

The research methodology employed is based on the analysis of several business cases. Data collection was based on an average of three to four semi-structured interviews per case with the entrepreneurs and other informants. Informants included marketing or commercial managers, among others. Individual interviews lasted from one to two hours and whenever possible, they ended with group discussions involving all the previously interviewed informants. A special effort was devoted to identifying the personal characteristics of the business owners, in terms of traits, competencies and motivations.

Archival documents have also been collected, in accordance with the distinct tradition in the literature on social science research methods that advocates different sources of data (and methods) be used to validate one another (Jick, 1979). Data collection was conducted over a period of six months and standard techniques for case studies were followed (Yin, 2003). After transcribing the interviews, data was coded to identify themes, recurring comments and parameters that could be analyzed with regard to the research issue.

Due to limitations of space, only four cases out of the complete dataset are presented in the present paper. The cases have been purposely selected in order to effectively represent the findings of the research. They come from a set of 20 cases in the Italian food industry, all of which concern SMEs located in Northwest Italy and 12 cases from the food industry in North Hungary. The authors are aware that SME behaviours are highly differentiated across sectors, regions and countries but the focus here is on entrepreneurial characteristics at an individual level.

Research setting

Northwest Italy and the food sector

Northwest Italy is one of the historical cradles of the Italian food industry, where the main multinationals of the sector are located alongside small and medium artisan firms that promote traditional local foods. Northwest Italy alone covers 30–35 per cent of total Italian agro-food exports (22 billion Euro/year). The Northwest represents the Italian food industry's most advanced region where hi-tech research, industrial production and creativity in food production coexist with the preservation of that special quality of food as a synthesis of culture and centuries-old traditions. Moreover, this area, which was recently recognized as the 'Italian Food Valley', is becoming a national and international

reference point for critical reflection on food production and consumption, as well as for the excellence of its gastronomic specialties.

The region hosts prestigious international events such as Salone del Gusto (Taste Show) in Turin and will host Expo 2015, entitled 'Feeding the planet, energy for life' in Milan. Moreover, many science parks and research centres in the agro-food sector are located in this area. The Slow Food Association, born to interpret the emerging need of food consumers linked to the ethical and social dimensions of eating habits, was founded in this region in 1986 as a non-profit association. The region also boasts a large number of PDO/PGIs (Protected Designation of Origin; Protected Geographical Indication)[1]

North Hungary and the food sector

The food industry is an important sector of the Hungarian national economy, although its importance - due to the forging ahead of other progressive sectors – has gradually decreased in the last ten to twelve years. Amongst the processing industry sectors, the food industry is in third place, accounting for output of about 11.4 per cent (2005) of the total. In Hungary, the food industry is the only sector that has a significantly positive foreign trade balance. Its activity directly affects other sectors since the Hungarian food industry uses most of the country's agricultural product and a considerable quantity of packaging products. It provides stocks for the catering industry and it is an important consumer of logistical and educational services. The food industry is a major user of energy and other natural resources, such as water and its permanent improvement is therefore one of the important factors of sustainable development. Currently 46 per cent of the Hungarian food industry's production is derived from small and medium sized enterprises. The Hungarian food industry has time-honoured traditions in producing high-quality products. Traditionally, North Hungary has been the country's leading food exporting area. Due to its favourable production site and climate conditions, as well as food culture, several excellent Hungarian products are produced there.

Concerning the economic structure of North Hungary, the food industry seems to play an important role in the region. Wine-growing has specific importance in the region's food industry. Both Tokaji and Eger local wines are internationally well-known. For the most part, the region's companies are small-sized businesses. Seventy percent of firms make under €80 000 turnover, 13 per cent reach €80 000 to €200 000 and 11.1 per cent make under €1 200 000 a year. In addition, several industrial bakeries are located in the region. They range from small bakeries to large bake houses. With spreading hypermarkets, in-house bakeries brought an increased selection, resulting in losses for large capacity, in-town bakeries. Recently the meat industry also underwent a serious transformation. The capacities of Hungarian slaughterhouses are larger than they should be and most of them do not comply with European norms. Consequently, many were closed down since they could not make the huge investments in technological innovation that were required. However, most of the region's active enterprises provide the technical conditions for hygienic slaughtering, meat- and sausage-production, factory and personal hygiene and follow public-health, epidemic and veterinary health standards.

