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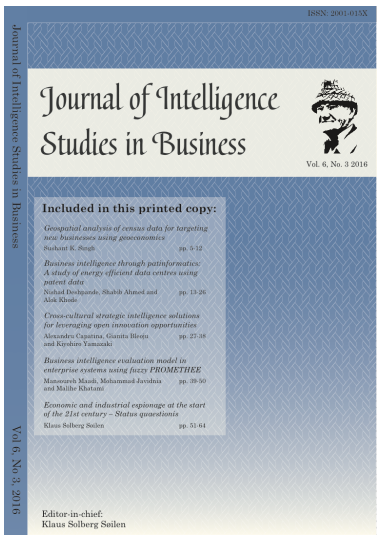

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Publication details, including instructions for authors and subscription information: https://ojs.hh.se/index.php/JISIB/index

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To cite this article: Capatina A., Bleoju, G., Yamazaki, K. and Nistor, R. (2016) Cross-cultural strategic intelligence solutions for leveraging open innovation opportunities. *Journal of Intelligence Studies in Business*. 6 (3) 27-38.

Article URL: https://ojs.hh.se/index.php/JISIB/article/view/177

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Journal of Intelligence Studies in Business
Vol. 6, No. 3 (2016) pp. 27-38
Open Access: Freely available at: https://ojs.hh.se/

Cross-cultural strategic intelligence solutions for leveraging open innovation opportunities

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Received 26 October 2016; accepted 25 November 2016

ABSTRACT Although the concept of open innovation has become widely discussed by scholars and practitioners, few cross-cultural studies focus on the assessment of companies' behaviours towards "not invented here" and "not sold here" syndromes. The purpose of this paper is to investigate the profiles of Japanese and Romanian companies operating in two fields, IT and manufacturing, from the open innovation perspective. The goal of this study is therefore to provide comprehensive empirical evidence for the adoption of inbound and outbound open innovation activities in the companies from these two target countries. Data from a sample of Japanese companies and Romanian companies were used to test two hypotheses on open innovation behaviour, in the context of a cross-cultural comparative approach. The results show that technology isolationists are more frequently found among the Romanian companies (especially in the manufacturing field), than the Japanese companies, which can be explained by the fact that Japanese firms are mainly based on leading innovative technologies, while Romanian firms are early adopters of the advanced technologies, due to the economic circumstances. Japanese companies included in the sample are defined as technology fountains, followed by technology brokers, proving their appetite for outbound open innovation. In this context, strategic intelligence solutions, once performed in collaborative culture environments, will lead to the improvement of the partners' managerial competences and will act as enablers for competitive positioning, proving the added-value of the acquired know-how through open innovation practices.

KEYWORDS Disruptive intelligence, japan, open innovation, romania, strategic intelligence, technology brokers, technology fountains, technology isolationists, technology sponges

1. INTRODUCTION

Cross-cultural strategic intelligence configuration, designed to enhance open innovation benefits, challenges managerial skills to reframe and upgrade rooted companies' high tech patterns of cooperation, through refining drivers of associating cultural diversity and open innovation.

Furthermore, the cross cultural-open innovation hybrid approach requires efforts toward building new managerial capability to anchor specific coordination mechanisms, enabling the best matching of strategic intelligence configuration and high-tech partnership outcomes.

This cross-cultural research is mainly focused on the assessment of the correlations between Japanese and Romanian companies' profiles from an open innovation perspective and the field in which these companies are operating. The four clusters of firms, in the context of their involvement in innovation-based activities are represented by the technology isolationists (characterized by high levels of both "not invented here" and "not sold

here" syndromes), technology fountains (characterized by high levels of "not invented here" syndrome and low levels of "not sold here" syndrome), technology sponges (characterized by low levels of "not invented here" syndrome and high levels of "not sold here" syndrome) and technology brokers (characterized by low levels of both "not invented here" and "not sold here" syndromes) (Lichtenthaler et al., 2011).

