

**Innovative actions and innovation (in)capabilities of Russian industrial
companies – A further extension of observations**

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Abstract

This article reports on the results of the further extension of a quasi-longitudinal survey among top corporate executives in Russian industry, presenting a snapshot of current innovation actions and innovation capabilities of Russian enterprises. Through a comparison between the responses from the 2004 and 2010 survey changes in the business and management of Russian companies are examined. The perceived abilities to perform particular stages of innovation projects have significantly increased and Russian companies successfully use contractors for various types of innovation activity. However, the intensity of innovations remains low and the resources that can be utilized to create innovations at Russian CEOs' disposal remain limited as few actual innovation projects satisfy the criterion imposed by Russian owners to improve the overall profitability of the firm. The "owner's" criterion for evaluating innovation effectiveness specially impedes radical product innovations and breakthrough innovations in production technologies. The results of this study indicate that the relationship between the perception of innovative capabilities by CEOs and intensity of innovations proved to be a valuable research construct and this suggests that comparative study on innovative capabilities of firms in emerging and developed economies would be a profitable extension of this research.

Introduction

Five years ago, I published an article on innovation actions and innovative capabilities of Russian industrial companies (Gurkov 2006). This research was conducted during a period of rapid economic growth, partly based on import substitution after the fourfold devaluation of the local currency in 1998 and partly on a very favorable price dynamics for oil, gas and metals that constituted the major part of Russian exports at the time. Russian industrial companies had accumulated substantial financial reserves and for the first time in the modern economic history, they were able to get easy access to foreign credits. However, despite all these positive factors, our conclusions from 2006 were rather pessimistic: ‘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 by Russian industrial enterprises will be a rather slow and painful process. The successes in innovative development of some export-oriented ‘national champions’ will be limited by the inability of their local partners to adapt to new requirements. Locally-oriented companies with 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’ (Gurkov 2006, 297).

We cannot pretend to be prophets, as the reality turned to be worse than we had predicted. Even before the financial crisis, in 2006-2008, the largest Russian

Grishankov 2009). The financial crisis resulted in sharp and deep contraction of most industries (from 2.2% in oil and gas to 56% in machinery and equipment and with overall contraction of the Russian industrial output by 24% between July 2008 and March 2009) (see Illarionov 2009). The industrial recovery turned out to be slow and painful. At the end of 2010, the overall volume of industrial output was still lower than in 2007. Ardent efforts of the Russian Presidency to start ‘modernization’ of the national economy have not resulted so far in any visible successes. However, we should remember the proverb ‘Necessity is the mother of invention’ and proposed that the post-crisis recovery may be partially based on intensification of industrial innovations. As in our survey of corporate executives implemented at the midst of the crisis, in December 2008-March 2009, almost a third of companies planned to ‘accelerate design and market launch of new products’ (see Gurkov 2009) we expected to examine the results of such plans. Thus, in 2010 we proceeded to administer a survey of CEOs of Russian industrial companies on innovative actions implemented in the previous years. We tried to present a ‘stereoscopic’ view on both real innovative actions and perceived innovation capabilities of Russian industrial companies.

The paper is organized as follows: after the short introduction on the empirical basis for our analysis, we present an optimistic view on innovative capabilities as CEOs of Russian industrial companies perceive them. Next, we present a rather pessimistic view on effectiveness of innovative actions. Discussion and suggestions for further research occupy the last section of the paper.

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

Our observations of innovative actions of Russian industrial companies through the surveys of corporate executives started in 1998¹. In 2004, we were able to collect 450 questionnaires from industrial companies with 100 and more employees. Such respondents represented companies in ten industries (extractive industries; energy complex; metals; chemicals; pharmaceuticals; timber products; textiles; food-processing; electronics and machine-building). In late 2010 we were able to collect in total 140 questionnaires from CEOs of industrial companies and to use for further analysis 103 questionnaires (others were excluded for important parts missed). We put especial efforts to achieve the similarity of the samples of 2004 and 2010 along the size of companies expressed by number of employees and along several other parameters such as the proportion of independent companies and subsidiaries and the presence of companies from all the industries analyzed in 2004.