Examples of indicators usually measured to assess regional IC which have been customized to the food sector can be found in (Massa and Testa, 2008). They range from the number of companies operating in the agro-food sector to the number of sector fairs hosted in the local area and so on.

EMPIRICAL EVIDENCE AND DISCUSSION

In this section, several cases are briefly presented in order to purposely represent differences in the companies' behaviours in terms of exchanging intellectual resources with the local context. Some of them play an essential role in knowledge generation and diffusion (Give&Take subgroup), others operate in egoistic terms (Take subgroup) and others remain totally isolated (No give-No take subgroup). The possible determinants of such heterogeneity have been searched for among the personal characteristics of the business owners.

Table 1 summarizes the main features of the selected companies in Italy and Hungary.

Table 1 The main features of the selected companies in Italy and Hungary

Company	*Alpha (Italy)*	*Beta (Italy)*	*Gamma (Hungary)*	*Delta (Hungary)*
Foundation year	1975	1911	1992	1992
Kind of business	Family business	Family business	Family business	Family business
Main products	High quality butter and cheeses	Olive oil (virgin) Preserves (vegetables in oil and sauces) Line of cosmetics	Edible snail, snail shell, preserved pickles	Special quality wine
Main distribution channels	Small retailers (food boutiques)	Mail order selling	Food stores/ supermarkets	Wholesalers and webshop
Main markets	National and international (15%)	National (100%)	National and international (70%)	National and international (40%)
Sales	7,865 K€	107,708 K€	2,690 K€	600 K€
ROE[1]	18.5%	7.41%	-	64% (not include the vineyard)
ROTA[2]	14.7%	4.81%	-	32% (not include the vineyard)
ROS[3]	5.1%	3.5%	-	19%
Employees	20-49	50-249	50-249	20-49

[1]Net income/shareholder equity
[2]Income before interest and tax / (fixed assets + current assets)
[3]Income before interest and tax/sales

Exchanging intellectual resources with the local context

Company Alpha is a good example of a company that is highly involved in exchanging intellectual resources with the local context. Alpha produces high-quality butter and cheese sold mainly in specialty shops and in selected large retailer stores. The founder started up Alpha in 1975 after leaving his activity in the field of electronics and moved by his affection for the local territory and its ancient farming tradition. The entrepreneur rediscovered ancient local cheese recipes and started producing typical cheeses that had almost disappeared, relying on the historical memory of local people and restoring old production processes and devices. He also created new and original cheeses deriving from traditional recipes reinterpreted to meet modern taste. Alpha aims at safeguarding local cuisines, traditional products, vegetable and animal species at risk of extinction. It is actively involved in promoting a new model of agriculture, which is less intensive and healthier. It is founded on the knowledge and know-how of local communities. Several company initiatives aim at defending biodiversity and promoting sustainable regional development. The entrepreneur is directly and passionately involved in promoting producer cooperatives. These cooperatives draw together producers from the local area to share expertise, endogenous knowledge and behavioural codes. Furthermore, with a group of researchers from a local university, the entrepreneur is developing a research programme concerning the presence of particular botanic species in meadows and their influence on the characteristics of the milk. Recently, the entrepreneur launched a project aimed at safeguarding an ancient Armenian cheese, bringing the shepherds out of their isolation, fostering collaboration among them, improving cheese making conditions and obtaining the hygienic authorization. This authorization will allow them to sell the cheese in national and international markets. The entrepreneur has also launched and sponsored several initiatives connected to tourism. He recuperated and restored several buildings in an ancient ‘cheese hamlet’ which are used to refine and mature typical cheeses according to traditional methods. Recently, a restaurant offering Alpha’s products as well as those of other small local producers opened in such a historical hamlet. A large conference room is also available to host events. In spring, the conference room becomes an educational centre for the local University of Gastronomic Sciences. This has a great impact on the promotion of the whole territory and attracts specialized agro food competencies.