The research question refers to the fact that the existence of correlations between the companies' profiles (technology fountains, technology sponges, technology brokers and technology isolationists) and the field in which they are operating (IT, manufacturing) depends on the target country to which they belong (Japan and Romania).

Erickson and Rothberg (2013) suggest that decision-makers should be aware that a balance between knowledge sharing and protection is compulsory, giving particular attention to industry-by-industry conditions, demanding more or less protection when innovation is a high priority. As a result, they must be able to decide when to develop and share proprietary knowledge assets widely (outbound open innovation) and when not to (inbound open innovation). In their opinion, the propensity to outbound innovation increases the competitive intelligence risks.

The open innovation's approach by means of cross-cultural strategic intelligence allows the mutual adjustment of intra-firm managerial procedures, based on cultural differences harmonization and will enable collaborative learning based upon shared perspectives and lists of opportunities to target. The successful valorization of open innovation opportunities based upon cross-cultural strategic intelligence is setting new equilibria between short and long term firm interests. It allows superior understanding and early opportunities recognition/capturing and insures a better competitiveness differentiator for strategic behaviour profiling.

The cross-cultural partnerships between Japanese and Romanian high-tech companies addresses the main issues of emergent markets' scanning: finding the right answer to the strategic challenge (fighting or engaging in disruption) and preventing blind spots in gathering disruptive intelligence (Vriens and Søilen, 2014).

This paper is organised as follows: in the first section, dedicated to the comparative analyses reflecting the features of open innovation within Japan and Romania, we highlighted the issues referring to the ways in which open innovation is perceived by the business environments from the two target countries; the second section is a description of our research methodology and tools; in the third section, we presented the main findings of the correlation study, using the facilities provided by SPSS software; in the last section, we presented the conclusions, the limitations of our study, its practical implications and the directions in the future research agenda.

2. THEORETICAL BACKGROUND

Despite the interest in open innovation, a comprehensive review of academic publications in the area does not seem to exist (Elmquist et al., 2009). Open innovation describes an emergent model of innovation in which firms draw on research and development that may lie outside their own boundaries, revealing the fact that valuable ideas can come from inside or outside the company and can go to market from inside or outside the company as well (Chesbrough et al., 2008). Inbound open innovation refers to the internal use of external knowledge, while outbound open innovation refers to the external exploitation of internal knowledge. Two practitioners in this field distinguish between three knowledge processes (knowledge exploration, retention, and exploitation) that can be performed either internally or externally (Lichtenthaler, 2009). The main objectives pursued by open innovation strategies are the following: gaining access to new knowledge, multiplication of own technologies, learning from knowledge transfer, controlling technological trajectories, external exploitation as a core business model and exerting control over the market environment (Kutvonen, 2011).

The open innovation approach overcomes managerial difficulties to understand the dynamics of innovation, through balancing both disruptive and sustaining innovation (Paap and Katz, 2004).

The open innovation approach is compatible with disruptive business-model behaviour, in the following circumstances (Markides, 2006): when companies enter into a new market, where strong competitors have first-mover advantages and when they attempts to scale up an innovative product to make it attractive to the mass market.

Building upon cross-cultural and open innovation approaches, disruptive innovation emerges from a successful combination of

several smaller ideas based on observing the world differently (Assink, 2006).

The concept of open innovation embraces the strategic intent behind the use of both internal and external resources and is defined as the dynamic capability to manage technology both within and outside firms (Suh and Kim, 2012).

The investigation of the reasons for which companies open up their innovation processes is a central issue in this field (Huizingh, 2011). Both offensive reasons (e.g., stimulating business development) and defensive ones (e.g., decreasing costs and risks) are emphasized. Two empirical studies conducted in this way proved that offensive reasons were more important than defensive reasons (Chesbrough and Crowther, 2006; Van de Vrande et al., 2009).

