Innovative actions and innovation (in)capabilities of Russian industrial companies – An extension of the quasi-longitudinal study

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Abstract

The paper reports the results of an extension of the quasi-longitudinal survey in top corporate executives of Russian industrial enterprises. We presented a snapshot of current innovation actions and innovation capabilities of Russian enterprises. Through the comparison between the situations in 2002 and 2004, we determined changes in business and management of Russian companies in the past years. We discovered that intensity of innovations has seriously increased in 2003-2004, but the resources for innovations the Russian CEOs dispose remain even more limited than before as the traditional lack of finances coincides with the growing shortage of qualified workforce. Moreover, the intensity of past innovations has little impact on further successes as there is minimal accumulation of routines of innovative actions within companies.

Further accumulation of innovative capabilities of Russian industrial enterprises will be a rather slow and painful process. The successes in innovative development of some export-oriented "national champions" will be bounded by incapabilities of their local partners to adapt to the new requirements. Locally-oriented companies in cases of sufficient financing will be inclined towards adoption of the existing technological solutions implemented by turn-key operators. In both cases breakthrough innovations in production and management technologies will be rare and will not determine the overall picture. In this respect, the sustainability of development of the Russian industrial sector is not secured.

Introduction

Since the late autumn 1998, most Russian industries experience economic recovery. The question arises – in which extent such a positive economic development may be attributed to extensive factors (import substitution, re-use of previously idle production facilities etc.) and what is the role of intensive factors, including new patterns and skills of strategic and operation management. More precisely, we aim to identify the results of organizational learning, possibly occurred during the prosperity years. This question is of crucial importance for determining the medium-term perspective of the Russian economy. Indeed, the mentioned "extensive factors of economic development" (import substitution and re-use of idle production capacities) have lost their significance since 2001-2002. The current unique conjuncture for the Russian energy sectors and basic raw-processing industries will not last forever[1]. The more Russian domestic and overseas markets will reach equilibrium, the further economic development of Russian industrial companies will depend on new products and processes, i.e. on innovations. Thereby, the task to retrace the results of the organizational learning and to determine the possible future sustainability of Russian economic development may be formulated as an assignment to evaluate the current *innovation capabilities* of Russian companies.

Innovation Capabilities – Definition and Expected relationship with Innovation Practices

Innovation capability is broadly defined as "the ability to continuously transform knowledge and ideas into new products, processes and systems for the benefit of the firm and its stakeholders"[2]. Innovation capability, as a holistic concept is composed of reinforcing practices and processes within the firm. Therefore, it will be useful to remind here the major steps of any innovation project:

- Generation of new business idea (or copying such an idea from various external sources[3]);
- Project formulation, budgeting and financing (from internal or external sources);
- Prototype design;

- Gaining assess to the necessary technology (if a project embraces mastering the new technology);
- Amendment of the current job design of changing the priority of particular tasks;
- Orchestration of efforts of various functional departments of a firm;
- Attracting the necessary workforce (or retraining the existing employees);
- Production of a "probe set" of a new product and marketing testing;
- Determining the optimal price and quality[4] of a new product.

Observation of innovation practices of Russian companies added three important elements to the standard list of innovation measures, namely:

- Synchronization of efforts of the partners in the value chain (suppliers and distributors);
- Reaching the "understanding and acceptance" of the firm's actions by competitors;
- Securing the support of local authorities in production and sale places.

All the mentioned actions are interconnected in the real practices. Therefore, we grouped these actions accordingly to the specific of processes. Thus, financing the new project, gaining access to new technology, attraction (or retraining) the necessary workforce and getting the tacit or open approval of authorities (labeled as "administrative resource" in Russia) may be combined into ***capabilities to secure resources for innovations.***

Changes in job descriptions and adjustment of relative importance of various tasks together with synchronization of various departments may be called ***internal organizational innovation capabilities***.

Actions to secure the necessary quality level and efforts to align the actions of business partners may be called ***technological innovative capabilities***.

Finally, the ability to reveal the needs of customers, to set the attractive price and effective forms of promotion, and the capacity to reach the implicit agreement with the actual and potential competitors may be labeled as ***marketing innovative capabilities***.

Processes of accumulation and use of innovation capabilities may be viewed as processes of organizational learning. In any learning and especially in "learning by doing" the more you practice the more you capable. Therefore, the general preposition about the relations between innovation capabilities and innovation practice may be formulated as follows: ***the higher intensity of particular innovation actions of a firm, the higher should be corresponding innovation capacities.*** Indeed, intensive innovations should lead to accumulation of "innovation routines" – patterns of actions that have proved their effectiveness in a specific firm's context and facilitate further innovations.

