Opportunities Provided by the Design of a Website Focused on the Promotion of Collaborative Projects Within European IT Industry

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Abstract. Our paper emphasizes the opportunities provided both for the academic research and business partnerships by the design of a website which promotes the collaborative projects within European IT industry. From the academic perspective, the companies registered in the website database will represent the sample for different researches focused on cross-cultural interactions, intellectual capital components and competitive intelligence strategies. From the business perspective, the registration of the companies will allow the access to the list with all the potential future partners' in the field of software development. In the first part of the paper dedicated to literature review, we highlighted the main types of IT collaborative projects; then, we presented the tools provided by the website that was designed in view to increase the awareness of the European IT companies. In the last part of the paper, we tested by means of chi-square statistical method the correlation between R&D investments and average length of time for software design in the case of a sample of 58 IT companies included in the database. We also revealed our future research intentions related to the domain of IT partnerships patterns.

Keywords: collaborative project, IT industry, web promotion strategy, intelligence

JEL Code: M15, O19

1. Typology of IT partnerships developed within practical business approaches

Many software companies make intensive, highly-customized selling efforts in order to compete on a globalized market characterized by turbulence and hyper competition. The success in a service-oriented business such as software development is dependent on two fundamental assets – relationships and reputation. The main forms of partnership in the software industry are based on outsourcing projects, mergers and acquisitions (M&A) and research and development (R&D) alliances.

The research on IT outsourcing has generated a good understanding of the practice. Overall, we learned why IT companies outsource (mostly to reduce costs, access resources, and focus internal resources on more strategic work), what companies outsource (mostly a portion of their overall IT portfolio), how companies outsource (mostly by formal processes), and IT outsourcing outcomes as measured by realization of expectations, satisfaction, and performance. More recently, much of the academic research has focused on offshore outsourcing. Offshore outsourcing research addresses macroeconomic issues, supplier capabilities in developing countries, and both client and supplier practices to ensure success. (Lacity M. et al., 2009)

The most important reason why the IT companies appeal to outsourcing is the cut of the exploitation costs. Moreover, the IT companies that focus their business on innovations must support larger expenses for research, development and marketing. The access to a more profitable structure from the costs point of view offered by an external provider, as well as the advantages due to the specialization are actually the most important tactical reasons for which the companies appeal to outsourcing.

Besides the outsourcing partnerships, the global projects within IT industry involve research and development alliances. Research and development is nowadays of great importance in business as the level of competition, production processes and methods are rapidly increasing. It is of special importance in the field of software industry, where companies assess their competitors' forces and customers' needs in order to keep pace with modern trends.

Strategic partnering within research and development alliances is not just about complementary technologies and the spreading of risk: it is about improving the long-term product-market positioning of the firms, or indeed simply maintaining their product-market positioning. Strategic partnering affords firms a chance to pre-empt competition, in addition to allowing the partners to evaluate the capabilities of the partner firm. (Narula and Santangelo, 2007)

A definition provided by wikipedia.org outlines that mergers and acquisitions (M&A) refers to the aspect of corporate strategy, corporate finance and management dealing with the buying, selling, dividing and combining of different companies and similar entities that can aid, finance, or help an enterprise grow rapidly in its sector or location of origin or a new field or new location without creating a subsidiary, other child entity or using a joint venture.

If we refer to the peculiarities of the IT industry, when one company takes over another and clearly established itself as the new owner, the purchase is called an acquisition. From a legal point of view, the target company ceases to exist, the buyer "swallows" the business and the buyer's stock continues to be traded. In the pure sense of the term, a merger happens when two firms, often of about the same size, agree to go forward as a single new company rather than remain separately owned and operated. (http://www.investopedia.com)

While certain types of cooperation such as joint ventures, strategic alliances, or licensing agreements have been observed in the industry for quite some time, more recently new forms of cooperation can be observed. Many of the large providers of integrated application systems have begun to actively foster partnership networks. (Arndt et al. 2009)

Karl Popp highlights in his website dedicated to innovative partnership models in software industries the following types of collaborative projects. (table no.1)