Trends such as outsourcing, agility and flexibility had already forced companies to reconsider their strategies and processes in other areas and to become network organizations, which integrate open innovation into their business model (Gassmann, 2006). A regularly updated technology focused-strategic intelligence process, which presents multiple technologies as options on a technology radar, leads to increased opportunity awareness of external high-potential technologies (Veugelers et al., 2010). The future of intelligence studies in business continues to lie primarily with its symbiosis with new technology (Søilen, 2016).

The openness of the outside-in process in R&D management is of crucial importance for achieving high direct and indirect innovation output effects (Inauen and Schenker-Wicki, 2011). From a strategic perspective, open innovation needs executive level commitment, as this is generally the most important obstacle that companies face in trying to adopt it (Sloane, 2011).

Research undertaken in UK manufacturing firms reveals the lack of firms' openness to their external environment, reflecting organizational myopia and indicating that managers may overemphasize internal sources and under emphasize external sources (Keld and Salter, 2006). The results of a survey undertaken in Spain emphasizes that open innovators are smaller and less R&D intensive than semi-open ones, although larger and more R&D intensive than closed innovators (Barge-Gil, 2010). Another study developed in China has shown how firms' open innovation practices influence the national systems of innovation and how the policy-makers' decisions can foster and speed up open innovation practices (Wang and Zhou, 2012). Generally, open innovation doesn't adversely affect competitive advantage, but the companies whose advantage is driven by barriers to entry, skills in innovation and anticipating customer needs, or that rely on proprietary product designs, can face difficulties in the long term (Reed et al., 2012).

The main findings of a survey focused on the measurement of open innovation outputs support the expectations that the ability to build inter-organizational relationships in a knowledge-rich environment increase the efficacy of inbound open innovation for gaining superior financial performance (Sisodiya et al., 2013). Moreover, open innovation activities strengthen the positive effects of dynamic innovation capabilities on disruptive innovation (Cheng and Chen, 2013).

Regarding innovation measurement, companies are still looking for adequate indicators that monitor the investments and the effects of open versus closed innovation approaches. In this way, there is interesting research that provides relevant answers as to how the adoption of open innovation practices is linked to financial performances of companies (Michelino et al., 2014).

3. PECULIARITIES OF OPEN INNOVATION IN THE TARGET COUNTRIES INVOLVED IN CROSS-CULTURAL RESEARCH: JAPAN AND ROMANIA

Open innovation is in essence a cross-cultural phenomenon, involving dynamic processes of knowledge creation, diffusion and use (Del Giudice et al., 2012). Innovative firms are more successful in international business, putting them into contact with alternative business cultures and open innovation contexts and making them more able to compete internationally (Filippetti et al., 2011). The literature related to open innovation reveals minimal empirical evidence on cross-cultural surveys focused on the assessment of companies' cultural profiles in the context of open innovation practices. A previous cross-cultural survey developed in four countries (Japan, Romania, Tunisia and Turkey) emphasized the distribution of the companies' profiles in four clusters (technology isolationists, technology fountains, technology sponges and technology brokers), but its main limitations refer to the significant gaps in the

distribution of companies on different sectors within the national samples and the lack of correlation tests between specific variables (Yamazaki et al., 2012).

According to Christensen (2016, p .12), "in the period 1970-1980, Japan was quite successful in generating disruptive and market-creating innovations. However, disruptive and market-creating innovations have been disappearing over the last 25 years, because the focus has changed from market-creation to efficiency. The problem is not innovation but management style to support new ideas".

The open innovation approach in Japanese firms is highly related to their capacity to incorporate promising disruptive technologies from inside and outside, in line with their program entitled Impulsing Paradigm Change through Disruptive Technologies (ImPACT).

Open innovation, characterized by using not only in-house but also external R&D resources (Chesbrough, 2003), is perceived as a sustainable competitive advantage by the Japanese companies. According to many opinions, Japan's system of innovation is mainly driven by large corporations, but external collaboration in R&D has been developed and promoted at a large scale in the last decade. Capturing opportunities for managing internally, all R&D resources became a trend for Japanese high-tech companies. The intelligent positioning of Japanese high-tech firms resides on two pillars: searching for future growth potential through open innovation, and installing itself into new markets through globalization (Motohashi, 2011).