Innovation capabilities of Russian industrial companies – an optimistic view on considerable improvement

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’. From a managerial point of view, the absolute novelty of an idea is not important; the most important is that innovation represents a new practice for the firm.

New products are usually the most visible part of innovation processes, in most of the cases the necessity to develop and launch new products serve as the main impetus for innovations in processes and systems. Thus, in our paper innovation

capabilities are defined as the ability of a firm to perform certain works within a project of new product launch, namely:

- securing financing for a new project;
- gaining access to the necessary technology (if a project involves mastering new technology);
- installation and launch of new production, storage and sales capacities (plants, production shops, warehouses, points of sales);
- attracting necessary workforce (or retraining the existing workforce);
- amendment of current job design, changing the priority of particular tasks;
- management of efforts of various functional departments of a firm;
- maintaining control over innovation expenses;
- determining customers' preferences and thus the necessary properties of a new product;
- prototype design;
- reaching necessary level of quality and the stability of production processes;
- synchronization of the efforts of partners in the value chain (suppliers and distributors);
- determining an optimal price level of a new product;
- reaching 'understanding and acceptance' of the firm's actions by competitors;
- gaining necessary licenses and certificates;
- running promotion campaigns for new products;
- creating new distribution channels.

The perceived difficulty in implementation of particular tasks and actions expressed by CEOs of Russian industrial companies is presented in Table 1.

Table 1. Difficulties of implementing certain types of activities as estimated by CEOs of Russian industrial companies

Type of activity	Relative difficulty of implementing the activity	In 2004	In 2010
Ensuring new project financing	Not difficult	6,2	12,2
	Moderately difficult	44,9	57,8
	Extremely difficult	49,0	30,0
Mastering new distribution channels	Not difficult	n.a.	12,1
	Moderately difficult	n.a.	58,2
	Extremely difficult	n.a.	29,7
Achieving mutual understanding with producers of similar products	Not difficult	22,0	23,8
	Moderately difficult	57,8	47,6
	Extremely difficult	20,2	28,6
Ensuring adjustment of business partners	Not difficult	17,3	18,6
	Moderately difficult	51,9	57,0
	Extremely difficult	30,8	24,4
Implementing promotion campaign for a new product	Not difficult	n.a.	14,9
	Moderately difficult	n.a.	60,9
	Extremely difficult	n.a.	24,1
Recruiting necessary workforce	Not difficult	16,1	22,3
	Moderately difficult	45,8	55,3
	Extremely difficult	38,1	22,3
Getting access to new technology	Not difficult	24,7	32,2
	Moderately difficult	55,1	48,9

	Extremely difficult	20,0	18,9
Achieving desired quality level	Not difficult	13,3	15,8
	Moderately difficult	53,2	69,5
	Extremely difficult	33,5	14,7
Achieving required level of technological discipline	Not difficult	15,6	18,1
	Moderately difficult	60,5	70,2
	Extremely difficult	23,9	11,7
Establishing the optimum level of sale prices for new products	Not difficult	9,2	36,6
	Moderately difficult	50,2	53,8
	Extremely difficult	40,5	9,7
Achieving coordination between operations of different departments	Not difficult	18,2	39,6
	Moderately difficult	55,1	51,0
	Extremely difficult	26,7	9,4
Ensuring control and accounting of expenditures for innovation activities	Not difficult	34,0	51,1
	Moderately difficult	54,0	41,3
	Extremely difficult	11,9	7,6
Identifying specifications of products desirable for consumers	Not difficult	34,4	43,3
	Moderately difficult	52,6	50,0
	Extremely difficult	12,9	6,7
Changing range of executives' and specialists' responsibilities	Not difficult	32,3	49,5
	Moderately difficult	48,0	45,3
	Extremely difficult	19,4	5,3

