Key stakeholders' interaction as a factor of product innovation: the case of Russia

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Abstract: The paper aims to investigate the nature of innovativeness through the lenses of the firm's cooperation with key internal and external stakeholders. The selection of key stakeholders and the measurement of their involvement in the development of innovations contribute to the identification of the main innovativeness profiles, whereas interaction with partners and effective interfunctional collaboration are seen as central differentiation criteria for the firm. The study of stakeholder involvement in innovation-related processes can discover vital sources of long-term competitive advantage and radically change a firm's business model. A company survey is used to analyse the current status of internal and interfirm cooperation within New Product Development (NPD) in Russia's emerging economy. The results provide empirical evidence on the share of firms involving internal and external stakeholders in product innovation activities and the level of success of interaction.

Keywords: product innovation; internal and external stakeholders; stakeholders' interaction; Russia.

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1 Introduction

One relationship paradigm axiom states that "no business is an island" (IMP Group, 1982). This sentence gains more importance in relation to the development of a firm's innovativeness through cooperation. The analysis of the role of interaction with stakeholders is a factor that potentially enhances innovativeness and contributes to the success of new products or services brought to the market. The term 'innovation' can be understood as "the successful introduction of a new thing or method . . . Innovation is the embodiment, combination, or synthesis of knowledge in original, relevant, valued new products, processes, or services" (Luecke and Katz, 2003). Since the specifics of cooperation with both internal and external partners will depend on the nature of innovation (Sivadas and Dwyer, 2000), this paper is primarily focused on New Product Development (NPD) processes and the existing cooperation patterns with internal and external stakeholders by Russian firms from multiple industries.

NPD is one of the most visible and easily measurable forms of innovation that also often requires the integration of efforts of more than one firm, reducing the risks and leveraging the resource potential of the partners. Understanding the way firms select key stakeholders and assess the success of their involvement in NPD can contribute to the identification of the main innovativeness profiles and differentiation criteria of the firm.

Even more important is this aspect in relation to the firms from emerging markets, where collaboration with stakeholders is often a unique opportunity to enhance one's own know-how, technological competency and NPD. Internal and external stakeholders' involvement is thought to compensate for a weaker institutional environment that lacks financial support and has difficulties in developing competitive offerings.

In the case of Russia, the late integration of market actors into the global marketplace creates a specific environment for the Russian firms aiming to improve their innovativeness. On the one hand, significant spillover effects from the Multinational Corporations (MNCs) entering the growing Russian market and, on the other hand, the joint effect of lower competences, the lack of market knowledge and strategic delays in technological and infrastructure development make it more difficult to keep pace with the level of innovativeness demonstrated by global market players. The more firms aim for ambitious growth, the more important it is to become integrated into a wider network with significant learning and know-how effects. The motivation and identification of joint aims with external stakeholders thus becomes a crucial and vital point in a firm's strategy development and creation of cooperative competency (Sivadas and Dwyer, 2000).

There are certain limitations in the existing research on NPD when addressing the role of multiple stakeholders both within and outside the firm. The existing literature either tends to adopt a single-function perspective (Tatikonda and Montoya-Weiss, 2001) or is limited to discussing case-based studies on multiple stakeholders' interaction (*e.g.*, Sheng and Rui, 2006). There is no research on combining the investigation of the internal and external coordination of multiple stakeholder interaction; even less research evidence exists on the patterns of such interaction in emerging markets.

The paper aims to contribute to the existing theory twofold: by identifying and describing the existing profiles of stakeholders' product innovation-related interaction in the Russian market and by measuring the success of this interaction.

Therefore, the first research question is related to assessment of the current status of internal and interfirm cooperation within NPD in Russian companies. The ability to develop and introduce to the market successful new products has become a crucial factor in competing with the MNCs in the Russian market. Just a few research papers aim to discuss the factors of NPD in Russia while significant changes occur in the economy, management culture and strategies of firms.