The Innovation Network Corporation of Japan (INCJ) insures a long-term partnership between the Japanese government and major high-tech corporations. INCJ encourages open innovation, providing patterns for how to strategically move technology and expertise beyond the boundaries of existing organizational structures. One of the most important roles played by INCJ is to conduct targeted research in order to facilitate successful collaborative innovations in an open context (Lippitz, 2012).

The long-term cooperation between high-tech firms is already specific and can be considered to be a pattern for Japanese firms; SMEs became aware of the fact that technology plays an important role in their business models and they found solutions to support open innovation.

Making sense of contractual incompleteness, pertinent analyses related to Japanese SMEs regarding open innovation, focuses on the real challenge to unambiguously deal with foreseeable contingences: whether open cooperation can be constructed, whether cooperation among organizations can be formed, who bears costs for constructing collaboration, and whether mutual trust can be formed (Idota et al., 2012).

A recent survey conducted in Japan proposes and tests a model of innovation process management used to clarify the managerial strategies required to achieve it in Japanese enterprises (Ota et al., 2013). The authors found specific practices and capabilities that were statistically significant in Japan's manufacturing companies. The importance of structured process in the Japanese manufacturing sector was confirmed, comprising scanning, idea occurrence, strategy formulation, resource procurement, implementation and value creation.

The results of a survey conducted on 180 European companies show that inbound open innovation is more commonly used than outbound open innovation, which can be explained by insufficiencies in the market or the organization, confirming its role as a complement for internal R&D (Schroll and Mild, 2011). The firms operating in emerging economies need not necessarily rely on entrepreneurial behaviour to sustain business growth, although involvement in open innovation may enhance business performance (Chaston and Scott, 2012). The emerging countries with weak capabilities, in both firms and national systems of innovation, have the opportunity to employ the open innovation approach in order to accelerate their technological learning and development (Wang et al., 2012). In this context, the integration in the European Union has changed the managerial mentalities within Romanian companies, which previously assigned less importance to R&D activities. However, a significant lag between open innovation and technology transfer is still reminiscent in the Romanian business culture (Borcea and Fuica, 2012).

Regarding the propensity of emerging economies to engage in successful cross-cultural partnerships with developed countries, consistent evidence relies upon rethinking the core causality of making poorly stimulated innovation policy and fragile SME organizational capabilities.

Re-contextualization should focus on understanding new causal factors, which best fit the socio-economic context and organizational capabilities, in order to overcome obvious technological gaps between developed countries versus emergent ones (Karo and Kattel, 2011).

The performances related to Romania's innovation system remains are smaller, when compared to other EU countries. Positioned in a cohort of 'catching–up' countries, Romania's economic background is characterized by a positive economic trend, mainly based on low cost labour and low value-added exports; the big problem and challenge, at the same time, is represented by the low level of innovation infrastructure, at an early development stage. PRO INNO Europe highlights that Romanian innovative companies are less than a fifth of the country's total number of active firms. The profile of a Romanian innovative is the following: SME, operating in the software industry, in internet and new media. The low level of public funding for innovation (only 10% of innovative firms receive funding), correlates to very low levels of innovation expenditures (in most cases, they don't exceed 3% of innovative firms' turnovers) explain the reality in Romania's innovative business landscape. Although significant progress has been made in order to foster the weak innovation culture in the country, further measures are needed to increase the application of R&D results by business and to turn innovation into a driver of national competitiveness.

A recent study focused on the perspectives of the Romanian SME sector in the context of innovation and knowledge creation (Purcarea et al., 2013). It emphasizes a learning orientation related to innovation, using best practices within the organization and networking with external partners as internal sources for learning, whereas in terms of external support for learning, SMEs consider changes that take place in the market, changes in technology and the input from experts and consultants.

