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INTANGIBLE CAPITAL IN A TRANSITION ECONOMY- IMPROVEMENTS AND CONSTRAINTS: AN ANALYSIS OF SERBIAN FIRMS

BOŽIDAR CEROVIĆ*
SANJA MITIĆ
ALEKSANDRA NOJKOVIĆ
University of Belgrade, Serbia

Abstract
During the 1990s Serbian economy stayed on the margin of major investment flows, technology progress and businesses in international markets. In view of the deficiency in capital except for some FDI, we analyse to what extent Serbian economy can develop some other resources, such as human capital, internal relations, management and marketing skills, innovations and other fields perceived as intangible capital elements. Analysing a total of 71 firms we attempt to identify whether the role of intangible assets was recognised within the firms and – according to the results obtained – to recommend some policy measures. The paper addresses three major issues: (i) human capital accumulation including internal relations, (ii) external relations, as well as (iii) innovation, R&D and competencies.

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**Corresponding Author:* Prof. Božidar Cerović, University of Belgrade, Faculty of Economics, Kamenicka 6, 11000 Beograd, Serbia. e-mail: cerovi@ekof.bg.ac.rs

1. Introduction

In this paper we are presenting an overview of some basic findings from broader research aimed at defining the role of intangible capital as a factor of firms' competitiveness in Serbian economy. Our main objective is to identify to what extent the notion of intangible capital is recognised in an economy that has gone through profound though delayed institutional changes on its way to a market economy. We start from the premise that some aspects of intangible capital could be an available resource even when there is a lack of financial means and a lower level of investments in physical capital, both specific characteristics of a transition economy. Since the importance of intangible capital has been broadly studied in literature[1], followed by ample empirical evidence concerning its positive impact on firms' performance[2], we find that under certain conditions it can become an important source of competitiveness in transition economies. However, it seems that this idea is still at a rudimentary level due to various constraints identified. Based on the survey responses we shall also attempt to identify to what extent FDI inflows and foreign owned companies could give local firms an incentive to invest in intangibles, what FDI spillovers could be expected in the sector of intangibles and to what extent an export led growth model –until recently rather neglected in transition economies– could help accelerate adoption of contemporary management practices, relational and social capital growth and R&D development.

The paper is structured in nine sections. After the introduction, we present the principal methodology of our research that is based upon a survey of a sample of 71 Serbian firms (section 2). In section 3 we deal with human capital, in particular with upgrading employees' skills and competences. Section 4 is devoted to internal relations within the firms analysed in the context of (i) decision making, (ii) position of labour and (iii) effects on workers' loyalty and satisfaction. Section 5 deals with external relations and includes relationships with (i) business buyers, (ii) consumers, (iii) competitors and (iv) suppliers. In sections 6, 7 and 8 we analyse investments in innovation, research and development (R&D) and competences. Finally, in section 9 we summarise our findings and offer some policy advice that could foster investments in intangible capital in the country.

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1. See e.g. Johanson *et al.*, (2001); Lev, (2001, 2005); Lev and Zambon, (2003); Corrado *et al.*, (2006, 2009); Perrini and Vurro, (2010), Conlon *et al.*, (2012).
2. See for emerging economies: Indonesia (Hidayati *et al.*,2012), Taiwan (Tseng and Goo 2005), Albania (Prasnikar, *et al.* 2012), Slovenia (Prasnikar, ed., 2010), Brazil (Dutz, 2012); see for developed economies: Brynjolfsson *et al.*, (2002); Youndt and Snell, (2004); Pike *et al.* (2005); Global Intangible Tracker, (2007); Van Ark, *et al.*, (2009); Roth and Thum, (2010), Kuznar, (2012); Corrado and Hao (2013) etc.

2. Research Methodology

We have conducted a survey of a sample of 71 Serbian firms from the end of 2012 and throughout 2013. The survey is a part of broader research on intangible capital and it is based on a questionnaire developed by Prasnikar *et al.* (2012) with some adjustments made by researchers from the Faculty of Economics in Belgrade. In order to become familiar with the questionnaire, the companies observed received it first in a hard copy form by mail. The questionnaire was answered by each company's CEO, financial and/or HR manager. In some cases, researchers complemented the questionnaires received with some data from the Serbian Business Registers Agency and Intellectual Property Office.

Due to the limited resources of the research team the sample of firms was chosen using the snowball method, that is, the sample was not chosen randomly. However, we tried to capture the most typical structure of Serbian firms by industry, albeit with an increased share of larger companies. In our analyses we shall be particularly interested in whether there are some differences in firms' behaviour and their understanding and investing in intangible capital associated with the (a) field of business activity – manufacturing of tangible goods *vs.* services; (b) owners' origin – foreign *vs.* local; (c) internationalisation of their businesses; (d) size of firms. We present these basic structural elements of the sample in Table 1 below.[3]

Table 1. Sample structure

	Number of firms	% of firms
Total	71	100%
Type of business activity		
Manufacturing (and similar)	46	65%
Services	25	35%
Ownership		
Foreign owned	17	24%
Domestic owned	54	76%
Internationalisation of businesses		
Exporters	52	73%
Non-exporters	19	27%
Size of firms		
Small (< 50 employees)	26	37%
Medium (50<employees<200)	22	31%
Large (>200 employees)	23	32%

3. Regarding the scope and the structure of our sample, including the sampling method, it should be noted that our preliminary analysis was based on the results received from 41 firms (v. Cerovic *et al.* 2014). Since all basic findings are almost the same or, at least, very similar to those for the actual sample of 71 firms, we find the choice and the scope of the sample to be acceptable and correctly structured.

As presented above, the sample consists of 46 manufacturing firms and those that produce tangible goods (65%), while 35% of sample firms are from the service sector. There are 17 companies owned by foreign capital (FOFs), while the major part of the sample (76%) is represented by domestically owned companies (DOFs). As to the size of firms, in the sample we used the number of employees as the main criterion, with an approximately equal share of small (defined as firms with under 50 employees), medium (50-200 employees) and large firms (over 200 employees). As already stated, these proportions/ratios were intentionally selected in order to better assess and compare the behaviour of the three groups of enterprises. Similarly, and for research purposes, the sample was intentionally biased in favour of manufacturing and exporting companies (exporters are defined as firms that earn at least some fraction of their sales revenue in foreign markets; in further analyses we shall also explore whether there are differences between larger exporters that earn at least a third of their revenue in foreign markets *vs.* all other firms).