However, as in any learning, the process of accumulation of capabilities is not automatic. Encouragement is important in organizational learning as well as in any learning process. The firm should allocate sufficient resources to motivate the insertion of "innovative routines" into organizational memory (promoting the initiators and participant of innovation projects, fixation of successful patterns of actions as standard proceedings in internal guidelines, re-training of employees). Such resources will be allocated if previously implemented innovations have proved their effectiveness. Therefore, we may formulate a stronger proposition – ***innovation capabilities are developed when innovations play an important role in enhancing firm's performance***. To test this hypothesis we used the available empirical data on innovation actions and innovation capabilities of Russian industrial companies.

Empirical basis for evaluating innovation activities and capabilities of Russian industrial companies

We used the results of surveys in Russian top corporate executives held in the late 2002 and the late 2004 as an information base for evaluating innovation capabilities of Russian industrial companies. The composition of the questionnaires in both years was almost identical[5]. In 2002 and 2004, we interviewed 1141 and 1727 general directors, respectively. In both cases, the survey covered companies of all lines of business from most Russian regions. Respondents were asked to assess the difficulty of undertaking certain types of innovation activities on a scale of 1 to 3 (1 = not difficult, 2 = moderately difficult, 3 = extremely difficult). Besides, the respondents evaluated changes that occurred in their companies over two years preceding the survey.

We cannot claim the populations of the surveys in 2002 and 2004 to be identical. To allow comparison, we selected companies in ten industries (extraction industries, including oil; energy complex; metals; chemicals; pharmaceuticals; timber products; textile; food-processing; electronics, and machine building) . There were 650 such companies in 2004 versus 482 in 2002.

For the purpose of certain comparisons, we also used the results of surveys of industrial companies' directors that we held in the late 1998 and the late 2000 (735 and 742 persons, respectively)[6].

The general situation and structure of Russian industrial innovations in 2000-2004

Before attempting to evaluate innovation capabilities, we should identify conditions under which they emerge as well as the popularity of particular innovation activities. We began our analysis with the assessment of the current economic situation and dynamics of economic situation, presented by surveyed CEOs in 1998-2004 (see Table 1).

Insert Table 1 here

Never in the last eight years were the directors of Russian industrial companies as optimistic as they were at the end of 2004. The raise in the number of directors who viewed the position of their companies as "good" (including 4% of the total respondents that considered in 2004 their position as "excellent") is especially dramatic. The expectations of the companies' directors were also very positive. Moreover, the prevailing hopes for changes for the better were observed even for the companies that currently experience serious economic difficulties.

Let us examine which changes were associated with the dramatic improvement of company performance. The results of our surveys testify that profound transformations of almost all business practices have intensified over the past few years. We may see the growing extensity of change (the number of companies that have experienced some changes) and the increasing intensity of change (the proportion of Russian CEOs who indicated significant transformations of business practices) (see Table 2).

Insert Table 2 here

Analyzing the correlation between changes in business practices, we could discover that the introduction of new types of products in the traditional sphere was accompanied by the entry into a new sphere of activities in three cases out of ten (correlation coefficient of 0,341, sign. 0,000). Companies' entry into a new sphere of activity was partially based on the introduction of new technologies (correlation coefficient of 0,277). Diversification also required mastering

of new distribution channels (correlation coefficient of 0,283, sign. 0,000), and changes in the established practices of personnel recruitment (correlation coefficient of 0,178, sign. 0,000).

The analysis of intensity of changes by companies in different economic situations confirmed that ***the better the current performance was, the higher the intensity of transformation in the previous years had been.*** The statistically significant differences between groups of companies were observed in all types of innovations (see Table 3).

Insert Table 3 here

Over a third of enterprises that enjoy a good, and, particularly, an excellent position, changed their product lines. This was accompanied by intensive changes in the internal structure of companies (establishment of new divisions), changes in business partners and introduction of new distribution forms and channels. We would like to remind that almost one half of surveyed companies were in a good and excellent situation (ranging from 35% in forestry to 54% in food industry and 57% in pharmaceutical industry). Thus, the overall share of "innovative companies" in our sample was around 25%.