Besides the identification of the main interaction patterns with internal and external stakeholders in relation to NPD, another research question concerns assessing the effect of this interaction. The exploitation of opportunities that arise from interaction with other companies (Mouzas, 2006) is one of the sources of sustainable growth and not just a driver of increase in profitability.

This study presents the results of an empirical survey of 160 large Russian firms and analyses the existing patterns of firm interaction with internal stakeholders (functions) and external stakeholder groups. The key criteria used to describe stakeholder interaction are the involvement of particular stakeholder groups and the performance of interaction with these stakeholders in frames of product innovation-related processes. Data analysis has provided empirical evidence on the share of firms involving internal and external

stakeholders in Research and Development (R&D) activities and the level of contribution to firm performance and new product success through key stakeholders' interaction. Another result is evidence on the existing differences between the groups of firms with various levels of business performance and the types of new product innovation.

The paper is structured as follows: firstly, the marketing perspective of the stakeholder framework is presented, followed by the discussion on the classification of stakeholders as internal and external. Secondly, the research propositions and methodology of the study are formulated and finally, the key findings are discussed and the main managerial implications are proposed.

2 Literature review

2.1 The scope of firms' cooperation with internal and external partners

The stakeholder approach is a tool to analyse and manage the marketing environment, manage a firm's marketing relationships and enhance the marketing strategy (Polonsky *et al*., 2002; Menon and Menon, 1997). Being focused on the market-oriented and market-driven behaviour of the firm, marketing researchers address the stakeholder approach when analysing the role of a firm's external environment. The impact of market orientation on a firm's performance can be significantly moderated by the external environment (Gray *et al*., 1999) and the role of stakeholders in managing this moderation effect can be substantial.

The research field significantly overlaps with the network approach in marketing that specifies market relationships (Polonsky *et al*., 1999; Gummesson, 1994; Achrol, 1997; Slater, 1997). Analysing the stakeholder framework, Murphy *et al.* (1997) directed researchers towards assessing the satisfaction of all the stakeholders within an exchange network. The developments of this research flow have coincided in time with the major developments in the relationship and network marketing literature (Achrol, 1997; Gummesson, 1994). But the conceptualisation of stakeholders can also be seen quite differently from the network concept. Freeman (1984) defined the stakeholder model as "a map in which the firm is the hub of a wheel and stakeholders are at the ends of spokes around the wheel. In this hub-spoke conceptualization, relationships are dyadic, independent of one another, viewed largely from the firm's vantage point and defined in terms of actor attributes." The dyadic nature of relationships and the omitted potential interlinks between stakeholders rather contradict with the advances of the network approaches in marketing and limit the analysis of potential stakeholders' contribution to a firm's development and the potential contribution to product innovation.

While the stakeholder theory is mostly focused on external stakeholders, the marketing literature has significantly contributed to the understanding of interfunctional coordination and the alignment of activities and functions within the firm (*e.g*., Narver and Slater, 1990). In most cases, marketing is seen as an integrating function, creating knowledge about the market, transferring this knowledge among departments and coordinating the activities of the many employees involved in customer-related processes. Interfunctional coordination is closely linked to the concept of alignment, which forms the essence of management, as argued by Labovitz and Rosansky (1997). Following this logic, the mutually supportive elements within the firm will become sources of competitive advantage (Miller, 1996). There are multiple approaches to

conceptualising alignment, among them the concept of multidimensional alignment as effective collaboration between functions and between customers and suppliers (Dyer, 1996; Burdett, 1994), cultural alignment (Fuller and Vassie, 2001), values alignment (Branson, 2008), vertical/horizontal alignment (Kathuria *et al*., 2007) and the market orientation concept of interfunctional alignment (Narver and Slater, 1990). All of the alignment concepts follow a specific motivation, driving the firm's efforts to align its internal process to achieve better performance and external alignment. Considering the product development field, the role of interfunctional coordination is widely presented in the research literature (Tatikonda and Montoya-Weiss, 2001; Brown and Eisenhardt, 1995; Ulrich and Eppinger, 2000).