In this paper we present our preliminary results and the analysis relies mostly on descriptive statistics. Whenever possible, our analysis is accompanied by simple statistical testing and it is partially enhanced by probit models estimations.

3. Human Capital

In this section we explore how much firms invest in human capital by organising, developing and improving various training courses and by elaborating on-the-job training practice. We also explore whether firms introduce adequate compensation systems that give workers an incentive to develop their skills. In Table 2 some basic responses to the questions concerning the issues mentioned are presented in regard to (i) the firm ownership type and (ii) the firm size.

As seen from the table above, we firstly, explore whether there are organised forms of training, what the scope of these training practices is (did they involve more than 50% of employees during the previous year?) and how firms measure the effects of such training (apart from general overviews).

Looking at the results obtained, it is evident that an overwhelming majority of firms (81.4%) have reported at least some organised form of training. However, it is remarkable that FOFs lead in this activity (100%) when compared to DOFs (75.9%) the difference is statistically significant (t=-2.220; p=0.030). It also appears that training sessions are more frequently organised at large (95.5%) and medium firms (90.9%) than at smaller ones (61.5%) making another significant difference in regard to the firm's size in favour of larger companies (F=6.226; p=0.003)[4]. Although some

4. We have checked whether the results may be overlapping since the sets of small, medium and large firms consists also of FOF and DOF but found no indication of that kind: a similar sequence of results has been obtained when DOF only were observed.

further responses should be taken cautiously, since they seem to be too optimistic, it is noteworthy that 41.4% of firms claim that more than 50% of their employees participate in training activities, whereas 40% claim that the subsequent effects achieved are seriously measured.

Table 2. Upgrading human capital (positive responses in %)

	FOF	DOF	All firms	Small	Medium	Large
Investment in human capital						
Organised training	100	75.9	**81.4**	61.5	90.9	95.5
Past year >50% workers included	43.8	47	**41.4**	38.5	36.4	50
Measuring training effects	50	37	**40.0**	34.6	31.8	54.5
Self-organised training by employees	57.1	52.1	**53.2**	41.7	68.4	52.6
On-the-job training						
Is there organised on-the-job training?	75	77.4	**76.8**	64	86.4	81.8
Transfer of knowledge among employees	81.2	77.8	**78.6**	65.4	81.8	90.9
Preparation of workers who are to succeed their colleagues when necessary	62.5	58.5	**59.4**	48	54.5	77.3
Control and compensation						
System of control that allows managers to distinguish good and bad workers	100	96.3	**97.1**	100	100	90.1
Are there rewards for good workers	81.2	90.7	**88.6**	92.3	86.4	86.4
Are there warnings for less successful workers, inciting them to work better	50	61.1	**58.6**	61.5	59.1	54.5

Nevertheless, one may notice the diminishing percentages of affirmative responses when the questions aim at a deeper insight in investing in human capital. Thus, for example, there is wide discrepancy between organised training, as confirmed by the firms and their scope (number of workers participating) and the results of the firm's measurements of training effects. This discrepancy is particularly evident among smaller and medium enterprises, which indicates/reflects just a rudimentary concern about human capital development. On the other hand, we find a relatively high number of self-organised training sessions arranged by the employees themselves, particularly at medium firms. This can be perceived as a positive sign concerning the motivation of workers (though some of these training sessions are not necessarily related to the tasks these employees are working on) but also reflect certain deficiencies in the training organised by the firms' management.

Secondly, we examine whether the firms have developed on-the-job training, how skills are transferred among employees and whether a firm prepares or, more precisely, has prepared new workers to succeed those retiring or leaving work for other reasons so that they may be able to undertake more responsible jobs and tasks.

When analysing answers regarding these issues, we find that various on-the-job training forms are relatively widespread (76.8%) including transfer of knowledge among employees that was confirmed by as much as 78.6% of firms observed. Although some self over-estimation is probable, this could be regarded as a positive sign of introducing new practices in human resource management. However, there is a substantially smaller number of firms that report proper preparation of workers who are to succeed colleagues when necessary (59.4%). This difference is particularly evident in smaller firms, which is comprehensible, to a certain extent, bearing in mind the small number of their employees; however, it is even more evident in medium enterprises that should not be constrained in a similar manner. There are no other specific differences among firms, except for exporting firms that provide significantly more on-the-job training ($t=-1.855$, $p=0.068$) and also among larger exporters (that earn at least a third of their sales revenue from exports), when compared to non-exporters and/or firms with small exports. This may indicate that links with foreign markets urge firms to make sure they upgrade their employees' skills.

Finally, we checked for some additional practices in developing human capital connected with compensation schemes. Firms were asked whether they follow workers' productivity and whether they can distinguish between good and bad workers, whether they reward good workers and whether they warn less successful ones and give them incentives to work better/more efficiently. Although almost all firms gave positive answers to the first and second questions (97.1% of small firms and as much as 100% of medium firms), only 58.6% expressed some concern about less successful workers. In our view, this demonstrates that firms are usually more interested in keeping and offering incentives to efficient workers than ready to be engaged in improving the performance of less successful ones. Such a differentiation in human recourse management probably points at the temporary character of the local labour market, which is burdened by high unemployment that threats employees with layoffs if not sufficiently successful and making firms less concerned with the undesirable results of this group of workers. Nonetheless, this cannot be assessed as /considered a good and promising practice, particularly in the long run.

4. Internal Relations

In the context of intangible capital, we accept that harmonious and consensual relations within a firm, as well as relations with external stakeholders, could considerably improve a firm's performances and raise its social capital. When analysing internal relations, we shall particularly highlight the decision-making process, relations between managers and owners and all along the agency chain when making strategic decisions, including the position of labour within the organisational structure and workers' participation in decision-making and fulfilling business objectives.

Our study of internal relations starts with the issue of decision-making. It has been analysed from several perspectives, such as: (i) to what extent strategic decisions are recognised and separated in regard to operative decisions; (ii) what level of cohesion in decision-making has been achieved in terms of harmony between owners and managers and workers and other employees; (iii) to what extent, if any, workers' participation is developed within the firms. Finally, we shall try to reveal (iv) what kind of loyalty workers exhibit towards their firms and if they are prepared to undertake certain risks a firm may encounter, and (v) to what extent this can be coupled with the workers' more or less active position in the decision-making process.[5] Basic results on internal relations obtained from our survey in regard to (i) firm ownership type and (ii) firm size are presented in Table 3.