Company Beta (for a detailed description of company Beta see Massa and Testa, 2009) is, on the contrary, a good example of a company that mainly acts as a ‘knowledge taker’ (that is a company that is more absorbing of regional IC than releasing of organizational IC). Beta produces olive oil and preserves obtained from traditional recipes, as well as a line of cosmetics. It is a family business that started in 1911 as a print shop: oil production started following overproduction in the family olive harvest. The family decided to sell the production surplus directly to consumers and this choice has persisted to the present with mail order selling as the exclusive distribution channel. Aware of the current growing enthusiasm for local food, Beta relies heavily on the concept of ‘localness’ in its marketing communication and initiatives. Despite that, Beta does not seem to have strong interactions with its territory, local companies or institutions. On the contrary, it seems to be a closed system that does not exchange knowledge with the territory, as it does not invest resources in its promotion and development. The only valuable example in this direction is the Olive Tree Museum which contributes to the structural IC of the region to some extent. Unfortunately, the

impact of this contribution is severely limited by the location of the museum, which is on the company's premises. This means the choice was made without need for agreement with local institutions and it assumes the meaning of mere self-promotion.

Company Gamma's produces food from edible snails, including the production of preserves in the North Hungarian region. Its range of products includes frosted snails, cleaned snail shells and preserved pickles. The company exports snails and also tries to distribute its preserves in the domestic market. The firm was established in 1992 and operates as a family business until the present day. Their preserves are distributed through food stores and supermarkets in Hungary and abroad. However, processed snails are sold exclusively abroad, mainly in France and Romania. The organization is not able to cooperate with other companies, experts and/or institutes in the region due to its activity and the lack of any university, college or research centre linked to the food industry. They would willingly share their acquired knowledge with others and would be open to learning, but at present the firm may be viewed as an isolated small-to-medium sized organisation. Although it produces high quality products for the food market, its activity is not reliant on regional knowledge and it does not contribute to the region's intellectual capital. The firm believes that 'considering the activities and perspectives of the region, there's no possibility to do that'.

Company Delta, like Alpha, is again a good example of company highly involved in exchanging intellectual resources locally. The owner is one of the oldest wine-making families in Tokaj and its family tree dates from the sixteenth century. A passionate love for grape-growing and wine making has been in the family for generations. The entrepreneur is one of the pioneers of contemporary Tokaj wines and seeks to return to the roots of Tokaj winemaking. He continued the family tradition by gaining a degree in the mid-seventies and working as an agronomist at the agricultural co-operative of Mád. In the eighties, he carried out mass production on 1000 hectares as one of the co-operative's chief. During Hungary's days of political and economical unrest (1989-1990), he owned a seven hectare territory, but lost everything in 1992 due to a failed investment (his whole area was taken into Royal Tokaj and later sold to an investor). Thus, he had to restart again from nearly zero that is from a 1.5 hectare piece of land. In 1999, following by his 'showman-like' talent, he started buying up territories, adding to ones he already held. Currently his vineyards cover 54 hectares. This measures approximately half of the largest vineyards (there are five larger ones, mainly French and Spanish ownership), but the area is nearly the largest Hungarian-owned vineyard. In 1992, while other producers struggled to keep their enterprises afloat, he implemented a never-before-seen drastic yield restriction. He proved that by intelligent decrease in grape quantity, it was possible to obtain a marked increase in quality.

The entrepreneur is actively involved in professional and social organizations. For example, he was a founding member and chairman (1998-2003) of Tokaj Renaissance (established in 1995, with 22 members). He has recently established and manages a local knowledge-sharing association with 15 other local wine-makers. He is involved in joint research projects with Debrecen University, Eger Wine Research Institute and other industrial food producers. He supports the post-secondary Tokaj winemaking programme by receiving students on school trips and practical placements. He does this despite the fact that students will ultimately be employed at other companies in the region. Eger, North Hungary's other large wine-growing area, is about 80 km away.