While interfunctional coordination is meant to integrate the knowledge received from the customer- and competitor-oriented interaction, the firm is usually involved with a wider network of partners, which requires an even more complicated internal coordination of information among various functions. Murphy *et al*. (1997) pointed to the importance of understanding a potential gap in the perception of internal and external stakeholders ('external gap'), as well as the gap within the firm ('internal gap'). Both of them should be managed strategically to reduce the negative effects on the firm's performance. Thus, it can be implied that successful firms combine the involvement of both internal and external stakeholders in NPD in an optimal way. This combination can also reduce the risks of gap existence and, therefore, increase the chances for new product success in the market.

Research Proposition 1 (P_1) — *There is interdependence between the involvement of the internal and the involvement of the external stakeholders of a firm.*

2.2 *Assessing the role of internal and external stakeholder involvement*

The role of a firm's partners and stakeholders as a source of knowledge to enhance innovativeness has been stated in the research literature (Elias *et al*., 2002; Sheng and Rui, 2006; Hart and Sharma, 2004). The potential of stakeholders to enhance radical innovations can vary significantly and depend on multiple criteria. It can be implied that the innovative potential of interaction with certain stakeholder groups can be governed by the same relational principles identified in the abovementioned classifications. Following this logic, we can state that a number of approaches to classifying existing and potential stakeholders are based on the relational features of stakeholder interactions. Thus, Mitchell *et al*. (1997) developed a typology of stakeholders based on the number of attributes, including power (the extent to which a party has the means to impose its will in a relationship), legitimacy (socially accepted and expected structures or behaviours) and urgency (time sensitivity or criticality of the stakeholder's claims). Friedman and Miles (2002) explored the implications of relationships between stakeholders and organisations by analysing the compatibility of interests and connections as additional attributes of the configuration of these relationships. Savage *et al*. (1991) classified stakeholders according to their potential for threat and cooperation. These approaches focus on the long-term potential of interaction and the necessity not only of assessing, but also building and maintaining the configuration of stakeholder relationships to fulfil a firm's strategic potential.

Most studies, which conceptualise the potential categories of stakeholders on their ability to contribute to the firm's development, state that the role of stakeholders can be twofold: the primary, mostly involved stakeholders can support current firm development and not contribute to radical innovative developments and the secondary stakeholders consider a broader approach to stakeholder involvement that can significantly help in verifying new ideas and proposing a basis for innovative development.

Addressing NPD as one of the main outcomes of stakeholder involvement, it is required to mention the dichotomy conceptualised by Berthon *et al*. (1999) as "to serve or to create". This dichotomy leads to the assumption that market-driven and market-oriented behaviour ('to serve') often contradicts with the development of radical innovations ('to create'). The role of stakeholders in the first case can be seen as the role of passive recipients of services and sources of information on the improvements of existing goods/services and their assessment, while the latter case implies the active involvement of stakeholders in R&D activities and the firm's readiness to take risks to develop radically new products that are sometimes not expected by the market and are risky to promote and distribute.

Thus, the research question is not only in the fact of stakeholder involvement, but also the structure of the involved stakeholder groups and their potential to contribute to the firm's aims. Developing this proposition, it is possible to state that these contributions will be different, depending on the aims of the firm; an example is comprised of modifying an existing product to serve the existing market or offering radical product innovations. Indeed, Sivadas and Dwyer (2000) argued that the role of stakeholders' involvement depends strongly on the type of innovation and that there is a difference in cooperation with external partners in case of radical and incremental innovation. It sets more pressure on the existing network of partnerships when a radical innovation is being created. While incremental innovations often need just existing competences, radical ones force changes in the multiple aspects of a firm's operations and collaborations with external partners (Nord and Tucker, 1987).