Impact of innovative processes on the dynamics of companies' development

The next stage of our analysis aimed to determine the impact of changes in business practices on the ***dynamics*** of the economic situation of the surveyed companies. The result was shocking: ***practically no impact was observed***[7]! Both companies that significantly improved their economic position and companies that experienced the deterioration of their situation describe almost the same changes in their activities; all differences in the intensity of changes between

groups of companies assembled along the parameter "dynamics of economic position" turned out to be statistically insignificant[8].

As far as executives' ***expectations*** are concerned, they anticipate some positive results only from entry into the new sphere of activities (correlation of 0,134). In some areas intensive innovations are related negatively with expected performance. For example, the introduction of new technologies in the recent years has a ***negative*** impact on executives' expectations concerning the future economic dynamics.

Hence, the bright picture of the "innovative heyday" that we painted begins to fade. Successful enterprises indeed transform their business processes but Russian CEOs do not connect these changes with past or future successes. A logical question arises: what makes Russian companies launch the transformation of established routines if they do not expect immediate economic results from such transformation? This particularly concerns the riskiest type of changes, i.e. entry into a new sphere of activities (we would like to remind that it is happening at half of all surveyed companies).

To answer the question about the drivers of innovation activities we tried to clarify the structure of current objectives that CEOs face (see Table 4).

Insert Table 4 here

"To grow by any means" is the current imperative of Russian companies' development. To increase sales, Russian CEOs face a usual strategic dilemma – either to concentrate on costs or

to focus on quality. However, for a great parts of Russian executives this not indeed a dilemma: almost 40% of the surveyed CEOs indicated that simultaneous improvement of quality and reduction of costs are their top priority.

The combination of these two directions is theoretically achievable through radical innovations. Indeed, Russian companies undertake effortless attempts to modify their products (significant changes of product mix happened in 90% of the surveyed companies in metallurgy, in 78% of companies in machine building; in 75% of companies in food industry, in 75% of companies in chemicals and in 69% companies in textiles). At the same time, there is intensive penetration into new spheres of activities, where they have to master new distribution channels and to find new sources of labor. However, as modification of products and diversification became the prevalent strategy in the majority of companies, they cannot automatically guarantee the gain in performance. This may explain why we were unable to find any statistically significant connections between particular innovations and the past and expected performance dynamics.

Innovation efforts and innovation failures

Let us reveal the difficulties that companies encounter when they have to change the existing business practices (see Table 5).

Insert Table 5 here

While reviewing dynamics of complexity in innovation efforts, we saw that it was possible to make a clear-cut division of all innovation activities into four groups. The first group includes

actions which were not simple in 2000-2002 and remained difficult during the past years. These are:

- Ensuring new project financing (it was extremely difficult for one half of companies both in 2002 and 2004); and
- Ensuring adjustment of business partners (it was extremely difficult for 29% of companies in 2002 and represented a serious problem for 31.5% in 2004).

The second group includes actions that were moderately difficult in 2002 and that became more difficult by 2004. They include:

- Providing companies with workforce possessing necessary qualifications: 25.9% and 39.4% of companies considered it “extremely difficult” in 2002 and 2004, respectively;
- Ensuring required quality level (18,2 and 33,7%, respectively);
- Getting access to production technology (16,1% and 21,5%, respectively).

The third group includes actions that were not perceived as difficult in 2002 but that evolved into a serious problem for the majority of companies by 2004. These are:

- Establishing an optimal price level for new products (11,1 and 40,9%);
- Achieving the required level of technological discipline (8,5 and 23,8%);
- Achieving coordinated operations of different divisions within a company (2,8 and 27,0%).

Other aspects of innovation activities also became much more complicated.

The fourth group that includes types of activities which complexity relatively diminished is represented by a sole type of activity – “achieving mutual understanding with producers of similar products”. Here, 21,5 % of companies experienced “extreme difficulty” in 2004 versus 37,1 % in 2002.

We see that most companies experience a shortage of practically all types of innovation capabilities. This signifies that the inherited internal management structure of the majority of Russian industrial companies is inadequate to the new intensity of innovation management. This conclusion is also supported by the drastically aggravated pricing problems that points to serious dissonance between marketing, technological and organizational capabilities[9].

We should stress that innovation *incapabilities* do not depend on the size of a company. As far as industry-specific differences are concerned, external and organizational capabilities do not depend on the industrial affiliation of companies. Concerning other capabilities, we can see that absolutely different industries demonstrate similar characteristics. Thus, metallurgical, timber and textile companies experience similar difficulty in such actions as "staffing", "aligning operations of business partners" and "maintaining the necessary quality level".