The results presented in Table 1 were significantly different from the expected results in terms of positive attempts at innovation activities. It seems that CEOs of Russian industrial enterprises have learned a lot during the past decade. 'Ensuring new project financing' is still at the top of the difficulties for any innovation projects, but it does not represent, as it used to be, an unachievable task for the majority of companies. Technical aspects of innovation projects such as accessing technology, achieving the desired quality level, and maintaining technological discipline have moved towards the middle of the list of difficulties while organizational aspects of innovations in terms of achieving coordination between operations of different departments, changing range of executives' and specialists' responsibilities have moved towards the very bottom of the list of possible difficulties. Instead, marketing aspects of innovations through marketing channels and promotion activities as well as tasks such as coordination with suppliers and overcoming the resistance of competitors have become the most difficult tasks in innovation projects. It seems that these results indicate the growing maturity of the market economy in Russia.

As we have demonstrated the significant improvement of innovation capabilities of Russian industrial companies during the last decade, we tried to reveal the cause for such improvement. Usually the accumulations of firms' capabilities are attributed to 'learning by doing' and 'learning by collaborating'. As the firm repeatedly performs innovation actions, it should create special routines for such actions. Thus the outcome of such actions may be still new for the firm, but the actions themselves may be viewed as standard. In such situations 'learning by doing' may take place in innovation activity. However, the relationship between the innovation capabilities and the intensity of innovations is not straightforward. From one side, it seems natural that intensive innovation efforts form the basis for

possibility to perform the particular tasks and actions, should be higher for the firms actively involved in mastering new products. From the other side, the greater number of innovation projects may lead to the lower *subjective assessment* of capabilities of a firm by its top executives as the accumulation of innovation routines may be slow and an executive may face repeatedly the same difficulties in implementation of innovation projects. Thus we first examined the actions undertaken by the surveyed firms over the past few years and next tried to reveal relationship between the regularity of particular types of innovation and perceived difficulties in performing those R&D activities. The data presented in Table 2 shows low regularity of innovation activity in Russian companies. Only ‘purchase and installation of new equipment’ and ‘mastering new methods of quality control’ are performed regularly by a third of the surveyed firms. Design and launch of new product is a regular practice of a quarter of firms. Some firms also reported on irregular attempts to perform various types of innovation works, but there is also a significant share of firms (45%) that has no regular practices of any innovations.

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We tried to find differences between the companies where at least some innovative works are performed regularly and the companies without such experience. No significant differences were found in perceived difficulties of innovation works between the two groups of companies. This confirms that capabilities to perform innovation works are neutral to 'learning by doing'.

The effect of 'learning by collaborating' was assessed by comparison of difficulties in performing innovation works across companies with various level of inter-company innovative collaboration such as participation in innovative consortiums, joint ventures and other activities. Here we found that inter-company collaboration in Russian companies is achieved only under extreme necessity. Only a few companies that regularly use consortiums and joint ventures for innovation projects reported extreme difficulty of such actions as 'installation and putting in

motion of new equipment’, ‘orchestration various departments’, ‘revealing customers’ needs’, or ‘prototype design’.

We cannot exclude an additional plausible reason for accumulation of innovative capabilities that we call ‘learning by private tutoring’. What is meant here is the use of subcontractors and consultants either for executing the complete sets of innovations actions from idea to implementation or for contracting out particular steps of innovation projects.

For a proper understanding of the impact of ‘private tutoring’ on accumulation of innovation capabilities we revealed the role of subcontractors in the actions really implemented and compared the perceived difficulties in executing the particular types of actions.

The role of subcontractors for companies that regularly or occasionally launch products in the existing spheres of activity is presented in Table 3.