Table 3. Internal relations (positive responses in %)

	FOF	DOF	All firms	Small	Medium	Large
Decision making						
Strategic decisions are recognised and separated in regard to operative decisions	82.4	59.3	**64.8**	23.1	86.4	91.3
Harmony and coordination between owners and managers in strategic decision-making over the past five years	76.5	57.4	**62.0**	26.9	72.7	91.3
Harmony and coordination between owners, managers and workers in strategic decision-making over the past five years	64.7	48.1	**52.2**	23.1	61.9	77.3
Workers participation in decision making						
Right to be informed	76.5	68.5	**70.4**	50	72.7	91.3
Free to make proposals	47.1	58.5	**55.7**	48	50	69.6
Members of the board	23.5	22.2	**22.5**	11.5	18.2	39.1
Workers' loyalty and risk participation						
Ready to 'do something more' for the firm	84.4	68.5	**71.8**	57.7	86.4	73.9
Stay with the firm if offered a better paid job	64.7	38.9	**45.1**	35.6	49	69
Willing to invest in the firm (financially)	23.5	15.1	**17.1**	26.9	9.5	13

5. In a wide range of literature references, not *a priori* aversive to the idea of workers' participation, there are a number of studies discussing the issue of workers' participation and companies' performance (for a broader survey of the literature, see Summers and Hyman, 2005; see also Sengupta, 2008; on participation and risk bearing, see Williamson, 1982; on consensus and cooperation within organisational structure, see Aoki, 2010, etc.).

We have firstly investigated whether firms systematically separate strategic from current operative decisions at various levels of decision-making. In total, 64.8% of firms confirmed such practices. It is remarkable that the majority of negative answers come from small firms (76.9%), which is, to a certain extent, understandable. On the other hand, medium firms and large firms mostly confirm this management practice (86.4% and 91.3%, respectively) making an overall significant difference regarding this issue in relation to the firm size ($F=26.970$; $p=0.000$). A significant difference ($t=1.752$, $p=0.084$) also appears between groups of FOFs (82.4%) and DOFs (59.3%), which indicates better management in foreign owned companies.

We have basically found similar results when analysing managers' responses on the subject of relationship between owners and managers in strategic decision-making over the past five years. In total, 62% of the firms declare that managers and owners act harmoniously, but, once again, there is a significant difference in regard to the size of firms (26.9% of small firms confirm harmony, as opposed to 72.7% of medium and 91.3% of large ones; $F=16.323$; $p=0.000$). Once again we found a remarkable difference between FOFs (76.5%) and DOFs (57.4%) confirming our earlier conclusion on better structured management process in foreign owned enterprises.

When asked whether strategic decisions are coordinated between owners, managers and workers, that is, along the entire agency chain, there were 52.2% of responders confirming such a state of affairs, but, once again, with a difference emerging between FOFs (64.7%) and DOFs (48.1%). Besides, the size of firms appeared to matter: the statement was confirmed by 23.1% of small, 61.9% of medium and 77.3% of large firms; this is one more statistically significant difference ($F=9.302$; $p=0.000$).

Putting all these pieces together, we may conclude that a large share of the firms observed recognises a difference between strategic and operative decisions, but additional exploration shows that the real use of this knowledge is still at a primary stage and particularly weak regarding communications between various organisational levels within a firm. Not surprisingly, we may conclude that managerial practices in the group of FOFs, when compared with those of the DOF group, are developed in a more constructive way. The least encouraging situation is in smaller firms, mainly because of the over-estimated role of owners who opt to act alone even if this means neglecting managers' opinions (we found a certain number of responses claiming that owners should be the only ones in charge of the decision-making process).

In regard to some more developed practices that involve workers in decision-making, it is noticeable that just a little over half of the firms in the sample (55.7%) develop opportunities for their employees to make suggestions and/or put forward proposals. It is interesting that, concerning practices used for informing workers, FOF are leading but are slightly more reserved regarding the workers' right to propose and suggest; however, there are no specific differences regarding workers' participation in boards. On the other hand, the size of a firm seems to be an important factor in regard to the improvement of workers' participation: in all forms of participation

investigated the percentage of firms practising thisis increasing with the size of the firm (e.g. workers's rights to be informed are significantly different in regard to firm size: F=5.624; p=0.005, as well as their participation in boards: F=2.950, p=0.059).

It is important to note that the group of larger exporters, defined as companies that earn at least a third of their revenue from foreign markets, have a remarkably better developed system of informing employees including their possibility to recommend certain measures and to participate in boards. When compared to smaller exporters (less than 33% of revenue from foreign markets) and non-exporters, there is significant difference concerning all participation practices: in regard to being informed, t=-2.152, p=0.035, in regard to making suggestions, t=-2.535, p=0.014 and in regard to participation in boards, t=-2.375, p=0.020).

Finally, we explored some issues that could be summarised as workers' loyalty to the firm and workers' willingness to take (financial) risks within the firms employing them. We found 71.8% of firms responses claiming their workers' willingness to 'do something more' for the company and 45.1% expecting workers to stay with the firm even if they are offered a better paid job elsewhere. We also found that workers in the companies observed are pretty risk aversive: only 17.1% of the responders presumed that workers would be willing to invest in their firms at a somewhat higher percentage (23.5%) in FOF[6] expressing a higher level of trust in business performances of foreign owned companies.

However, the data on workers' loyalty could be correlated with data on other characteristics of internal relations studied in our research. Indeed, if there is such a linkage, one can fully understand the significance of internal relations for strengthening the social capital of a firm and its subsequent improved economic performance. Moreover, in some earlier analyses based on partial results of our survey (see e.g. Cerovic *et al.*, 2014) some statistically significant correlations between indicators of workers' satisfaction and loyalty and their participation, including general harmony of decision-making, have been found.

In order to additionally explore such relationships, we firstly defined the indicator of Workers' Loyalty and Satisfaction (WLS) as the sum of positive answers to the (two) questions on loyalty and (the one) on risk participation, plus positive answers to the question on whether responders in the firms analysed believe that their workers are, at least, as satisfied as those in competitor firms. Hence, WSL can take values from 0 to 4. Secondly, we constructed an indicator on Workers' Rights (WR) that summarises positive answers to the (three) questions on workers' participation plus to the question on the existence of trade unions (TU) in the firms observed and the

6. An even higher percentage was found among small firms (26.9%), but the figure was not fully reliable since it included owners and their relatives employed by these firms.

question on TU engagement in improving the productivity of the firms[7]. Similarly, WR can take values from 0 to 5. Finally, we formed a third indicator on Decision Making (DM) as the sum of positive answers to the (three) questions related to this issue that can take values ranging from 0 to 3. This has enabled us to specify several probit models so as to reveal mutual relationships between DM, WR and WSL.