Regarding the innovative capabilities of companies in different current situations, we observed that getting the financing for a new project and the purchase the necessary equipment linearly depend on the current economic performance of the company – the better the performance is, the easier such actions are. However, these were the only items where we found such a relationship. Most other innovative capabilities do not clearly coincide with the assessment of the current performance. The most striking was the uniformity of the lack of qualified personnel – both companies "on the verge of bankruptcy" and companies in "excellent situation" are struggling alike. Of course, we may speculate that such companies are hunting for different types of personnel, but the consequences of staff deficiency are similar – changes in job requirements, observance of new technological standards, orchestrated work of various departments are viewed as equally difficult by companies in "bad" and "excellent" situation (see Table 6).

Insert Table 6 here

Now, we are approaching the key aspect of our analysis, i.e. identification of interrelation between actual practices and innovation capabilities. As we have seen (Table 3), companies in better economic shape are more ardent on innovations. At the same time, they do not possess superior innovation capabilities. As a result, ***the relationship between the intensity of implemented innovations and accumulated innovation capabilities is either absent or negative.*** Thus, when intensity of changes in production mix roses, maintenance of technological discipline and coordination with business partners ***become more difficult*** (correlation of 0,123 and 0,124, respectively); the intensified introduction of new technologies makes it more difficult to maintain quality level (correlation of 0,083). Most other interrelations are statistically insignificant.

Thus, we can once again derive the above conclusion that innovation activities of Russian companies largely represent involuntary actions that are not supported by internal capabilities. As soon as the scope of changes exceeds a certain critical (generally speaking, a very low) level, the implementation of key innovation actions turns into a serious problem.

We may also stress that not only intangible resources (innovation capacities) but also tangible resources for innovations are scare. The low level of resources available for innovations is confirmed by extremely low intensity in investments in the surveyed companies (see Table 7). Despite the growing satisfaction of Russian CEOs with the current performance of their companies, the proportion of companies with no investments made in the past years remained almost unchanged in 2002-2004 (60% of the surveyed companies in 2002 and 59% in 2004).

Less than a quarter of companies (22% in 2002 and 24% in 2004) implemented investments that cover or exceed the rate of physical depreciation of fixed assets.

Insert Table 7 here

We should remind here that any innovation, even innovations in "subtle" aspects of managements (staffing, performance appraisal), requires some initial costs. That is especially true for such capital-intensive business changes like mastering new products and diversification. Meanwhile, although there are some statistically significant correlations between the level of investments and the intensity of innovations, the correlation coefficients are low (see Table 8). Such changes in business practices as "diversification" and "use of new distribution channels" have no coincidence with the level of investments.

Insert Table 8 here

We may see that the proportion of companies that consider implemented changes in business practices to be "significant" (see Table 3) exceeds the share of companies that really made considerable investments. As a result, the real consequences of such "significant" changes are doubtful.

Innovation capabilities of enterprises and parenting skills of Russian corporations

Until this point, we dealt with the surveyed companies as with completely independent entities, masters of their own destiny. This is not true anymore for the main Russian industries (see Table 9). In total, almost one third of the surveyed executives admitted that their firm is part of a corporation; "hard" corporations that interfere in the operative activities of businesses are far more widespread than "soft" entities that control only strategic issues. In comparison with 2002, we may also see the spectacular growth of "informal" structures – business networks for concordance of some strategic and operation issues of legally independent companies.

The distribution of different forms of control varies broadly in different industries. Autonomous companies remained as "rudiments" in raw materials and energy sectors: the number of such companies is less than one fourth of their total number. Metallurgy and chemical industry also demonstrate a high degree of incorporation of companies into corporate structures. In a number of other industries, in particular in the textile industry, timber, and in the pharmaceutical industry autonomous firms form the majority.

We consider the ability to initiate and to promote innovations in subsidiaries an important part of "parenting skills" of a corporation[10]. We compared companies with different levels of autonomy along the intensity of the recently implemented innovations and accumulated innovation capacities. We found that autonomous companies are more inclined towards product innovations, both in the existing and new spheres of activities. In such spheres of innovations as introduction of new production technologies, new financial instruments and new forms and methods of human resource management, we did not observe any statistically significant differences between the types of companies.