Table 3. Use of subcontractors (consultants) by the firms that regularly or occasionally introduce new types of products in the existing sphere (assessment by CEOs)

Type of actions	Extend of use		
	Not used	In some extent	Actively used
Purchase of necessary equipment	16	46	38
Revealing customers’ preferences for product’s characteristics	42	23	34

government licenses and certificates			
Executing promotion campaigns	39	30	31
Recruitment of new personnel	29	40	31
Prototype design	31	41	28
Gaining access to new technologies	34	38	28
Mastering new distribution channels	39	37	24
Implementation of new remuneration schemes	53	26	21
New forms of training	32	49	19
Creation of new technologies	51	31	18
Search for new ideas	53	30	17
Design of new organizational structures	77	14	9

We may see that the majority of works directly related with the launch of new products are executed with the aid of subcontractors (consultants). If we will consider only the firms that *actively* launch new products, 75% of these firms use subcontractors for at least several types of innovation works. For example,

- active mastering of new methods of quality control was assisted by subcontractors in 85% of cases including 25% of the cases of ‘limited use of

- active use of new methods of personnel assessment was assisted by HRM consultants in 83% of cases including 22% of the cases of “limited use of subcontractors’
- when the surveyed firms were actively involved in purchase and installation of new equipment, this was assisted by subcontractors in 65% of the cases and in installation and putting in motion in 68% of the cases.

Our results testify about the emergence within Russian industries of an established system of specialized firms providing support to complex innovation projects or just assisting industrial companies in executing specific innovation tasks and works. This is a rather underexplored and understudied phenomenon for post-Soviet Russia.

Of course, the quality of assistance provided from subcontractors and consultants may differ as well as the reasons for the use of subcontractors. As the literature on strategy indicates that the reasons for the use of subcontractors such as subcontractors may be invited to perform tasks that are either too difficult or too easy to execute by the firm itself we may stipulate a dual relationship between extent of the use of subcontractors and the degree of difficulty to perform specific actions within the innovation projects. We performed the necessary statistical analysis² and discovered that the use of subcontractors and consultants may coincide with both higher and low levels of perceived innovative capabilities. The use of subcontractors in technology and capacity development through the purchase and installation of new equipment and developing new technologies indeed make many types of innovation works *easier* by ‘achieving required level of technological discipline’, ‘achieving desired quality level’, ‘ensuring control and accounting of expenditures for innovation activities’ and even ‘achieving mutual understanding with producers of similar products’. The list of facilitated works is a sign of the inclination of Russian

At the same time, many other types of innovation works that are actively contracted out indicate the lack of corresponding abilities and competences. First and foremost the ‘support in establishing new methods for quality control’ is related with higher perceived difficulties in ‘changing range of executives’ and specialists’ responsibilities’, ‘ensuring control and accounting of expenditures for innovation activities’, and ‘achieving required level of technological discipline’. Lobbyists are invited if ‘receiving necessary government licenses and certificates’ is a tricky task for the firm. Finally, organizational and HRM consultants are invited only when design and implementation of new performance appraisal and remuneration schemes meet serious resistance from employees.

Thus, we are unable to attribute the discovered improvement of innovation capabilities of Russian companies to firms’ own actions through “learning by doing”, nor to ‘learning by collaborating’, or ‘learning by tutoring’. We still may assume that some other factors may contribute to higher assessment of innovative capabilities of firms by their own top executives. However, the inability to find the clear connections between the actions of firms and perceived capacities to perform particular actions leads to a more pessimistic view on innovation actions of Russian firms that is presented in more details in the following section.