Partnership model	**Resell**	**Revenue Share to Partner**	**Referral Program**	**Outbound OEM**	**Certified Solution**
Pricing	Partner	Your company	Partner	Your company	Your company
Branding	Co–branding or partner-branding	No co-branding	Partner-branding	No co-branding	No co-branding
Customer control	Partner	Jointly	Partner	Your company	Your company
Quality assessment by partner	Yes	Yes	Yes	Yes	No

Source: http://www.drkarlpopp.com/PartnerModelsintheSoftwareIndustry.html

We will discuss in the next paragraph the main features of these collaborative partnerships. In the case of **resell** strategy, the products developed within the software vendor are supplied to a resell partner, which is involved in the selling process oriented to the final customers. **Revenue share** consists in a partnership where the software vendor endorses the product of the revenue share partner; if the customer buys the partner´s product, the software vendor gets a share of the partner´s revenue. It is also known as the practice of sharing operating profits with a company's employees, or of sharing the revenues resulting between companies in an alliance.

Referral means that the software vendor has outsourced lead generation to a partner company. Within this partnership, the software vendor pays a referral fee to the partner for a qualified lead or a closed deal with the lead.

OEM stands for "original equipment manufacturer" and OEM software is a phrase that refers to software that is sold to computer builders and hardware manufacturers (OEMs) in large quantities, for the purpose of bundling with computer hardware. In the case of an OEM scenario the software vendor provides software to the software partner. The software partner sells the OEM software as part of his solution. Usually, the software partner charges no price for the OEM software, but for his solution.

In the context of actual software solutions market, the clients are looking for minimizing their integration cost. To proof that the integration between two software solutions is significant, software vendors are offering **certified solutions**. Certification allows competition between software partners to keep prices low while certification increases integration quality.

2. The presentation of the website dedicated to the promotion of IT collaborative projects at the European level

The main *goals* of the design and implementation of the website: http://www.e-europe-it-collaborative-projects.eu (figure no. 1) are the following:

- the promotion of the collaborative projects between Romanian IT companies and IT companies from the other European Union countries;
- the increase of the awareness of the European IT companies by means of their involvement in collaborative cross-cultural interactions provided by a specialized on-line network;
- the promotion of the open innovation across the European companies involved in software development.