Regarding the innovation capabilities, there were no statistically significant differences between the four identified groups of companies (with two serious exceptions). The newly established in Russian corporations bureaucratic procedures make more difficult to relocate personnel between various departments and to gain access to necessary technology. Thus, at the present moment, Russian corporations in general lack the "parenting skills" to enhance innovation capacities of their subsidiaries.

Our "final hope" was the expectations about the superiority of foreign subsidiaries over "Russian-owned" companies in innovation capacities. We found that this hope did not come true. Companies in completely Russian ownership, joint ventures and subsidiaries of foreign companies exhibited the similar innovation capacities. The only area where foreign subsidiaries have clear superiority over their local colleagues is "maintaining standards of quality." In all other aspects of innovations the differences were statistically insignificant.

Discussion

The economic recovery in Russia turned to be a race for growth for local industrial companies. This target is attacked at the same time from two sides – the improvement of quality and the suppression of production costs. In pursuing simultaneously these two tasks Russian industrial companies embark on endless experiments by launching modified products, re-designing business networks and re-building internal management systems. More successful companies enter into deeper transformations of their business systems; less successful companies remain more inert. At the same time, the majority of Russian CEOs does not attribute their past successes to particular innovations and "en masse" does not relate their performance expectations with on-going innovation projects. This is partly explained by the fact that all Russian companies, non-respectably of their size, industry or current performance dynamics,

experience similar problems in key aspects of innovation management – staffing, internal coordination and pricing for new products. All these problems have seriously aggravated over the past few years.

We may distinguish two major colors in this picture. The "bright" color is the mass innovation attempts by Russian enterprises. Although we have no comparable data about innovation capabilities of enterprises in other economies, we believe that difficulties Russian CEOs reported in implementation of innovation projects are similar to the problems any CEO faces in developed economies. In this respect, we may guess that there is indeed "the end of transition" of the Russian economy and the beginning of its transformation. Two additional reasons reaffirm our speculations. On the one side, the growing difficulties in new products' pricing signify the maturation of relevant markets for Russian companies. On the other side, the sharp shortage of "qualified workforce" indicates that Russian managers have established new productivity and behavior standards for themselves and their subordinates.

The "dark color" in the picture is the neutrality of innovations regarding overall economic performance and even towards partial parameters of competitiveness (quality and cost levels)[11]. This means that innovation efforts presently lack "positive reinforcement". In the absence of positive "reinforcement", innovation actions have no chance to become embedded in the "organizational memory" of a company in the form of "innovation routines", i.e. stable algorithms of actions. Every new project starts from scratch, experiencing the same difficulties. This was indeed observed as absent or negative correlations between intensity of innovative actions and innovation capabilities of Russian companies.

We should stress that this problem of "mass organizational sclerosis" cannot be healed by ritual dances of OD practitioners or by traditional medications of other professionals and amateurs of

"organizational learning." The issue is much more serious. We should understand why (contrary to all theories) innovations do not seriously affect competitiveness.

Two possible explanations may be plausible. One is the Russian CEOs' understanding of competitiveness. Here we should confess that the data presented in Table 4 ("Key objectives of company executives") was misleading. In that table, we reported only cases where respondents assessed the particular goal to be "extremely important." If we account also for cases where particular goals were stressed as merely "important," we derive the situation where 85% of CEOs rush for quality improvement, 84% of CEOs attempt to decrease costs and 73,5% of companies pursue these two goals simultaneously. Indeed, such attitudes create incentives to innovate, but superior quality with low costs is rarely achieved, either by radical innovations or over the long period of Kaizen-stile improvements. Both situations are exceptional in Russian industries as they require either massive or prolonged investments; usually both intensive and prolonged. However, we have seen (Table 8) that many innovations are implemented with meager or absent investments. Here we derive the second explanation of the feeble impact of innovations on competitiveness. Innovations, identified by CEOs, are in many cases just "good intentions," or merely sporadic actions, implemented without adequate means. Consequently the implemented innovations may indeed bring some tangible results, but such results almost never meet initial expectations of CEOs, who are attempting to derive a "magic cure" out of standard ingredients that often are taken in homeopathic doses.