Many Romanian entrepreneurs, endowed with disruptive innovation potential, are not able to perform optimally, as there is a lack of access to relevant market information for attracting investment flows, which can finance their innovations.

4. RESEARCH METHODOLOGY

In order to achieve the research goal, we designed and developed a questionnaire as the main research tool focused on data collection, in which 20 questions (items) were grouped in four categories, corresponding to the four types of open innovation cultures (Figure 1).

The five items focused on technology fountains reveal a low attractiveness for external technology sourcing and implicitly a high degree of independence of technology to different providers, associated with a high interest for commercialization strategy of the company's internally developed technologies, without concern for losing control over them.

The five items focused on technology sponges emphasize an improvement of the internal innovation process by means of acquiring technology from external sources as a result of strategic intelligence mechanisms, correlated with internal agreements which don't allow the IP transfer to other companies.

The five items focused on technology brokers reveal the situations in which companies proceed to external technology acquisitions in order to the improve the R&D process and internal technology selling in order to provide additional revenue.

The five items focused on technology isolationists highlight the situations in which companies benefit from the technologies developed internally and retain full control of their intellectual property, preventing other organizations from making a profit from their technologies.

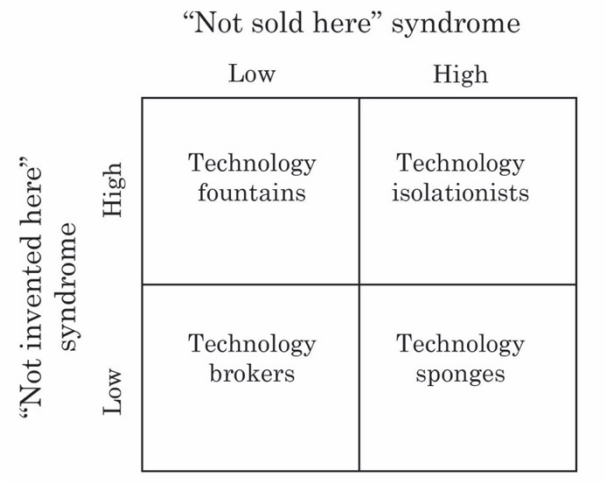

Figure 1 Four clusters of companies' profiles in the context of open innovation. Adapted from Lichtenthaler et al., 2011.

We sent the questionnaire to a convenience sample formed of Japanese and Romanian companies from the fields of manufacturing and IT. Questionnaires were transferred to the selected participants through electronic mail system, including our commitment to respect the confidentiality and anonymity of the answers. Each questionnaire's results were

processed by means of an automatic coding scheme in SPSS software, in order to avoid data input errors. Finally, 80 returned questionnaires per country were stored in a SPSS database, after eliminating the incomplete answers. The structure of the sample was the same in the two target countries: 40 companies from the manufacturing field, as well as 40 companies from the IT field.

Consequently, two hypotheses were proposed to be tested by means of appropriate statistical methods.

H1: In the case of Japanese companies included in the sample, their profiles (technology fountains, technology sponges, technology brokers and technology isolationists) are positively related to the field in which they are operating (IT or manufacturing).

In this situation, the independent variable is represented by the Japanese companies' profiles, while the field in which these companies are operating reflects the dependent variable.

H2: In the case of Romanian companies included in the sample, their profiles (technology fountains, technology sponges, technology brokers and technology isolationists) are positively related to the field in which they are operating (IT or manufacturing).

In this situation, the independent variable is represented by the Romanian companies' profiles, while the field in which these companies are operating reflects the dependent variable.