Despite this, he also keeps up good relations with winemakers there. Knowledge exchange occurs through regular visits and discussions. For example, he had less

experience with dry wines, but by acquiring the knowledge of others mainly in the Eger area, he was able to ‘take on the rhythm’. Another episode of knowledge exchange sees him teaching local Eger wine-makers about the close link between low yield and quality. In the same location, he also studied cider acid decomposition and maturation in bottle. His motivations are not limited to the financial realm, but he also feels responsibility for the community. ‘It is worthy of a consciously thinking human,’ he said, ‘to contribute at spreading food knowledge and culture for a passion and a profit too’. If Delta sets about anything, it tends to set the standard: it brought to light a neglected type of wine. The entrepreneur has set out to make Tokaj wine more popular, more liked and more requested around the world. His goal is creating a new and higher profile image for the Tokaj region.

Tables 2 and 3 summarize how the selected companies mobilize IC by means of give and take processes.

Table 2 IC mobilizing (Italy)

Give		*Take*	
Beta	*Alpha*	*Beta*	*Alpha*
Olive Tree Museum	Support to: • Biodiversity • Producers’ Consortia • Presidia Internalization of other local producers Development and diffusion of specialized knowledge in local University of Gastronomic Sciences Restoration of ancient buildings for tourist purposes	Regional reputation in oil production Traditional production process History/culture	Regional reputation in food production Traditional production processes and recipes History/culture Beauties of nature

Source: Massa and Testa (2008).

Table 3 IC mobilizing (Hungary)

Give		*Take*	
Gamma	*Delta*	*Gamma*	*Delta*
	Knowledge and experiences to the local enterprises Development and diffusion of specialized knowledge in local postsecondary education Common research with local University and research centres Professional awards for increasing the name of the wine region		Regional reputation in wine production Traditional production processes and recipes History/culture Employees with experience Knowledge and experiences from the local enterprises

Entrepreneurial characteristics of the business owners

Analyzing the individual-level characteristics of the entrepreneurs from the whole set of case studies (from both Italy and Hungary), it is the entrepreneurial passion toward his/her venture that seems to allow for distinguishing the Give&Take subgroup from the other subgroups (Take; No give-No take). Until recently, emotions have not received significant scholarly attention in entrepreneurship literature (Shane et alii, 2003). Indeed, Weick (1999) and Frost (1999) compellingly argued that theories recognizing emotion resonate with our day-today experience, while Baum et alii (2001) demonstrated that passion has a direct significant effect on SME growth. In the words of an entrepreneur reported in Chang (2001, page 106): 'Passion inspires us to work harder and with greater effect. The irony is that we hardly notice our effort. It comes easily and enjoyably'. As noted by Cardon et alii (2005), passion may lead to both functional and dysfunctional consequences. As an example, passion makes non-monetary rewards as important as monetary gratification, thus it may contribute at postponing the achievement of economic results or it may induce 'temporary blindness' to obstacles (Branzei and Zietsma, 2003).

In our cases, passion makes a difference in the propensity to exchange intellectual resources with the local context. Passion impacts on the regional/organizational IC combination, mainly in the outbound direction (the passionate entrepreneur is also a passionate knowledge giver). The passionate entrepreneur makes no distinction between his private life and his enterprise and always speaks about his business and thus contributes to distributing knowledge and creating awareness in the local context

regarding big current changes in food values. As an example, entrepreneur Alpha writes and speaks about local food and traditional production systems in famous national and international journals, as well as in the local community during informal meetings and specialized or village fairs. Such a passion recalls a sort of romanticism and resonates in his words:

The secret of my successful butter resides in the alpine meadows, at high altitude, with few weeds and a lot of lactiferous herbs and many brightly-coloured flowers and an intense scent: myosotes, ranunculuses, martagons, daisies, gentians… The different creams, once mixed together, multiply scents and fragrances creating butter that presents a rich and harmonious bouquet. A delight!

This passion also appears in the case of entrepreneur Delta:

> "An intuition derived from experience and faith results. The renovation of many specific growing sites and uncultivated vineyards gives such excellent yields... There is a special relationship between plants, soil, climate and myself…I want to produce even more amazing products, with a high quality level!"