We tested four binary probit models. In models (1) and (2) we considered positive responses to the question whether workers are ready to do 'something more' for the firm as a dependent variable, while in model (1) independent variables are wage level (WL), that is, positive answers to the question whether workers' wages in the firm are among higher wages in the economy (wage level should be a standard economic proposition for satisfying a rational worker), number of employees in the firm (L), since our survey indicates better results for larger firms, and, finally, indicators WR and DM mentioned above . In model (2) all variables remain the same except for WR and DM the sum of which is considered to be one variable (WR+DM) representing a compound indicator of internal relations. In models (3) and (4) the dependent variable is represented by positive answers to the question whether workers will stay within the firm if offered a better paid job elsewhere, while independent variables in model (3) are the same as in model (1) and in model (4) as in model (2). Further on, we tested two ordered probit models (5) and (6), where the dependent variable is the WSL indicator, while the set of independent variables in model (5) remains the same as in binary models (1) and (3) and in model (6) as in binary models (2) and (4). The results of our estimations are presented in Table 4 below.

The results obtained firmly suggest that the workers' level of satisfaction and loyalty to the firm – as judged by managers – is significantly correlated with the qua-lity of internal relations. Thus, WSL is positively related to WR+DM (workers' rights and decision-making) in model 6; also, two separate aspects of WSL (doing 'something more' for the firm and staying with the firm when offered a better paid job) are significantly and positively correlated to WR+DM in models 2 and 4 (all significant results in bold letters). Moreover, we can conclude that the willingness of employees to do 'something more' for the company significantly depends on well coordinated decision-making processes (DM in model 1), while loyalty in terms of remaining in the firm despite some formally more attractive offers is significantly correlated/ with a better position of workers in regard to their participatory and other

7. We faced a very specific situation regarding the existence and activity of a TU. Except for only one firm (medium sized, exporter, manufacturer) TUs are found exclusively in 'old' firms inherited from former Yugoslavia, whether privatised (a majority) or not. A similar state of affairs was found regarding wage formation since our responders appeared clearly unfamiliar with collective bargaining in many cases. This indicates a poor state of traditional workers' rights: they exist rather as an inherited custom from previous times than a normal and a necessary part of a firm's organization.

rights (WR in model 3). Also, the general level of satisfaction and loyalty (WSL) significantly depends on advanced employees' rights (WR in model 5)[8]. On the other hand, it should be noted that under estimated specifications we found no significant correlation between workers' satisfaction and loyalty to the firm and the level of wages earned (despite theoretically described and postulated linkage of this type) suggesting a higher significance of workers' active position within a firm and of the quality of internal relations in general, when compared to wage level.

Table 4. Estimated probit models

Variables	**Binary probit models**				**Ordered probit models**	
Dependent variable→	**Workers willing to do 'something more' for the firm**		**Workers will stay with the firm if offered a better paid job**		**WSL**	
Model→	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables↓	Coefficient (Probability)	Coefficient (Probability)	Coefficient (Probability)	Coefficient (Probability)	Coefficient (Probability)	Coefficient (Probability)
Constant	-0.203299 (0.4684)	-0.216426 (0.4448)	-0.844154 (0.0026)	-0.849029 (0.0027)		
WL	0.089515 (0.8139)	0.214405 (0.5743)	0.338788 (0.3237)	0.263049 (0.4319)	0.063265 (0.8192)	-0.029355 (0.9149)
L	-0.000106 (0.5072)	-0.000129 (0.4347)	0.000162 (0.3727)	0.000180 (0.3121)	4.15E-05 (0.8007)	6.69E-05 (0.6515)
WR	0.106873 (0.4482)		0.224176 **(0.0619)**		0.245964 **(0.0363)**	
DM	0.384185 **(0.0101)**		0.045009 (0.7487)		0.005457 (0.9644)	
WR+DM		0.231470 **(0.0091)**		0.145469 **(0.0427)**		0.139075 **(0.0358)**
Cut-off point 1					-0.970245 **(0.0003)**	-0.949443 **(0.0004)**
Cut-off point 2					0.147493 (0.5714)	0.164823 (0.5236)
Cut-off point 3					0.863425 **(0.0020)**	0.871959 **(0.0019)**
Cut-off point 4					1.693989 **(0.0000)**	1.681055 **(0.0000)**
Log likelihood	-35.73619	-36.41188	-43.66334	-43.99763	-103.6643	-104.5533
Avg. log likelihood	-0.503327	-0.512843	-0.614977	-0.619685	-1.460061	-1.472582
Pseudo R-sq	0.1534	0.137415	0.106501	0.099660	0.046922	0.038748
No. of observations (0/1)	20/51	20/51	39/32	39/32	8/18/18/17/10	8/18/18/17/10

8. Note that cut-off points are all significant (except for the WSL level change from 1 to 2) confirming that an increase in WSL level is significantly connected with advances in WR. The issue is relevant from the standpoint of firms performance and competitiveness: among newer analyses that connect workers satisfaction and better firms performance see Edmans (2012) and Zhou *et al.* (2008).

5. External Relations

After analysing internal relationships we addressed relationships with external stakeholders. The analysis of external relations includes four aspects: (a) relationships with business buyers, (b) relationships with consumers, (c) relationships with competitors and (d) relationships with suppliers. Major findings are presented in Table 5.

As long-term relationships with customers represent firms' most valuable assets, the central part of the analysis in this section is dedicated to business buyers and consumers. Comparing the results for these two stakeholders indicates that relationships with business buyers (B2B) are more developed than with consumers (B2C). The firms in the sample are more dedicated to business buyers, in the sense of their commitment to their wants and needs (employees meet regularly to exchange notes on customers in 78% of the firms; there are regular meetings with business customers to determine their needs in 88% of the firms). The highest level of commitment to and cooperation with business buyers is concerned with business customers in the process of developing new products and services, which is reported by 65% of the firms in the sample.