The statistical methods that we used in order to test the hypotheses are chi-square, Pearson's R and Spearman coefficients of correlation. The chi-square test is applied in order to determine whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories. The use of the chi-square test involves the design of two hypotheses: the null hypothesis states that there is no significant difference between the expected and observed frequencies, while the alternative hypothesis states they are different. The level of significance (the point at which we can say with 95% confidence that the difference is not due to chance alone) is set at 0.05. The Pearson's R correlation coefficient is a useful descriptor of the degree of linear association between two variables, having two key properties of magnitude and direction. When it is near zero, there is no correlation, but as it exceeds -0.1 or 0.1 there is a negative or positive relationship, respectively, between the variables; if they are close to - 1 or +1, there is a strong negative or positive relationship between the variables. The sign of the Spearman correlation coefficient indicates the direction of association between the independent variable and the dependent variable. If the dependent variable tends to increase when the independent variable increases, the Spearman correlation coefficient is positive; otherwise, the Spearman correlation coefficient is negative. A Spearman correlation coefficient near zero indicates that there is no tendency for the dependent variable to either increase or decrease when the independent variable increases.

5. FINDINGS AND DISCUSSIONS

The use of the descriptive statistics methods, on the one hand, and the illustration of the in-depth analyses of the research results, on the other hand, involved the distribution of the respondents' answers in two contingency tables, reflecting the correlations between companies' profiles and the fields where they operate, in the case of each target country.

The distribution of research results corresponding to the first hypothesis involved the design of a contingency table with double entry, which allows the classification of the observed frequencies (Table 1).

Table 1 Contingency table associated with the first hypothesis test (H1).

Cross-tabulation results		**Field**		**Total**
		IT	Manufacturing	
Japanese companies' profiles	Technology fountain	11	16	27
	Technology sponge	10	6	16
	Technology broker	15	9	24
	Technology isolationist	4	9	13
	Total	40	40	80

Table 2 First hypothesis tested by the chi-squared method.

Indicator	Value	Degrees of freedom	Asymptotic significance
Pearson chi-square	5.349	3	0.148
Likelihood ratio	5.432	3	0.143
Linear-by-Linear Association	0.010	1	0.919
Number of valid cases		80	

Table 3 First hypothesis test by means of Pearson's R and Spearman correlation coefficients. [a] Not assuming the null hypothesis, [b] Using the asymptotic standard error assuming the null hypothesis, [c] Based on normal approximation. Int = interval, Ord = ordinal.

Symmetric Measures		Value	Asymptotic Std. Error [a]	Approx. T[b]	Approx. Sig. [c]
Int. by Int.	Pearson's R	-0.011	0.112	-0.101	0.920
Ord. by Ord.	Spearman Correlation	-0.020	0.114	-0.174	0.862
Number of Valid Cases			80		

Table 4 Contingency table associated with the second hypothesis test (H2).

Cross-tabulation results		Field		Total
		IT	Manufacturing	
Romanian companies' profiles	Technology fountain	7	6	13
	Technology sponge	11	12	23
	Technology broker	16	5	21
	Technology isolationist	6	17	23
Total		40	40	80

As we can observe from Table 1, the majority of the Japanese companies included in the sample are identified as technology fountains, followed by technology brokers, proving other empirical findings which emphasize the adoption at a large scale of open innovation in Japanese high-tech companies. By taking into consideration the field in which these companies are operating, we can observe that technology fountains and technology isolationists are more common in manufacturing, while technology sponges and technology brokers are more common in the IT field.

We can state that the results are relevant to the reality of the Japanese economy, in the context in which all the players from the business environment are aware of the opportunities to boost technology, in order to promote open innovation. The systematic approach of open innovation led Japanese companies to gain permanently sustainable advantages, being able to successfully expand internationally.

The results correspond to the test of the first hypothesis. The results of the cross-tabulation process using the respondents' answers stored in the SPSS database are revealed in Tables 2 and 3.

In this case, the value associated to the asymptotic significance (0.148) is higher than the level of significance (0.05) and the Pearson Chi-Square value (5.349) is lower than the chi-squared value corresponding to the statistics table (7.82), with three degrees of freedom; consequently, the hypothesis is rejected, so the profiles of the Japanese companies included in the sample are not influenced by the field in which they are operating (IT or manufacturing).

Table 5 Second hypothesis evaluated by means of a chi-squared test.