Conclusions

The repetition of our survey brought more light on specific aspects on innovation processes in Russian industries. Under generally positive economic conditions most Russian enterprises intensify their innovation efforts. They implement deeper changes and such changes embrace both business and management practices. At the same time, inadequate investments make

innovation actions to be insufficient to provoke positive changes in company's competitiveness or merely to be embedded in organizational memory as "victorious routines." As a result, the innovation capabilities of Russian firms remain low. Large corporations that nowadays rule most large Russian industrial companies have little impact on innovation practices of their subsidiaries. Newly born Russian corporations lack parenting "skills" to provoke, orchestrate and stimulate innovations at business level. The aggravated shortage of qualified personnel adds to the picture.

May the wide-dispersed intentions to innovate to be transformed into more focused but "full-blooded" innovations with tangible results for competitiveness? The answer depends on three "ifs." First, Russian CEOs should shift from their current prevalent attempts of Chairman Mao-style "great leap forward" total competitiveness improvement into more modest Porter-style generic strategies. At least, they should realize that improvement of quality and suppression of costs as usually incompatible tasks. Second, new routines of organizational learning should be established in Russian companies. At least, new appropriate forms to promote and encourage innovators should be found. Both conditions depend on the third one – development of infrastructure that makes investments affordable to the majority of companies. Presently, as we look into the possible sources of investments (depreciation funds, accumulation of retained earnings, long-term bank loans, internal corporate transfers to subsidiaries, venture capital, state grants) none of the form may really serves as a secure source to finance innovation projects:

- Depreciation founds are empty as the book value of assets is minimal (in 40% of the surveyed companies the major technological equipment is older than 15 years, in machine building such companies occupy almost 60%).
- Long-term bank loans are for average lenders should be secured by pawning (see above)
- Earning are taken away by shareholders that are eager to invest into prospering Russian energy sector;

- Internal corporate transfers present a zero-sum game within a national economy – to invest into one subsidiary the headquarters of a corporation have "to squeeze" other subsidiary;
- Numerous attempts to promote venture capitalists or state grants undertaken over the past 12 years ended mostly either in cases of corruption or in vested government funds. The newest campaign of "national projects" have noble goals, but does not create a new infrastructure for investments and by no means make an access to state coffers easier to innovative projects in depressed industries.

In view of the above considerations, further accumulation of innovative capabilities of Russian industrial enterprises will be a rather slow and painful process. The successes in innovative development of some export-oriented "national champions" will be bounded by incapabilities of their local partners to adapt to the new requirements. Locally-oriented companies in situations of sufficient financing of innovations will be inclined towards ready solutions implemented by turn-key operators. In both cases breakthrough innovations in production and management technologies will be rare and will not determine the overall picture. In this respect, the sustainability of Russian economic development is not secured.

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Notes:

1. The Russian government has already stressed the importance of the *quality* of local oil for any further perspective of the oil sector.

2. B. Lawson & D. Samson, 'Developing Innovation Capability in Organizations: A Dynamic Capabilities Approach', *International Journal of Innovation Management*, 5, 3 2001, p. 384.
3. The innovation literature usually distinguishes the novelty of an idea (new for the firm, new for the sector, new for the country, new for the world) (see, for example, H. Hollenstein, 'A composite indicator of a firm's innovativeness. An empirical analysis based on survey data for Swiss manufacturing'. *Research Policy*, 25, 6, 1996, pp. 633-645). However, from a managerial point of view, the absolute or ever relative novelty of an idea usually is of minor importance. The major importance here is to have the courage to *accept* the idea.
4. The level of post-sale services and the intensity of promotion are the important components of the total quality of the product (good or service).
5. The English version of the questionnaires was presented as Appendix 1 in I. Gurkov, 'Innovations in Russian Industries: Conditions for Implementation and Impact on Competitiveness', *Journal for East European Management Studies*, 10, 3, 2005.
6. I. Gurkov, 'Business Innovation in Russian Industry', *Post-Communist Economies*, 16, 4, 2004, pp. 423-438.
7. We used regression analysis by taking changes in the economic position of companies as a dependent variable and intensity of changes in individual practices as independent variables. The quality of the generated regressive equation turned out to be quite low (Adj. R^2 = 0,052).
8. With the exception of companies that experienced a drastic worsening of their economic position over the last years; none of them entered a new sphere of activity, and introduction of new products in the existing sphere of activity was minimal. However, these enterprises account for just 1% of the total number of surveyed companies.
9. For the concept of strategic resonance see S. Brown, F. Fei, 'Strategic resonance between technological and organizational capabilities in the innovation process within firms', *Technovation*, 26 (2006), also S. Brown, S., *Manufacturing the Future—Strategic*

Resonance for Enlightened Manufacturing. (London, Financial Times/Pearson Books, 2000).