Research Proposition 2 (P_2) — *There are various patterns of stakeholder involvement by firms in alignment with the type of product innovation (radical or incremental) aimed at by the firm.*

2.3 Number of stakeholder groups involved in interaction

The number of stakeholders involved in R&D activities can be a sign of openness of the firm, but can also be a sign of the lack of selectivity of the right partners with the highest potential for joint innovation activities. There is no quantitative research evidence on the role of the number of involved internal and external stakeholders. On the other hand, when applying marketing literature, the studies on market orientation and interfunctional coordination discuss the role of integration between departments for better alignment with market needs (Narver and Slater, 1990).

External stakeholders are an essential component of the current discussion among researchers on the open innovation framework. Kock and Torkkeli (2008) drew researchers' attention to role of the number of involved external stakeholders. They stated that a firm following open innovation principles can be seen as "working with a multitude

of partners, always searching for new linkages that could enhance their innovative potential, or for the highest bidders for knowledge that they may wish as sell – in short, this is a 'swingers club' for firms engaged in innovation". While in fact, mostly there are a limited number of partners considered in the studies (Kock and Torkkeli, 2008).

Discussions on the number of involved groups are mostly replaced by discussions on the role of stakeholders and their ability to influence a firm's development. Notwithstanding, it is possible to consider the number of involved groups as a control variable for the analysis of its potential influence on the success of new product development.

Research Proposition 3 (P_3) *There is a link between the number of internal and external stakeholder groups involved and the perceived success of interaction.*

3 Research context and the specifics of transitional economies

There are specific factors in transition economies that determine the potential differences in stakeholder interaction strategies, among them the higher instability of relationships in the market, lack of information about potential partners, low information disclosure readiness, higher readiness for opportunistic behaviour and higher time pressure (Ford *et al*., 2006; Johanson, 2007; Salmi, 1996). At the same time, as an economy in transition, Russia provides a unique opportunity to investigate changing, adapting network structures and innovation-related processes in emerging markets. There is no research evidence as to whether Russian firms are able to strategically compensate for existing market failures and the lack of institutional support by identifying the most potential stakeholders and coordinating interactions with them that would result in successful NPD.

The analysis of the existing research literature leads to the finding that there has been very limited research effort in the field of innovations and, more specifically, product innovations in Russian markets. The existing research provides just a few examples of empirical papers on the technological innovations and factors that contribute to its effectiveness, for example, entrepreneurial orientation, legal systems, differences in national innovation systems, *etc*. (Dynkin and Ivanova, 1998; Egorov and Carayannis, 1999; Dezhina and Graham, 2001). Researchers confirm the existing innovation gap in Russia (Cervantes and Malkin, 2001), but the factors that potentially contribute to overcoming the existing gap are not presented. Cervantes and Malkin (2001) have identified numerous factors that contribute to the existing innovation gap, including weak institutional support, the lack of interaction between research institutes and businesses and poor incentives to transform knowledge into new products and services.

At the same time, Kadochnikov *et al*. (2003) argued that the most important reasons behind product innovations in Russia are competition from domestic competitors, a changing demand structure and the appearance of new segments in the market. The study was conducted from 1992–2002 on a sample of 53 industrial enterprises in one region of Russia. The strongest contribution to a firm's performance was reported as driven by an increase in product variety and product quality. These results present growth-driven motivation and significantly differ from most existing research studies on innovation in Russia.

In fact, being from the efficiency-driven countries group, Russia is still largely motivated by driving economies' and firms' efficiency (WEF, 2008). Cuts in cost and production optimisation can be achieved by improving the processes, but may have no strategic effect on a firm's further development and sustainable advantage creation. Thus, both external and internal stakeholders have to be involved in the identification of strategic priorities and the creation of market-driven innovativeness. It can be implied that Russian firms might have developed some patterns of internal and external stakeholder interaction that would be reflected in a firm's approach to selective involvement, the combination of stakeholder groups and the perceived success of their involvement. We assume that firms with various levels of capability to cope with the specifics of the macro environment and various aims in NPD will have created various patterns of interaction and involvement of internal and external stakeholders in their NPD activities.