It is interesting noting that the majority of the passionate entrepreneurs, as in the case of company Alpha, were outsiders to the food industry when they started-up their companies as they came from other experiences. This aspect could have helped them to face the industry without preconceptions and approach the sector primarily as enthusiastic consumers and lovers of local territory and tradition. These aspects may contribute to make them 'unconventional individuals' (Steiner, 1995); however, this does not mean that they are acting against what is actually in their own best interest - building and maintaining a venture and making it profitable - but that they are not overly concerned with secrecy and protection of their organizational knowledge resources. Nevertheless, it is not surprising that some companies in the food sector are generous in giving knowledge to the local context. If the environment has a good reputation the company itself will also gain a competitive advantage. For example, a customer may not know a specific producer, but may buy the product because of its territorial origin. In fact, it is well known that local food producers can effectively promote themselves by building up strong synergies between their products and places, thus building a tie between company marketing and regional marketing (Belletti, 2002). Such a tie can be a win-win situation, but it implies profound involvement and commitment by local entrepreneurs in creating - and then proactively participating in - an articulated network allowing information flow and knowledge exchange. In the examples reported above, Alpha devoted a lot of resources to rediscovering ancient cheeses and to re-creating conditions to produce them. It relied on the local population's historical memory, as well as on restoring old production processes and devices. At the same time, localized area science parks and research centres, as well as prestigious international events and specialized locally organized fairs, represent a valuable asset in influencing Alpha's development and all local businesses that are able to take advantage of it. Thus, in the case of the Give&Take subgroup, regional IC can impact upon local firms' success and vice-versa.

Market orientation is another of the most observed individual-level characteristics among the entrepreneurs of this set of case studies. However, as in the case of company Beta, market orientation does not seem to impact alone on the propensity to exchange knowledge with the local context. Such entrepreneurs, in virtue of their market orientation, devote a special effort in embedding local knowledge in their products,

exploiting local history and heritage for commercial gain and making reference to local craft production methods. Notwithstanding this, local knowledge and PDO/PGI certifications are used as marketing levers, but no concrete effort is made to interact with the territory (Take subgroup).

In the case of company Gamma, it is not surprising that the entrepreneur, with the perception of being an 'island' in the business environment, does not exhibit overt passion and remains cognitively isolated (No give-No take subgroup).

Conclusions

This research sought to add new insights on regional and organizational IC exchange by adopting the approach that claims the need to include specific features of firms in order to understand the heterogeneity of SME behaviours. Through an examination of 32 cases in two different contexts (Northwest Italy and North Hungary), this research confirms the existence of different behaviours. This paper's contribution is that such heterogeneity also seems to depend on individual-level entrepreneurial characteristics and not only on a firm's knowledge bases or position within networks, as already demonstrated in other research (Giuliani and Bell, 2005; Giuliani, 2006; Steiner and Ploder, 2008). The search for entrepreneurial characteristics as determinants of heterogeneity in knowledge exchange is rooted in literature that emphasizes the role of founders/owners in shaping SME behaviour and claims overlapping between organizational and entrepreneurial dimensions (Kickul and Gundry, 2002). What seems to make the difference is passion, thus implicitly answering Krueger's question (2005): 'Where might passion make a difference?'. Companies that can be clustered in the subgroup Give&Take have passionate entrepreneurs in common who do not hesitate to devote time and resources in spreading food culture. They contribute to developing awareness and knowledge exchanges among both consumers and producers thus influencing the emergence of an enlarged production system where the customer is also part of value creation. The passionate entrepreneurs often act and appear committed to values that are above commercial considerations.

It is worth noting that passion is not necessary to a venture's success. Many companies that lack passionate entrepreneurs and are placed in the Take subgroup are successful nonetheless. This result is obvious (defining a specific psychological profile for successful entrepreneurs/ventures has proven to be a generally fruitless endeavour (Smilor, 1997)) but policy makers have to be aware that wide-ranging policies aimed at supporting SMEs, without taking into consideration also entrepreneurial individual-level characteristics, may not have the expected impact on broad well-being in the region. Policy makers should avoid feeding knowledge 'black holes'.

Future research could focus on designing an evaluation system to help regional policy developers to segment companies according to their concrete contributions to regional IC. Furthermore, knowledge exchange with actors outside the local context should also be deepened as several companies in the sample are also well connected beyond the local area.