10. For the concept of "parenting skills" see Goold, M., Luchs, K.S. (Eds.) *Managing the Multibusiness Company. Strategic Issues for Diversified Groups.* London: Routledge, 1996. The intensive data on differences in innovation capabilities between autonomous companies and subsidiaries of Russian corporations is presented in Gurkov, I. 'Vosdejstvie integrirovannykh struktur unpravlenia na innovatsionnoje razvitie rossijskikh predpriyatij: popytka empiricheskogo analiza'. *Rossijskij Zhurnal Menedgementa*, Vol. 3, No. 4, 2005, pp. 55-66.
11. Here, we applied once again regression analysis taking individual parameters of a company's competitiveness (level of prices, quality level, cost level) as a dependent variable and intensity of changes in individual practices as independent variables. Once again, the quality of the generated regression equations turned out to be very low (Adj. R^2 ranging from 0,031 to 0,086 for individual parameters of competitiveness).

Table 1. Companies' current economic situation and dynamics of development as estimated by their CEOs

	Year of survey			
	1998	**2000**	**2002**	**2004**
Economic situation (%% of respondents)				
Bad (including "close to bankruptcy")	43,2	16,2	22,2	6,8
Satisfactory	48,3	66,8	66,0	48,4
Good (including "excellent")	8,7	17,0	10,9	44,8
Recent changes in the situation (%% of respondents)				
Significantly worsened	18,9	6,8	6,8	1,4
Somewhat worsened	36,4	10,5	27,7	13,9
No changes	20,4	11,4	15,6	23,7
Somewhat improved	21,8	51,9	45,5	47,6
Significantly improved	2,5	19,4	10,5	13,4

Table 2. Main business and management changes implemented in 2000-2004

Type of changes	Scale of changes	Year of survey	
		2002	2004
Introduction of new types of products in the existing sphere	***There were no changes***	***19,5***	***16,5***
	To a minimal degree	14,3	15,7
	To a certain degree	40,9	29,3
	To a significant degree	***25,4***	***38,5***
Production in a new sphere of business	***There were no changes***	***37,2***	***30,8***
	To a minimal degree	21,3	20,6
	To a certain degree	29,5	25,8
	To a significant degree	***11,9***	***22,9***
Introduction of new technologies	***There were no changes***	***17,9***	***13,2***
	To a minimal degree	25,0	22,0
	To a certain degree	43,3	35,2
	To a significant degree	***13,9***	***29,7***
Application of new financing methods	***There were no changes***	**27,8**	**19,8**
	To a minimal degree	27,8	32,2
	To a certain degree	33,9	33,5
	To a significant degree	***10,5***	***14,5***
Finding new Russian business partners	***There were no changes***	***16,2***	***10,6***
	To a minimal degree	20,4	22,4
	To a certain degree	47,7	41,3
	To a significant degree	***15,8***	***25,7***

Table 2. (continued).

Type of changes	Scale of changes	Year of survey	
		2002	2004
Use of new distribution channels and forms	***There were no changes***	***18,0***	***13,0***
	To a minimal degree	32,8	26,9
	To a certain degree	38,9	36,2
	To a significant degree	***10,4***	***23,9***
Application of new methods of job evaluation	***There were no changes***	***26,7***	***25,2***
	To a minimal degree	36,2	32,9
	To a certain degree	28,4	26,1
	To a significant degree	***8,7***	***15,8***
Introduction of new remuneration systems	***There were no changes***	***10,9***	***13,2***
	To a minimal degree	27,8	29,7
	To a certain degree	42,7	34,0
	To a significant degree	***18,5***	***23,1***

Table 4. Key objectives of companies' executives in 2004

Objective	**Percent of executives that identified this objective as "very important"**
Increasing sales volumes	71,8
Enhancing profitability	68,6
Stable financial position	64,9
Cost reduction	59,5
Quality improvement	57,3
Strengthening positions in the domestic market	56,7
Modernization of production	44,7
Enhancement of company's value	31,1
Preserving jobs	30,0
High remuneration of employees	21,6
Entering foreign markets	19,9

Table 5. Difficulties of implementing certain types of activities as estimated by executives of Russian companies