Research Proposition 4 (P_4) — *There is a significant influence from the external environment, previous firm development and the accumulated resources/competences base on the patterns of stakeholder involvement and the success of this involvement in transition economies.*

4 Research design

Empirical data for the study were collected in late 2007 and resulted in a sample of 160 large industrial Russian firms (more than 500 employees). The study was designed on a basis of face-to-face structured interviews, with the key respondents representing the marketing department or top management of the firms. The sample was stratified with regard to the following criteria: region, industry and annual revenue of the company, plus the availability of the key respondent in each firm. Qualified respondents were selected to better specify the firms' interaction with both key internal and external stakeholders and in relation to the innovative processes inside the firm. The data were collected in personal interviews with the key respondents, with an average interview duration of 1 h.

4.1 Sample description

All the firms in the sample are large firms with more then 500 employees. The sample is cross-sectional and includes a number of key industries: light industry – 14.6%, production of construction materials – 9.5%, metallurgy – 5.7%, machinery and metal-working industry – 40.5%, chemical and petrochemical industry – 8.2%, food industry – 13.3%, telecommunications – 4.4%, other – 3.8%. The ages of the companies vary from 1 to 142 years, with an average of 44 years. Approximately 73% of the firms in the sample are public companies and 20% are limited companies.

The annual sales of the firms in the sample in 2006 were as follows: firms with annual sales of more than 1 billion rubles (27 million euro) – 24.4%, from 500 million to 1 billion rubles (from 13 to 27 million euros) – 21.9%, from 100 to 500 million rubles (2.7 to 13 million euros) – 29% and less than 100 million rubles (2.7 million euros) – 17.2%.

The relationship between the products and services in a firm's portfolio varies from 0% to 100%, with an average of 85% products and 15% services. The relationship between industrial and consumer markets also varies from 0% to 100%, with an average of 67% of the firms serving industrial markets and 33%, consumer markets.

Out of the 160 firms in the sample, 4% assess their economic situation as 'bad', 29.3% as 'satisfactory', 52.7% as 'good' and only 14% as 'excellent'.

4.2 Operationalisation

Several variables have been used to describe the existing patterns of stakeholder interaction of Russian companies. The key respondents had to identify the involvement of certain internal or external stakeholder groups in NPD and assess the perceived contribution of their involvement.

4.2.1 Involvement of internal/external stakeholders

A dichotomous question was used to measure whether internal/external stakeholders are involved in the R&D process. The questions on internal stakeholders include top management and the production, R&D, marketing and sales departments. The involvement of external stakeholders is measured on ten stakeholder groups: suppliers in Russia, suppliers abroad, customers in Russia, customers abroad, intermediaries, shareholders, competitors, consultants, research organisations and joint venture partners. The results of the analysis of this dummy variable were used to control for the involvement of stakeholder groups and the calculation of the number of internal and external stakeholder groups involved (which varied from 0 to 5 for internal stakeholders and from 0 to 10 for external stakeholders).

4.2.2 Success of internal/external stakeholder interaction in relation to product innovation

The contribution of the internal and external stakeholder groups in NPD was assessed as the perceived success of involving a particular stakeholder group in NPD. A five-point Likert scale was applied with the answer anchors 'involvement not successful at all' and 'involvement highly successful'.

4.2.3 Type of product innovation

To test the role of radical and incremental innovation in NPD, additional measures were provided, including a range of potential options: the modification of existing products, development of a product new to the firm, new to the Russian market and new to the industry in the whole. This measure was considered an ordinal scale, ranging from the least radical product innovation (modification of an existing product) to the most radical product innovation (introduction of a new product to the industry).