Table 5. External relations (positive responses in %)

	FOF	DOF	All firms	Small	Medium	Large
B2B relations						
Employees meet regularly to exchange observations about customers	86.7	75.4	**77.94**	69.2	71.4	95.2
Regular meetings with business customers to determine their needs	87.5	88.68	**88.41**	88.5	81	95.5
Business customers engaged in developing new products/services	68.75	64.15	**65.22**	65.4	61.9	68.2
B2C relations						
Is there a regular and detailed analysis of consumer needs?	56.2	55.6	**55.7**	53.8	45.5	68.2
Does a company employ a customer relationship management system?	35.3	14.8	**21.5**	3.8	22.7	34.8
Relations with competitors						
Activities of competitors influence our business activities	76.5	74.1	**74.6**	65.4	86.4	73.9
Aggressive business action in response to activities of major competitors	68.8	38.9	**45.7**	34.6	54.5	50
Relations with suppliers (origin of suppliers)						
More than 50% of suppliers are from foreign markets	62.5	35.8	**42**	26.9	45.5	57.1
Majority of suppliers comes from developed countries	50	35.3	**38.8**	19.2	50	52.4

Inclusion of a customer during innovation development has positive influence on a firm's performance and competitive advantage (von Hippel, 2001; Pedrosa, 2012; Laursen and Salter, 2006) as well as on a firm's innovation performance, especially in the case of service companies (Matthing *et al*., 2004; Bogers *et al.,* 2010; Vargo and Lusch, 2004). Contrary to findings in the literature, service companies underperform when compared with the firms in the manufacturing sector in our sample (50% of service firms cooperate with business buyers in the innovation development process as compared to 73.3% of manufacturing firms). In general, interactions between managers of service firms with business buyers are not as high as in the case of manufacturing firms, which is hard to explain, bearing in mind that delivering services implies contact between seller and buyer that can foster further communication and cooperation.

Our analysis of the results for different groups of firms reveals a statistically significant difference regarding involvement of business customers in the development of new products and services among larger exporters (more than 33% of revenue earned abroad) *versus* small exporters and non-exporting firms, in favour of large exporters ($t=-2.610$; $p=0.011$).[9] Specific international business environment and additional restraining factors, such as a psychic distance, make cooperation between seller and international buyers specifically important. In addition, international buyers frequently have different needs when compared to domestic buyers, so exporters need to adjust their offer, which can be done more effectively in cooperation with buyers.

In the field of business-to-consumer relationships, we have tried to examine whether there is a regular and detailed analysis of consumer needs and whether the in question company employs a customers' relationship management system. In all of these aspects we have found evidence of a low level of firms' commitment to long term relations with consumers and of developing partnership marketing. Though more than 50% of the firms in the sample declare that they have regular and detailed analyses of consumer needs (55.7%), we have found that only 28% of firms define a specific budget for market research. This implies that they do not undertake nor/or organise formal market research, which means that their main sources of information are informal market research procedures, which are not sufficient for tracking consumers' needs and their behaviour.

The second aspect of our analysis of B2C relations deals with the implementation of consumer relationship management (CRM). Less than a quarter of the firms (21.5%) reported implementation of CRM. In this aspect, FOFs (35%) outperform DOFs (14.8%; $t=-2.014$; $p=0.048$). One may also find that service firms do better than manufacturing companies (28% and 15% respectively), which can be perceived

9. Statistically significant differences appear between exporters that earn 33% or more of their revenue in foreign markets and the group of non-exporters and those with foreign sales revenue share below 33%.

as an outcome of the nature of the service industry, i.e., it is customary to have direct contact between service providers and consumers. In general, FOFs report implementing more advanced marketing practices in segments of external relations, brand capital and marketing competencies than what is found among DOFs (see, in more detail, Cerovic, *et al.* 2014; Mitic and Nojkovic, 2014; Mitić, 2015). As evident from Table 4, large firms implement CRM more often than small and medium ones (F=4.052; p=0.022), which is to be expected due to the relatively high costs of developing and implementing CRM. On the other hand, since CRM represents an important system that enhances a company's ability to track individual behaviour of consumers, it becomes an important competitive factor in various industries (Rollins and Bellenger, 2012). It also stands for the highest level of partnership marketing, which can help sustain competitive advantage. Hence, the low number of firms reporting implementation of CRM indicates that B2C relations are still underdeveloped among Serbian firms.

Finally, we tried to explore firms' relations with competitors and suppliers. Less than 50% of the firms report that they have an offensive competitive orientation, while 54.3% of the firms choose to follow leaders rather than to adopt a proactive and strong response to te competitors' business actions. More offensive competitive orientation has been reported by FOFs (with statistically significant difference from DOFs, t=−2.145; p=0.036), large firms (50% as compared to 34.6% among small firms) and exporters (50% as compared to 33% among non-exporting firms). Moreover, a major number of exporters hold a position of market leaders in domestic markets, having already more developed competencies and other resources necessary for aggressive competitive positioning in a foreign market. Regarding suppliers, we have investigated the origin of suppliers, since quality of inputs (related to the deve-lopmental level of the country of their origin) has positive influence on productivity and usage of advanced technology. In the sample, only 38.8% of firms have suppliers from developed countries (which is substantially less than, for example, among Slovenian firms – 73% has been found in a corresponding analysis by Prasnikar, 2010). Therefore, it is unlikely to expect a great and positive suppliers' impact on technology enhancement in Serbian firms. However, we have found statistically significant differences between exporters and non-exporting firms (t=−2.309; p=0.024), in favour of exporters (47% among exporters *vs.* 16.7% among non-exporting firms) implying, yet again, that presence in foreign markets can boost various firms' capabilities. Also, and expectedly, we found statistically significant differences (F=3.662; p=0.031) between large (52.4%), medium (50%) and small firms (27%) regarding the origin of their suppliers.

6. Innovation

Investments in innovations and research and development (R&D) are traditionally seen as an important component of upgrading the intangible capital stock of a firm. For that reason an important section of the survey has been dedicated to these is-

sues. Our general conclusion is that a big group of firms overestimates their commitment and achievements concerning this activity. However, the cascade type of survey questions has enabled us to form a broad picture about real practices and to recognise firms that have more developed innovation policies and processes and R&D investments.