There are pros and cons in adopting a case study approach. Observing what happens in the real business environment helps to better understand phenomena, but on the contrary, pointing out general implications through study of a limited number of cases is

difficult. Therefore, conducting quantitative studies in the future, from which generalizations can be derived, may prove useful.

References

Asheim, Bjørn and Meric S. Gertler. "The geography of innovation: regional innovation systems." In *The Oxford Handbook of Innovation*, edited by Jan Fagerberg, and David C. Mowery and Richard R. Nelson. Oxford: Oxford University Press, 2005. p. 291–317.

Baron, Robert A. and Gideon D. Markman. "Beyond social capital: how social skills can enhance entrepreneurs' success." *Academy of Management Executive*, 14 (1), 2000, pp. 106-115.

Baum, J. Robert, Edwin A. Locke and Ken G. Smith. "A multidimensional model of venture growth." *Academy of Management Journal*, 44 (2), (2001), pp. 292-303.

Belletti, Giovanni. "Sviluppo rurale e prodotti tipici: reputazioni collettive, coordinamento e istituzionalizzazione." ("Rural development and typical products: collective reputations, coordination and institutionalization.") In *Sviluppo Rurale: Societa`, Territorio, Impresa* (*Rural development: society, territory, enterprise*), edited by Elisabette Basile, and Donato Romano. Milan: Franco Angeli, 2002. p. 373-397.

Bounfour, Ahmed and Leif Edvinsson. *Intellectual capital for communities*, Boston MA: Elsevier, 2005.

Branzei, O. and C. Zietsma. "Entrepreneurial love: the enabling functions of positive illusions in venturing." Babson-Kauffman Entrepreneurial Research Conference, Babson College, Wellesley, MA, 2003.

Cardon, Melissa S, Charlene Zietsma, Patrick Saparit, Brett P. Matherne and Carolyn Davis. "A tale of passion: new insights into entrepreneurship from a parenthood metaphor." *Journal of Business Venturing.* 20, 2005, pp. 23–45.

Chang, Richard. "Turning passion into organizational performance." *Training and Development*, 55 (5), 2001, pp. 104-112.

Chapman, Margaret. "When the entrepreneur sneezes, the organization catches a cold: A practitioner's perspective on the state of the art in research on the entrepreneurial personality and the entrepreneurial process." *European Journal of Work and Organizational Psychology.* 9 (1), 2000, pp. 97-101.

Cassia, Lucio, Michael Fattore and Stefano Paleari. (2006), "Entrepreneurship as renewal in mature industries." Working paper, University of Bergamo (IT): Economics and Management, 1/EM, Department of Management and Information Technology.

Cooke, Philip. *Knowledge economies: clusters, learning and cooperative advantage*, London: Routledge, 2001.

Frost, Peter J. "Why compassion counts." San Diego, CA: Paper presented at the meeting of the Academy of Management, 1999.

Gibb, Allan and Les Davies. "In pursuit of frameworks for the development of growth models of the small business." *International Small Business Journal*, 9 (1), 1990, pp. 15-31.

Giuliani, Elisa. "The structure of cluster. Knowledge and networks: uneven and selective, not pervasive and collective." Druid Copenhagen: Working paper 05-11, 2005.

Giuliani, Elisa and Martin Bell. “The micro-determinants of meso-level learning and innovation: evidence from a Chilean wine cluster.” *Research Policy*, 34, 2005, pp. 47-68.

Giuliani, Elisa. “The selective nature of knowledge networks in clusters: evidence from the wine industry.” *Journal of Economic Geography*, 7, 2006, pp. 139-168.

Jick, Todd D. “Mixing Qualitative and Quantitative Methods: Triangulation in Action.” *Administrative Science Quarterly*. 24 (4), 1979, pp. 602-611.

Kickul, Jill and Lisa Gundry. “Prospecting for strategic advantage: The proactive entrepreneurial personality and small firm innovation.” *Journal of Small Business Management*, 40 (2), 2002, pp. 85-97.

Krueger, Norris F. Jr. “From Keynes’ ‘Animal Spirits’ to Human Spirits. Passion as the Missing Link in Entrepreneurial Intentions,” Working Paper Series, Social Science Research Network, 2005. http://ssrn.com/abstract=1162337.