Indicator	Value	Degrees of freedom	Asymptotic significance
Pearson's chi-square	11.143	3	0.011
Likelihood ratio	11.662	3	0.009
Linear-by-linear association	1.588	1	0.208
Number of valid cases		80	

Table 6 First hypothesis test by means of Pearson's R and Spearman correlation coefficients. Int = interval, Ord = ordinal.

Symmetric measures		Value	Asymptotic std. error	Approx. T	Approx. sig.
Int. by int.	Pearson's R	0.142	0.110	1.265	0.210
Ord. by ord.	Spearman correlation	0.146	0.113	1.303	0.197
Number of valid cases			80		

The results of the first hypothesis test process are also validated by Pearson's R and Spearman correlation coefficients (Table 3), because their values (-0.011, respectively -0.020) are negative, but situated near zero, emphasizing the lack of correlation between the independent variable (Japanese companies' profiles) and dependent variable (the field in which the companies are operating).

We view the Pearson's R and Spearman correlation coefficients as useful descriptors of the degree of linear association between the variables related to the research conceptual model, as they revealed the lack of correlation between the variables.

The distribution of research results corresponding to the second hypothesis involved the design of a new contingency table with double entry, which allows the classification of the observed frequencies (Table 4).

The in-depth analysis of the research results outlines the fact that, in the case of the Romanian companies included in the sample, their profiles correspond mostly to technology sponges and technology isolationists, unlike the companies from Japan, focused to a great extent to the other two profiles. Moreover, we can observe high discrepancies in what concerns the distribution of the companies' profiles in the technology broker and technology isolationists clusters; in the first case, the majority of firms belong to the IT field, while in the second case, the majority of firms belong to the manufacturing field. These findings can be explained by taking into consideration the fast development of the Romanian IT and software services industry, as a result of open innovation adoption; in the situation of Romanian manufacturers, we still perceive a resistance towards open innovation, reflected in a high number of technology isolationists, which can be associated with a reduced appetite for risk.

The results corresponding to the test of the second hypothesis, after the configuration of the cross-tabulation process using the respondents' answers stored in the SPSS database, are shown in Tables 5 and 6.

In this particular situation, the value of the asymptotic significance (0.011) is lower than the level of significance (0.05) and the Pearson's chi-squared value (11.143) is higher than the chi-squared value corresponding to the statistics table (7.82), with three degrees of freedom; the hypothesis is accepted, so the profiles of the Romanian companies from an open innovation perspective are positively related to the field in which they are operating (IT or manufacturing).

The results of the second hypothesis test process are also validated by Pearson's R and Spearman correlation coefficients (Table 6), because their values (0.142 and 0.146,

respectively) are positive, emphasizing the fact that the dependent variable (the field in which the Romanian companies are operating) tends to increase when the independent variable increases (the number of Romanian companies' profiles in a certain cluster).

Another assumption is that there is a monotonic relationship between the independent and dependent variables, determined by the existence of relevant gaps in the distribution of Romanian companies' profiles in the technology broker and technology isolationist clusters, as well as minimal differences in the case of the other two clusters.

6. CONCLUSIONS, MANAGERIAL IMPLICATIONS AND FUTURE RESEARCH AGENDA

Tracking high tech innovation partnerships' practices of cross-cultural collaboration, while being aware of open innovation opportunities for capture, it's compelling to assume causally contrasting elements are challenging for setting the leveraging role of coming strategic intelligence configurations.

Nevertheless, the current research efforts to test theory building in searching for pertinent constructs to validate the above hybrid approach, are upgrading previous coherent relevant insights, exploring partnership coordination mechanisms—capable of overcoming cultural dissonance—while capitalizing upon open innovation opportunities.

As main challenge is culturally specific, we assert that strategic intelligence solutions—as part of managerial communalities—should be designed and deployed through the hybrid organization's internal environment adjustment, focus on cooperation perspective and not on "fixing the gaps" perspective, which is more consistent with open innovation principles. We understand that by managerial communality the cross-cultural coordination mechanism (agreed between partners)—which is considered a strategic intelligence solution—can take advantage of the cultural differences, as opposed to minimizing the gap.