Innovations actions of Russian industrial companies – A pessimistic view on odd motives and low effectiveness of industrial innovations

After a rather positive picture of perceived innovation capabilities of Russian industrial companies, we should deal with a more dark side of innovation process in Russian industrial companies that involve the lack of investment. The low investment level is a long-recorded phenomenon in Russia that even during the best years of

did not surpass 18% of GDP (see Kossov forthcoming). However, the results show extremely low intensity of investments in 2009-2010: 32% of firms did not make any investments during that period, further 43% of companies made investments below 10% of their annual sales. Investments that surpassed 10% of annual sales made a quarter of the surveyed firms. The range of sources of investments remains narrow; the major source of investments is retained profits. Bank credits and financial leasing was used merely by 45% of the surveyed firms, additional capital injections by shareholders were reported by 24% of the firms, and just four firms reported the use of governmental funds. In the last months of 2010 and the first months of 2011 that were determined to the period of economic recovery the volume of investments in fixed assets continued to decrease.

We cannot attribute the low level of investments to the general lack of financial resources as between August 2008 and March 2011 the capital outflow from Russia totaled US\$260 billion. Instead, the capital flight indicates low attractiveness of the Russian economy to local investors. In this respect, it is interesting to look again to the data presented in Table 2. A third of CEOs reported routine purchase of new machinery and equipment but only a quarter of companies made significant investments. The difference indicates that many innovative actions are indeed are minor alterations of existing processes and systems. Indeed, we found that the level of investments strongly coincide with process innovations like ‘mastering new methods of quality control’ and with revision of HRM systems, while product innovations and ‘gaining access to new technologies through purchase of patents and licenses’ have very low correlation with the level of investments (see Table 4).

Table 4. Correlations between the level of investments and the intensity of particular actions in 2009-2010

Type of actions	Corr.	Sign.
Revision of supply schemes	0,167	0,109
Acceleration of design and market launch of new products in traditional business area	0,191	0,065
Acceleration of design and market launch of new products in new markets	0,151	0,145
Mastering new distribution channels	0,272	0,008
Purchase and installation of new equipment and production facilities	0,315	0,002
Mastering new methods of quality control	0,365	0,000
Purchase of patents and licenses	0,154	0,140
Mastering new financing schemes	0,248	0,016
Active recruitment of new personnel	0,329	0,001
Implementation of new remuneration schemes	0,305	0,003

We should remember that two thirds of CEOs indicated that ensuring financing for innovation project is not an ‘extremely difficult task’ (see Table 1). If we take their words seriously, we should explain why they refuse to spend time and money for such ‘not extremely difficult tasks’.

Here we approach the key point in our analysis as we pretend to understand why product and technological innovations in Russia are not attractive either to local

major cause of low innovation attractiveness is unrealistic expectations about innovations. In our survey, we asked CEOs about motives for innovations³. CEOs mentioned ‘pressure of customers’ (79%), ‘necessity to meet new government’s demands’ (76%), ‘pressure of suppliers’ (65%), but the reason ‘to increase firm’s profitability’ was at the very top of the list (86%). Our analysis revealed that only ‘mastering new distribution channels’ in 2008-2009 had positive impact to the level of profitability of the surveyed firms in 2010⁴. At the same time, the *requirement for innovations to improve the profitability of the overall business portfolio puts almost impenetrable barriers to breakthrough product innovations and to development of completely new, untested technologies*. It seems that the natural absence of easy-to-implement business ideas of abnormal profitability in Russian low-tech industrial sectors serves the major obstacle for local investors to allocate sufficient funds for product and technological innovations in their companies.

Of course, we cannot claim that owners of Russian industrial companies are totally against innovations. When CEOs indicated as the major reason for innovations ‘the pressure of owners’ their companies are putting greater emphasis on ‘purchase of patents and licenses’, ‘mastering new methods of financing’ and ‘acquisition of other firms’⁵. This may be fine, but such actions rarely coincide with radical product and technological innovations. The type of ownership (concentrated or dispersed private ownership, state ownership) has no statistically significant consequences for the intensity of implemented innovations. We also expected that the participation of CEOs in ownership of their firms might have the impact on intensity of innovations. As in our sample all types of CEOs were presented (10% of the surveyed CEOs were sole proprietors of their companies, further 13% of CEOs processed controlling or blocking holdings, 17% processed minority stakes in their companies and 60% of

statistical analysis. However, no visible differences in intensity of innovations were discovered.