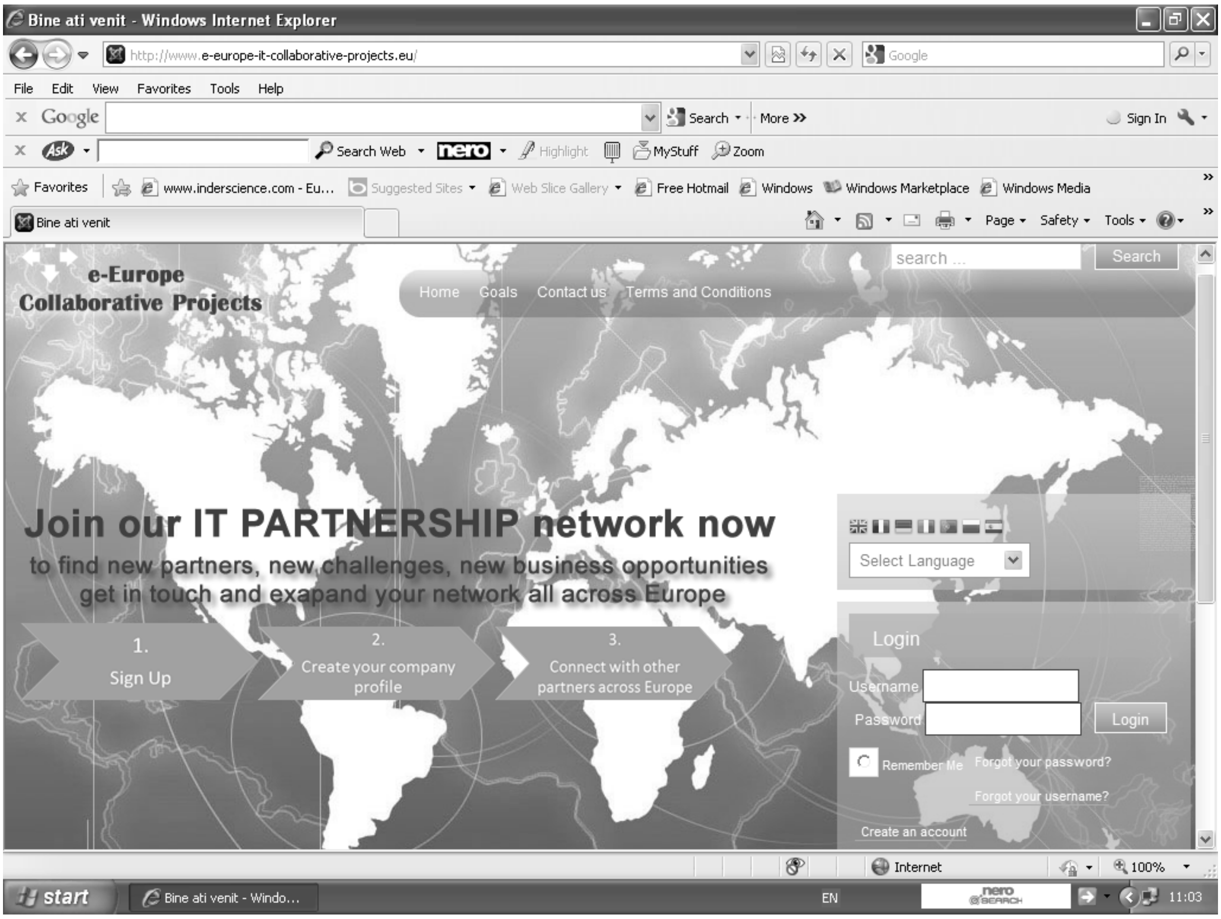

Figure no. 1 – The home page of the website dedicated to the promotion of IT collaborative projects at the European level

In order to join this IT partnership network which promotes the collaborative projects, the users must register; they are informed in the menu *Terms and conditions* that the registration is free and provides the opportunity to access the database uploaded with all the registrations of their potential future partners; in the same time, their e-mail addresses stored in the database will be not sold or rented.

The *registration* is available in seven languages and also respects the principles of Permission Marketing – opt-in, double opt-in and opt-out.

When the companies' representatives log in their account created on this website (after the registration process is complete), another two menus become available: *Add your company* – where they can fill a form which provides information about their company's description, profile and collaboration domains (outsourcing, mergers and acquisitions, research and development alliances, becoming sales representatives, other interest domains) and *List Partners* – where they can visualize all the registered companies within network database.

The website also provides a voting system (figure no. 2) which is permanently updated with new questions. We are interested in the assessment of cultural gaps between the companies from all over the Europe, included in the database.

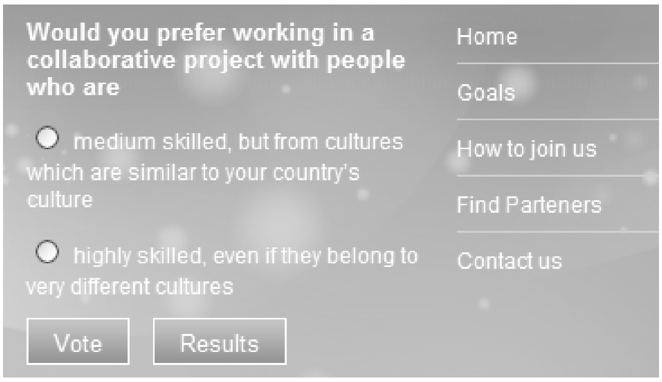

Figure no. 2 – Example of question posted on the website

When we designed this website, we were conscious about the opportunity to develop academic researches, the sample being represented by the companies registered in the database. In the next section of this paper, we will reveal the results of a survey that we undertook by means of a question posted on this website.

3. The correlation between R&D investments and average length of time for software design

Taking into account the answers of 58 companies' representatives to a question posted on the website, we were able to test the following hypothesis:

H_1: An increase of R&D expenses which will be focused on innovative solutions is strongly related to a lower average length of time for software design.

We indicated to the companies' contact persons some different levels of R%D expenses and their possible correlation with the decrease of the average time for software design. (table no. 2) The statistical tool which allows the test of this hypothesis was represented in this case chi-square method.

The use of 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 you can say with 95% confidence that the difference is not due to chance alone) is set at 0,05.