The survey section on innovation starts with a question regarding the firms' new products in the last five years (2008-12) asking them to assess the quality of these products in comparison to the firms they compete with. In total, 59 firms out of 70 that have responded (84%) declare to have had new products over this period, estimating that the firms are at least as successful as their competitors. All FOFs that responded to this question (16) confirmed the launch of new products and were fully confident regarding their quality when compared to those of competitors. Confidence about competitiveness is also confirmed by 80% of DOFs. It is remarkable that no major differences among firms could be found when smaller firms are separately analysed: as many as 77% of them reported a similar statement. It seems that manufacturers are slightly more innovative (89%) when compared to companies in the service sector (76%).

When asked whether they do consider themselves to be more successful than their competitors, 53% of all firms believe in their advantage. It is interesting to note that FOFs appeared to be just slightly more confident about the competitiveness of their products (56%) than DOFs are (52%). However, when asked whether the firms consider them as leaders within the industry, this gap was remarkably widened in favour of FOFs: 63% of FOFs consider themselves as leaders compared to only 37% of DOFs (statistically significant difference: t=-1.856; p=0.068). However, deeper investigation of the set of all 30 firms that claim leading position in their principal markets, we find 20 firms that sell 80-100% of their products in the local market, plus 2 that also sell 70-75% of their production locally. The remaining output of these 22 companies is predominantly sold in neighbouring markets that emerged from former Yugoslavia. Such business orientation can raise the question whether they are real leaders in their industries or rather enjoy some monopolistic bias within local boundaries. Indeed, among all firms that attribute themselves a leading position, there are only 5 major exporters (four of them earning even more than 50% of their revenue in foreign markets) with a large portion of their production going to developed markets. Surprisingly, they are all DOFs (four are privatised).

We also tried to explore how firms would assess the importance of upgrading, renewing and/or producing new products or introducing product lines. In Table 6 below we present the corresponding firms' assessments[10].

10. Contrary to previous tables, absolute number of firms is used instead of percentages, since firms' responses vary and percentage numbers become incomparable. For the same reason, we shall continue in this manner in the tables that follow (7-10).

Table 6. Importance of new products and product lines (number of firms)

Assess the importance of the following forms of new products in the firm	High	Medium	Low	Not in use
Repositioning of existing products (65 answers)	18	31	11	5
Improving existing products (67 answers)	29	30	6	2
Upgrading existing product lines (63 answers)	19	29	11	4
New product lines (65 answers)	29	21	6	9
New products according to international standards (65 answers)	32	18	9	6

The wide range of answers shown in the table indicates a certain hesitation among some responders to clearly assess the innovative practices proposed. This indicates that the managers of the firms in question were not familiar with such activities. Hence, one may add the missing answers to the last column (not in use). On the other hand, a persistent number (50-60) of responses grouped around the notions of high and medium importance for almost all proposed innovative practices can be noticed, which is in accordance with the innovations reported over the five year period (but could also be a sort of giving the answers perceived to be 'desired').

Comparing average assessments given by firms for the importance of certain innovations, it emerges that they evaluate improvements of existing products (2.28 on average) as particularly high, followed by launching new products (2.17). However, the distribution of these assessments varies across certain types of firms. Thus, for example, FOFs attribute highest importance to new products (2.37) whereas DOFs give priority to improvements in existing products (2.36). Most likely, this result reflects different practices, implying that FOFs introduce new products more frequently than DOFs can. Similar differences could be found, and probably for similar reasons, in regard to the size of a firm: large firms allot the highest importance to new products (average value 2.25), while medium and small ones give priority to improvements on existing products (2.36 and 2.33, respectively). All these results indicate a lower level of innovative capacity among smaller firms, as well as among DOFs. On the other hand, certain differences are found between the export-oriented group and non-exporting enterprises. On average, exporters attribute higher significance to innovations assessing importance of all innovative practices at 2.2 (in a range from 2 to 2.3),[11] while non-exporters at 1.8 (in a range from 1.6 to 2.2). This is another indication of the greater competition exporters -come up against when selling in foreign markets; it is a kind of spillover-effect that reflects their export experience.

11. Among exporting firms even higher assessments are given by larger exporters (at least one third of revenue earned abroad): on average, they assess innovations by 2.3 in a range from 2.1 to 2.5.

We intended to get some information about processing innovations asking firms whether they have undertaken, during the past five years, any substantial innovation in general and specifically in production, logistics, distribution or in supporting departments like accounting, etc. The answers obtained were definitely over-optimistic: 86% of all firms reported some considerable general innovations, while in other, more specified questions, improvements were reported by at least 82% up to 86% of the firms (with a tiny exception regarding supporting departments where essential innovations were reported by 73% of the firms). It was mostly small and medium size firms that over-estimated their innovations in the fields mentioned (sometimes positive answers go up to 100%), thus exhibiting a rather low degree of actually recognising what kind of improvements could be regarded as substantial or considered innovative.

7. Research and Development

The structure of the sample observed suggests that one should expect some variability in results particularly when organisation of R&D is concerned. For that reason we have firstly investigated what could be the scale of investments in R&D among firms observed, since this could provide an indication as to what extent firms did recognise the importance of this kind of spending. In total, 51 firms (74% of 69 respondents) claim that, in 2011, they have invested at least 1% of their revenue in R&D. Manufacturing firms are more active investors in R&D (80%) as compared to service providing firms (60%). Among the 51 firms that invested in R&D there were 26 that invested more than 2% of their revenue (20 manufacturers), while 14 of them reported investments higher than 3% (9 manufacturers; among them 4 big exporters earning more than 50% of their revenue abroad).

It is remarkable that, among the 51 firms that invest in R&D, there are 38 exporters (with at least 5% of their revenue earned abroad) or 65% of all exporting firms. Among them 18 enterprises are major exporters earning at least 33% of their revenue in foreign markets (86% of this group of firms). As many as 31 of 38 exporting firms invest 2-3% or more of their revenue in R&D, which is considerably higher than what other enterprises invest. However, some firms report a diminishing trend of such investments due to the effect of the global crisis over the 2008-11 period.

We found one more interesting feature concerning R&D investments. We divided the sample into two sub-samples according to profit per worker (the only indicator that we could calculate for all firms). It appeared that firms from the lower profit per worker group invest more frequently in R&D (71%) than firms with higher profit per worker (61%). Moreover, investments are higher: in the former group, where 61% of the firms report investments higher than 2% of their revenue, while, in the latter, there are only 48% that report investments of that level. This is mainly due to the fact that manufacturing firms dominate the low profit per worker group, which is, in turn, a probable consequence of the transition growth model that favoured service

firms oriented towards domestic markets and importers rather than exporters (see Cerovic and Nojkovic, 2011). Such a position of manufacturing and no proper industrial po-licy might explain the relatively overall low level of investments including R&D and a substantial deterioration of manufacturing industries during transition.