The above considerations also support that open innovation approach is matching the emergent new managerial models, such as "harmocracy." The principles of both of these are common. The educated collaborative practices are evolving toward enlightened management, capable of channeling the valorisation of open innovation opportunities through a communion of scope strategy, expectations, strategic scope and results.

The results provided by the hypothesis analyses are representative of the development stages of the two target countries. Japan is one of the highly developed countries, while Romania is still in transition towards a competitive economy. Moreover, they are coherent with the actual stage of the global economy, affected by the effects of the financial and economic crisis (with important consequences in the field of business efficiency, operating cost cuts and revenue increases).

Thus, from an innovation perspective, both countries are characterized by appreciatively similar distributions of the companies from the research sample in the "technology brokers" cluster. This is proof that the financial and economic crisis forced companies, regardless of their country, to reduce operating costs (with the adoption of innovative technologies being a solution) and to increase revenue regardless of their nature. In Romania, the companies from the IT field are more aware of the benefits of open innovation than the companies from manufacturing, as they are part of an industry less affected by the crisis.

A significant number of companies included in the technology sponges cluster can be found in both target countries (approx. 20% from the Japanese sample and 29% from the Romanian sample). The fields in which the companies act is not relevant for the behaviour in these countries, as there are firms with important financial resources which don't pay attention on the short term to the opportunities related to revenues increases. Only the evolution of the macroeconomic factors will or will not support such a behaviour.

The situation of the companies included in the final two clusters, technology fountains and technology isolationists, is the opposite. In Japan, fountain-type behaviour is more diffuse, being characteristic of a developed economy based on leading technologies. In Romania, there are more isolationists, especially in the manufacturing field, as a consequence of the fact that gathering competitive advantages is possible only by means of an isolationist behaviour regarding selling or acquiring advanced technologies.

The cross-cultural partnerships between Japanese and Romanian companies should be built upon two pillars: transfer of disruptive technologies in an open innovation context and Romanian high-tech companies' capability to learn from Japanese high-tech companies'

knowledge and anticipative capability. Anchoring disruptive intelligence in a cross-cultural context enlightens strategic trajectories towards opportunities to create entirely new markets.

The first vulnerability to highlight is the level of accuracy in terms of predictability in the case of an obvious gap in the development stage model of the country and open innovation profiling behaviour. A better differentiator could be identified by setting output variables of open innovation to: the number of patents of each sector, intra-sectorial synergies, and the span and degree of globalization captured opportunities of each sector, for example.

A qualitative approach of crisis consequences must be performed. In this way, we advance the hypothesis that open innovation and cost shrinking correlation is debatable, as it is obvious that open innovation becomes the solution for emergence from the economic crisis.

We are also aware that open innovation is generating high transaction costs and it is requiring specific managerial coordination and limited transferable organizational practices: it is emerging in a new generation of managerial models, with more appropriate practices, which insure the alignment of open innovation opportunities with strategic behaviour profiling.

It is hard to imagine how it will change the behaviours of the IT and manufacturing firms from these two countries towards innovation. If short-term change is predictable, as our research reflects, on the long term the behaviour of these companies will face factors such as advancements in IT evolution as well as the development of the economies of the two countries. Due to these issues, a longitudinal research project will be conducted after two to three years in order to verify the pertinence of the hypotheses tested above. At this point, we will be available to assess other types of behaviour towards innovation, which weren't emphasized and formalized in this research.

We encourage future cross-cultural research in order to investigate more deeply the links between open innovation practices in different countries. In particular, we will try to build a collaborative research network by addressing invitations to researchers interested in approaching this topic to attend a cross-cultural survey. Empirical, comparative and co-relational analyses of behaviours towards open innovation in various countries could be one way of discovering which open innovation practices influence the national systems of innovation.

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