The chi-square formula is described below:

$$\chi^2 = \Sigma\,\Sigma\,[\,(\,Oij - Aij\,)^2\,/Aij\,]$$

where: "r" and "k" – the number of rows, respectively columns of the contingency table.
Oij – frequencies related to the row "i" and the column "j" which results through observation;
Aij - frequencies related to the row "i" and the column "j" which results by means of the null hypothesis.

The application of chi-square test in the case of H_1 involves the design of a new contingency table with double entry, which allows the classification of the observed frequencies. (table no. 2)

Table no. 2
Contingency table for H_1 test (observed frequencies)

Average time for software design / **R&D expenses level**	Decrease with less than two weeks	Decrease between two and four weeks	Decrease with more than four weeks	**TOTAL**
Increase of R&D expenses between 0-9%	17	9	5	**31**
Increase of R&D expenses between 10-19%	8	7	6	**21**
Increase of R&D expenses with more than 20%	0	1	5	**6**
TOTAL	**25**	**17**	**16**	**58**

Null hypothesis associated to the second research hypothesis – H_0 : An increase of R&D expenses which will be focused on innovative solutions **doesn't significantly influence** the decrease of the average length of time for software design.

The expected frequencies in the context of null hypothesis associated to H_1 hypothesis are emphasized in table no. 3

Table no. 3

Expected frequencies in the context of null hypothesis resulted from the contingency table for H_1

Average time for software design / **R&D expenses level**	Decrease with less than two weeks	Decrease between two and four weeks	Decrease with more than four weeks	**TOTAL**
Increase of R&D expenses between 0-9%	(25x31)/58=**13,36**	(17x31)/58=**9,09**	(16x31)/58=**8,55**	**31**
Increase of R&D expenses between 10-19%	(25x21)/58=**9,05**	(17x21)/58=**6,15**	(16x21)/58=**5,79**	**21**
Increase of R&D expenses with more than 20%	(25x6)/58=**2,58**	(17x6)/58=**1,75**	(16x6)/58=**1,65**	**6**
TOTAL	**25**	**17**	**16**	**58**

$\chi^2 = \Sigma\,\Sigma\,[(Oij - Aij)^2 / Aij]$

χ^2 (resulted in the context of $\boldsymbol{H_1}$) = $[(17- 13,36)^2/13,36] + [(9 - 9,09)^2/9,09] + [(5 - 8,55)^2/8,55] + [(8 - 9,05)^2/9,05] + [(7 - 6,15)^2/6,15] + [(6 - 5,79)^2/5,79] + [(0 - 2,58)^2/2,58] + [(1 - 1,75)^2/1,75] + [(5 - 1,65)^2/1,65]$

χ^2 (resulted in the context of H_1) = 0,99+0,0008+1,47+0,12+0,11+0,007+2,58+0,32+6,80

$\boldsymbol{\chi^2}$ **(**resulted in the context of H_1**) = 12,39**

$\boldsymbol{\chi^2}$ (corresponding to the table, by considering four freedom degrees) **= 9,49**

χ^2 (resulted in the context of H_1) > χ^2 table => **null hypothesis is not confirmed** => An increase of R&D expenses which will be focused on innovative solutions **is strongly related** to a lower average length of time for software design.

4. Conclusions and future research

The software industry is nowadays clearly dominated by a few global companies involved in different forms of partnerships and it has become common practice among customers to focus on a base system from one of these key players in the industry. Providing innovative functionalities within collaborative projects, the IT companies are looking for the need for complex, cross-solution integration. The success of the providers of these collaborative solutions even reinforced the consolidation process on the market.

We consider that the website that we designed will be able to promote the "brainware" intelligence capabilities of all the companies which will accept to join this collaborative network. The involvement of the Romanian IT companies in different partnership projects will determine a lower effect of brain drain.

As future researches focused on the IT companies included in this website database, we intend to develop cross-cultural surveys, by evaluating the cultural profiles of the IT companies and to extend the research on the intellectual capital components that we launched in this paper (the correlation between R&D investments and average length of time for software design), by testing other two hypothesis, corresponding to the correlation between the increase of the training expense per employee and the higher capability to develop creative ideas, on the one hand, and the correlation between the increase of the proportion of employees working as software testers and the lower rate of customers' complaints, on the other hand.

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