It is also remarkable that among FOFs, which usually exhibit better management practices as compared to DOFs, we find 50% of the firms that do not invest in R&D. Also, in 56% of FOFs there are no R&D departments. All of them are parts of larger international systems that usually organise R&D departments in other locations, predominantly in their countries of origin. They are dominated by firms that are predominantly sellers of renowned brand products (sometimes with some minor local finishing). Similar practices are found among DOFs that are parts of larger companies. Hence, it is not expected that such firms might have any particular investments in R&D or corresponding departments. However, this might be in line with the findings that point to relatively poor effects of FDI in transition economies: frequently they do not enhance all expected spillover particularly regarding knowledge and technology (see for example: Gunter, 2005; Gorodnichenkou *et al*. 2007). This also suggests a relatively low level of technology and related development is expected to take place over time in locally established FOFs.

Consequently, we find that DOFs are more active in R&D investments, particularly (and expectedly) when larger firms are concerned, but there are also examples of medium sized firms (32% of all manufacturers from various industries) that are developing their own R&D departments, particularly if exporting a share of their production. However, we find that the influence of R&D departments on company development is pretty limited, and it particularly technology and a specific design of products.

8. Competencies

Firms were asked to assess their competencies in technology and marketing as compared to their competitors, but also to assess their complementary or matching competencies when compared to their competitors. The results are presented in the tables 7, 8 and 9 below.

Table 7. Firm's technological competences *vis-à-vis* competitors (number of firms)

Assessment	substantially lower	lower	similar	better	substantially better
R&D knowledge highly developed (56 responses)	5	11	20	11	9
We have high technological abilities in the firm or within strategic partnerships (57 responses)	1	4	20	21	11
We correctly predict technological trends (58 responses)	-	9	18	20	11

The first remarkable result is that around one fifth of firms are not able to precisely report their technological competencies when compared with their main competitors. This demonstrates a rather negligent attitude towards this aspect of competitiveness. Moreover, the most hesitant responders are found among larger firms, although, on average, responders assessed their competencies as relatively high (between 3.5 and 3.88, on average).[12] Conversely, almost all small firms responded to this question and remarkably over-assessed their competencies (average marks are very high in a range from 3.14 to 3.74). Medium sized firms appear to be the most aware of their weak and strong features, with assessments of their technological competencies ranging from 2.74 to 3.41. The most highly assessed technological competencies are those of FOFs, the average marks of which range between 3.83 and 4.

Table 8. Firm's marketing competences *vis-à-vis* competitors (number of firms)

Assessments	substantially lower	lower	similar	better	substantially better
Acquiring information on consumers' preferences and needs (64 responses)	2	5	34	13	10
Acquiring information on competitors (63 responses)	2	4	34	10	13
Long-term relations with buyers (63 responses)	-	1	22	22	18
Long-term relations with suppliers (56 responses)	-	-	20	18	18

It is remarkable that all firms observed highly assess their marketing skills with only few examples that are ready to confess their knowledge and practices are at a lower level in comparison to their competitors. It is also remarkable that there are more answers lacking in regard to long term relations with suppliers indicating that these firms do not develop this kind of relationship. However, it is remarkable that exporters assess their marketing competencies to be somewhat higher than other firms do: their assessments range from an average mark of 3.5 for acquiring information on consumers' preferences and on competitors to 4.1 for long-term relationships with suppliers (4.2 among exporters that earn at least 33% of their revenue in foreign markets). These results suggest, yet again, how entering foreign competition urges for advancement in business practices and they are in full accordance with our findings on external relations.

12. Assessments on competencies are given in the following manner: from 1 for substantially lower to 5 for substantially better.

Table 9. Firm's complementary competences *vis-à-vis* competitors (number of firms)

Assessment	substantially lower	lower	similar	better	substantially better
Clearly defined tasks of units/dpts (63 responses)	2	4	24	23	10
Good transfer of technological and marketing competencies between units (64 responses)	1	6	25	22	10
High level of R&D knowledge transfer among strategic partners (61 responses)	7	3	21	19	11
Product development is efficient (in terms of costs) (63 responses)	1	5	17	24	16

In identifying complementary competencies in regard to competitors firms seem to be somewhat more reserved than in assessing their own marketing skills. However, they are confident that they are particularly strong in efficient development of their products (40 firms). A deeper reflection on the data could alter this broad picture. Thus, for example, there is a pretty peculiar distribution of answers in regard to the firms' size: large firms quantify their organisational capabilities (well-designed tasks), transfer of technology and R&D knowledge by higher average assessments in comparison to smaller firms, but small and, particularly, medium size firms assess their efficiency in developing new products as higher than large ones. A similar result may be found when FOFs are questioned: they assess the first three competencies giving higher and balanced marks (3.62-3.64, on average), but are more reserved in assessing efficiency concerning new products launched (3.43). Contrasting distribution is found among DOFs: they assess their efficiency highly (3.88), but are less optimistic in regard to organisational competencies and technology transfer (3.5) and, in particular, R&D competencies (3.3). Although, theoretically this could be possible (smaller firms are usually *de novo* firms that exhibit better results than older companies throughout transition economies) it is hard to believe that without the support of good organisation, technology and R&D they could achieve such efficient results. Hence, such self-estimates should be attributed to overstated self-confidence frequently encountered among smaller firms and their owners and/or entrepreneurs (see Cerovic and Petkovic, 2003). Despite these probable shortcomings, it is evident that exporters assess their competencies higher than non-exporters. Moreover, exporters exhibit more balanced reasoning (larger firms in particular) by assessing their competencies, on average, from 3.5 (for R&D) to 3.8 (for efficiency in launching new products). This indicates that exporters are more realistic in their assessments of complementary competencies, but also more successful, since they are facing more advanced competition.

Finally, firms were asked to evaluate the importance of various sources of information that help them acquire knowledge regarding innovations, R&D and other components of their competitive advantages. Results are reported in table 10, below.