Malhotra, Yogesh. “Knowledge assets in the global economy: assessment of national intellectual capital.” In *Knowledge Management and Business Model Innovation*, edited by Yogesh Malhotra. London: Idea Publishing Group, 2001.

Massa, Silvia and Stefania Testa. ““Localness” is good for business? An intellectual capital-based perspective in the Italian food industry.” *International Journal of Innovation and Regional Development*, 1 (2), 2008, pp. 192-209.

Massa, Silvia and Stefania Testa. “A knowledge management approach to organization competitive advantage: evidences from the food sector.” *European Management Journal*, 27, 2009, pp. 129-141.

Massa, Silvia and Stefania Testa. “Knowledge management systems, firm innovativeness and knowledge domain: challenges for small and medium enterprises”, *International Journal of Learning and Intellectual Capital*, 2010, in press.

OECD (1999), The Knowledge-Based Economy: A Set of Facts and Figures, Paris.

Peña, Iñaki. “Intellectual capital and business start-up success.” *Journal of Intellectual Capital*, 3 (2), 2002, pp. 180-198.

Puliafito, Pier Paolo, Silvia Massa and Stefania Testa (2008), “It’s no use crying over spilt milk! Innovation paths in the dairy sector.” *International Journal of Management Practice*, 3 (3), 2008.

Ruiz-Mercader, Josefa, Angel Luis Meroño-Cerdan and Ramón Sabater-Sanchez. “Information technology and learning: their relationship and impact on organizational performance in small businesses.” *International Journal of Information Management*, 26 (1), 2006, pp. 16-29.

Shane, Scott, Edwin A. Locke and Christopher J. Collins. “Entrepreneurial motivation.” *Human Resource Management Review*, 13 (2), 2003, pp. 257-279.

Smedlund, Anssi and Aino Pöyhönen. “Intellectual Capital Creation in Regions: A Knowledge System Approach.” In *Intellectual Capital for Communities*, edited by Ahmed Bounfour and Leif Edvinsson. Boston, MA: Elsevier Butterworth-Heinemann, 2005.

Smilor, Raymond W. “Entrepreneurship: Reflections on a subversive activity.” *Journal of Business Venturing*, 12, 1997, pp. 341-346.

Smith, Keith. “What is knowledge economy? Knowledge intensity and distributed knowledge bases.” Working paper 2002-2006, The United Nations University, Institute for new technologies, 2002.

Steiner, Carol J. “A Philosophy for Innovation: The Role of Unconventional Individuals in Innovation Success.” *Product Innovation Management*, 12 (5), 1995, pp. 431-440.

Steiner, Michael and Michael Ploder "Structure and strategy within heterogeneity: multiple dimensions of regional networking." *Regional Studies*, 42 (6), 2008, pp. 793-815.

Stewart, Thomas A. *The Wealth of Knowledge: Intellectual Capital and the Twenty-First Century Organization*. London: Nicholas Brealey, 2001.

Sullivan, Patrick H., ed. *Profiting from intellectual capital: extracting value from innovation*. New York: Wiley, 1998.

Weick, Karl E. "That's moving: theories that matter." *Journal of Management Inquiry*, 8 (2), 1999, pp. 134–142.

World Economic Forum. The global competitiveness report 2007-2008. 2008.

Yin, Robert K. (2003), *Case study research: design and methods.* 3rd ed. Applied Social Research Methods Series vol. 5, Thousand Oaks, London, New Delhi: SAGE publications, 2002.

Acknowledgement

The authors wish to thank Jesper Manniche for informal and stimulating discussions during the preparation of this chapter and for "R&D Cooperation between Universities and Enterprises" research of the Hungarian Scientific Research Fund (OTKA no. 68745).

---

[1] PDO/PGI certifications were introduced by the European Union by means of regulations 2081/92 (recently substituted by 510/2006) with the aim of pointing out the link between the production process of an agro food product and its territorial origin. These certifications aim at protecting the reputation of regional foods against unfair competition by non-genuine products which mislead consumers. Thus, in some ways, these laws act to protect regional IC