Type of activity	**Relative difficulty of implementing the activity**	**In 2002**	**In 2004**
Ensuring new project financing	Not difficult	6,0	5,0
	Moderately difficult	40,8	45,9
	Extremely difficult	**53,2**	**49,1**
Providing with workforce	Not difficult	22,8	14,9
	Moderately difficult	51,7	45,7
	Extremely difficult	**25,5**	**39,4**
Achieving the desired quality level	Not difficult	12,6	13,0
	Moderately difficult	69,2	53,3
	Extremely difficult	**18,2**	**33,7**
Changing the range of executives' and specialists' responsibilities	Not difficult	61,3	34,6
	Moderately difficult	35,8	48,3
	Extremely difficult	**2,8**	**16,9**
Achieving coordination between operations of different departments	Not difficult	50,4	19,2
	Moderately difficult	46,8	53,8
	Extremely difficult	**2,8**	**27,0**
Ensuring control and accounting of expenditures for innovation activities	Not difficult	76,5	34,0
	Moderately difficult	22,0	53,8
	Extremely difficult	**1,4**	**12,3**
Identifying specifications of products desirable for consumers	Not difficult	46,4	32,4
	Moderately difficult	44,9	53,3
	Extremely difficult	**8,7**	**14,3**

Achieving the required level of technological discipline	Not difficult	21,8	17,1
	Moderately difficult	69,7	59,1
	Extremely difficult	**8,5**	**23,8**
Ensuring adjustment of business partners	Not difficult	18,0	18,7
	Moderately difficult	53,1	49,8
	Extremely difficult	**29,0**	**31,5**
Establishing the optimum level of sale prices for new products	Not difficult	41,4	9,1
	Moderately difficult	47,5	50,0
	Extremely difficult	**11,1**	**40,9**
Achieving mutual understanding with producers of similar products	Not difficult	19,6	20,0
	Moderately difficult	43,3	58,5
	Extremely difficult	**37,1**	**21,5**
Getting access to new technology	Not difficult	38,0	24,2
	Moderately difficult	45,9	54,1
	Extremely difficult	**16,1**	**21,5**

Table 7. Investment activities of Russian industrial companies – percentage of companies in particular industry

Industry	Cumulative investments in the past two years as a proportion of the company's fixed assets					Year of survey
	Zero	Less than 5 percent	5-10 percent	10-20 percent	More than 20 percent	
Raw materials	24	5	24	16	29	2002
	26	11	26	18	18	2004
Electricity	26	48	4	11	11	2002
	42	25	18	9	5	2004
Timber	20	33	7	13	27	2002
	38	21	17	12	12	2004
Chemicals	30	36	31	3	9	2002
	31	20	29	16	16	2004

Table 7 (continued).

Industry	**Cumulative investments in the past two years as a proportion of the company's fixed assets**					**Year of survey**
	Zero	**Less than 5 percent**	**5-10 percent**	**10-20 percent**	**More than 20 percent**	
Metals	10	48	19	9	14	2002
	27	27	27	7	13	2004
Machine-building	34	32	22	6	6	2002
	37	28	10	14	10	2004
Electronics	15	46	11	8	19	2002
	40	19	19	16	7	2004
Food processing	27	11	23	11	27	2002
	31	12	16	21	11	2004
Textiles	30	40	20	0	10	2002
	36	36	9	7	12	2004
Total	***27***	***33***	***18***	***8***	***14***	***2002***
	35	***24***	***17***	***13***	***11***	***2004***

Table 8. Correlations between intensity of innovations and intensity of investments

Innovation	Level of investments
Introduction of new types of products in the existing sphere	,085(*)
Production in a new sphere	,070
Introduction of new technologies	,191(**)
Use of new methods for quality control	,095(*)
Use of new financing methods	,089(*)
Finding new Russian partners	,033
Use of new distribution forms and channels	,030
Use of new forms and sources of personnel recruitment	,053
Use of new methods of performance appraisal	,076
Introduction of new remuneration schemes	,061

Note: * Correlation is significant at the 0.05 level (2-tailed);

** Correlation is significant at the 0.01 level (2-tailed).

Table 9. Distribution of surveyed companies by perceived independence in decision making

Level of a company's autonomy	**Percent In 2002**	**Percent in 2004**
Our firm enjoys full autonomy in decision making	50,9	46,8
Our firm is a member of an informal group which participants coordinate certain activities	9,6	19,7
Our firm is part of a structure that determines prospective development	8,2	10,5
Our firm is part of a structure that determines prospective development and current activities	23,2	20,3
Other	4,4	1,6
Difficult to answer	3,8	1,7