Table 10. Sources of information – importance level (number of firms)

Assessment		high	medium	low	Not in use
Internal	Within the firm (57 responses)	32	21	3	1
Market	Equipment suppliers (65 responses)	26	34	2	3
	Other suppliers (65 responses)	32	26	3	4
	Buyers (63 responses)	34	24	2	6
	Competitors or other firms from the region (64 responses)	19	33	10	2
	Consultants, R&D private firms, etc. (66 responses)	10	23	16	17
Institutional	Universities, higher education institutions (64 responses)	7	16	19	22
	Government or public research institutions (64 responses)	3	15	23	23
Other	Conferences, fairs, exhibitions (65 responses)	26	23	8	8
	Journals or commercial publications (64 responses)	11	29	11	13
	Associations, chambers etc. (63 responses)	6	25	18	16

From the table presented it is evident that major sources of information are those that are found within the firms and those that are acquired from suppliers and buyers. To a lesser extent, market information sources found with competitors are also frequently in use. It is interesting that SMEs evaluate (on average) the information acquired from suppliers as more important than that coming from their buyers. In our view, this indicates that SMEs in Serbian economy act as individual units seeking their market place and buyers rather than acting as firmly connected and involved in the schedules of larger firms. It is also evident that small firms, on average, consider all sources that could be seen as institutional ones, e.g. universities, public agencies and professional associations, as of low importance (or not in use) (average evaluation varies from 0.8 to 0.9). This indicates a lack of sound connections between firms and institutions that are expected to assist small businesses (particularly when public agencies and associations are considered). Things are similar when medium sized firms are questioned, although their evaluation is a bit higher, indicating somewhat better relations with these institutions.

On the other hand, it is also remarkable that small and medium sized firms rarely rely on private assistance of consultants or R&D firms (average evaluation around 1.1-1.2). This could be attributed to a typical local entrepreneurial attitude – owners of smaller firms recognise predominantly their own ideas and do not feel they could acquire some additional knowledge from professional consultants or advisers. Moreover, this result is compatible with our findings in regard to decision-making: smaller firms exhibit less developed interior relationships, leaving most decisions up to their owners.

In contrast to this finding, it is remarkable that exporters and, particularly, larger exporters are more interested in and more satisfied with their cooperation with consultants (average assessment 1.7), universities (1.4) and information acquired from journals and professional publications (2.0). Such evaluation is on average higher by

around 50% of firms when compared with the average evaluation by other firms and reflect the higher competition encountered in foreign markets, which gives them an incentive to look for resources that can help in introducing innovative measures. A similar result, in the case of assistance provided by private consultants, can be found among manufacturing companies as compared to firms providing services. Such a result could also be attributed to the effects of competition, which is higher among industrial producers (including exporters) than in the service sector (oriented towards the domestic market).

9. Conclusions

Following the analyses conducted and the results reported, our first and general conclusion is that the importance of intangible capital is slowly becoming recognised in Serbian economy. However, deeper reflection shows that, despite some improved results, many aspects of intangible capital have been recognised and/or invested just at a rudimentary level. We also found that awareness of the importance of intangible capital investments as a factor of competitiveness is somewhat advanced among foreign owned firms and, in particular, among exporting firms present in foreign markets.

As to foreign companies doing business in the Serbian market, it is evident that they usually go further than a typical local firm in investing in some forms of intangible capital (management, external relations, marketing). Nevertheless, in some aspects, our results are similar to findings that question the effects of FDI on transition economies, indicating lower spillover effects than expected. This can be found particularly in R&D investments and in the absence of R&D departments among local FOFs, since such activities usually remain within countries of origin, which implies a /explains the lower technology level of locally established firms.

In regard to firms that export their products or, at least, have some other relations with foreign markets, we have noticed deeper involvement concerning intangible investments. We find this to be indirect evidence of the need for export-led growth in transition economies: according to the results obtained, it appears that competition in foreign markets substantially accelerates adoption of more modern management, marketing, internal & external relational practices, as well as other aspects of intangible capital, e.g. R&D, acquiring information and knowledge, among exporting firms.

A specific concluding note should be made in regard to internal relations. Firstly, our analysis has shown that, even despite declared separation of strategic and operational decisions in many companies, this distinctiveness is pretty blurred and the decision-making process could be better structured. It seems that internal relations suffer of an understanding of social relations change during the transition that is too direct and is reflected in attributing to owners an excessive role and power in mana-ging companies; this is even more apparent, and even directly confirmed by responders, among smaller firms.

Secondly, we found specific problems in regard to the workers' position within the firms observed. The importance of workers' participation – from effective updating to workers' proposals and some decision-making – as a factor of harmonious internal relations affecting firms' performance, appears to be rather neglected. Moreover, there is an evident lack of traditional workers' rights regarding trade unions, and collective bargaining that sporadically appears; it is, predominantly, just as a legacy among 'old' companies. Some explanation could be found in poor institutional arrangements of workers' rights and high unemployment rates in the local labour market. It can also be attributed to excessive blame on the self-management legacy for all difficulties suffered since the 1990s, instead of blaming wrong political choices. On the other hand, we find that the extent of workers' satisfaction and loyalty to the firm firmly depends on well-ordered internal relations along the entire agency chain – owners, managers, workers and on the level of workers' rights protection.

Finally, we have found a specific difference in recognising various forms of intangible capital within smaller firms that exhibit both unawareness concerning the matter and exceeding self-confidence among their owners. We consider that this attitude is a consequence of low level knowledge, a poor institutional (ineffective regulatory framework) and economic environment (high unemployment, absence of competition). However, a low level of recognition of possible support that could be provided by public consultants, economic associations and the educational sector to small entrepreneurs leads us also to conclude that some important reforms should take place in these institutions.

The basic conclusions presented above have led us to some policy suggestions: more active industrial policies that will support export-led growth, enhance the production of tradables and make the country attractive for higher tech foreign investments should be implemented. According to our findings, the companies to emerge and/or develop under such policies will eventually acquire better understanding and proceed to broader undertaking of intangible investments. We also recommend that more attention should be paid to the overall economic and business education, in particular including a deeper study on human resource management, upgrading internal relations and marketing management and strategies, as well as various forms of entrepreneurial training. Special care should be dedicated to smaller enterprises and incentives for their networking and/or clustering should be provided, since such firms currently act more or less as individuals on their own, and this prevents them from improving their competencies, relational capital and other forms of intangible capital upgrade. Finally, we suggest that industry associations, employers' associations, chambers of commerce and trade unions be better institutionally positioned and designed in a new manner so as to respond more effectively to ongoing changes and the global economic environment.

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