In general, the present owners of Russian industrial companies do not favor radical product and technological innovations as it is difficult to implement such projects through turnkey projects, projects that have longer payback periods and evaluation of those projects is based essentially on vague estimations and unsure predictions.

Invitation to discussion and suggestions for further research

We tried to present a ‘stereoscopic view’ on current innovations processes in Russian industries using spectators with the lenses of different colors. We proved that over 2000s Russian industrial companies have improved somehow their innovation capabilities, at least CEOs of Russian companies feel more self-confidence facing various tasks and works related to innovations. Russian companies also mastered the use of subcontractors and consultants for the majority of innovations works. The use of subcontractors for capacity development, as well as (rather rare) invitation of organizational and HRM consultants make many types of innovation works easier to implement. In cases of extreme difficulty of such actions as ‘installation and putting in motion of new equipment’, ‘revealing customers’ needs’, ‘prototype design’ Russian companies form innovation consortiums and joint ventures. In general, more or less *effective routines* for innovation works are established in a majority of Russian industries. At the same time, *effectiveness of industrial innovations remains low* as most types of innovations, especially radical product and technological innovations do not directly move the firm towards the desired outcome of innovation process towards a quick and certain rise of overall profitability of the firm. Both

size Russian companies these two groups greatly overlap. The unmet expectations impede the allocation of sufficient investments for innovations and limit the number of 'active innovators' in all Russian industries. In turn, as most innovations are implemented in occasional and inconsistent manner, accumulation of firm's specific innovation capacities is an extremely slow process.

The reported prevalence of firm's profitability as the leading motive of innovations among Russian owners and top executives presents a serious theoretical problem. From one side, a Schumpeter's tradition in innovation studies puts a special emphasis on 'the rent of innovators', in this respect there is nothing wrong with the desire of owners and their agents to profit from innovations. From the other side, in mature industries that constitute the overwhelming part of the Russian industrial sector, 'the rent of innovators' mostly emerges through the manipulation of the value chains and this was proved again by our analysis of innovations that affect firms' profitability. Examples of companies from mature industries that achieved to combine manipulations of the value chains with product innovations are rare (Zara, Dell) and even these companies stay away from radical product and technological innovations.

Our results may suggest that the tendency of academic studies and especially innovation textbooks should be seriously revised to instead of presenting innovations as 'universal medication' the emphasis should be placed for presenting innovations as merely necessary 'hygienic procedures', 'fitness exercises' and 'vitamins' that assist companies to stay 'in shape'. However, we cannot be assured that our advice is applicable beyond Russia's border. In this respect, our major suggestion for further studies is to create the possibilities of international comparison of motives for innovations, perceived innovation capabilities and implemented innovative actions. As the corresponding instruments have been used repeatedly in mass surveys of

glad to supply them to other researchers. Such a comparative study should embrace various industries and types of businesses in both emerging and developed economies. It may contribute to studies of productivity growth and bring additional insight into research on cross-country capital flows and diffusion of innovations. Evaluation of perceived difficulties to innovate during upturn and downturn periods may produce interesting and perhaps unexpected results on efficiency and effectiveness of national innovation systems.

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Notes:

1. The English version of the questionnaires was presented as Appendix 1 in Gurkov (2005).
2. One-way ANOVA with post-hoc multiple comparison by Duncan's criterion with significance at 0.05.
3. A detailed analysis of motives for innovations and expectations of Russian industrial CEOs about intra-organizational effects of innovations see (Gurkov and Morgunov 2010).
4. We used regression analysis to reveal the possible impact of innovations on various parameters of firms' performance as well on their competitive position. The lower level of costs are partly achieved by 'revisions of supply schemes' and

5. All reported differences were discovered by T-tests and had significance at least at 0.080.

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