4.2.4 Firm performance

Firm performance was assessed on the base of a single item (ordinal scale), where the key respondent could allocate the firm's economic position on a continuum from 'near bankruptcy' to 'excellent'.

5 Key findings

The first descriptive results of the study indicate that 93.8% of the firms in the sample have developed new products (or modifications of existing products) over the last three years. Compared to the previous results on Russia, this is a substantial share, but it should be noted that our sample mainly consists of large Russian firms. For example, previous studies have showed that on average, just 38.8% of Russian firms introduced product innovations in the period between 1993 and 1996 (Dynkin and Ivanova, 1998). In a recent study, Kadochnikov *et al*. (2004) reported that product innovations are the most important type of innovations in most Russian firms, representing 59% of all innovations (including horizontal and vertical product innovations).

The key research question of the study concerns whether Russian firms have developed specific patterns of involving internal and external stakeholders in NPD processes and the degree of success of these stakeholder interactions. The NPD results that were self-reported by the companies make our sample a good basis for investigation. Thus, over the last three years, the firms in the sample have extensively modified existing products (70.7%) and introduced new products to the firm's portfolio (83%). Approximately 47.3% of the companies reported to have introduced new products to the Russian market and 23% of the companies introduced new products to the industry.

The first results of the empirical study provide a picture of the current approach to stakeholder involvement in the R&D processes in large Russian companies (see Table 1).

Two key variables of analysis are stakeholders' participation in R&D processes and the perceived success of their involvement. The results confirm that the degree of internal stakeholders' involvement in NPD is substantially higher than that of external stakeholders. Among the external stakeholders, the highest levels of involvement include external research organisations, consultants and customers inside Russia. The same stakeholders are among the most intensively involved. The least involved external stakeholders include customers abroad, intermediaries and suppliers abroad.

The number of stakeholder groups involved in product innovation-related processes varies from 0 to 5 for internal stakeholders and from 0 to 10 for external stakeholders. Around 52.5% of the firms in the sample involve *all* the internal stakeholder groups in their own R&D processes. The involvement of external stakeholders follows a different mode. Approximately 15.6% of the firms in the sample do not involve external stakeholders in R&D and innovation-related activities. Around 17.5% of all the firms in the sample argued for the involvement of *all* mentioned stakeholder groups in R&D and innovation activities.

Following the logic of P_1, we have tested for the relationship between the number of internal and external stakeholder groups involved in the NPD process. The results have provided statistically significant evidence on the existing links (chi square = 0,000) between the levels of involving internal and external stakeholders; thus, the highest number of external stakeholders is involved by the firms with the maximum involvement of the considered internal functions. These results show that 17.5% all the firms in the sample involve all internal and external stakeholders in the R&D processes, while only 1.9% do not involve any stakeholders.

Table 1 Descriptive statistics: internal and external stakeholders' involvement

	Involvement of stakeholders (in percentage)		*Success of involvement (1; 5)*							
Involvement of	*Rank*	*Percentage of firms*	*Rank*	*Mean*	*1*	*2*	*3*	*4*	*5*	*Not involved*
Internal stakeholders										
1 R&D	1	92,5	1	4,24	3,8	5,0	8,1	23,8	51,9	7,5
2 Production	2	85,6	4	3,95	3,1	8,8	16,9	17,5	39,4	14,4
3 Marketing	3	85,6	2	4,18	1,3	4,4	13,1	26,3	40,6	14,4
4 Top management	4	83,8	3	4,12	3,1	3,8	12,5	25,0	39,4	16,3
5 Sales	5	71,3	5	3,83	2,5	8,8	11,9	23,1	25,0	28,8
External stakeholders										
6 External research organisations	6	52,5	7	3,26	6,3	8,1	15,6	10,6	11,9	47,5
7 Consultants	7	50,6	10	3,17	7,5	8,1	13,1	11,9	10,0	49,4
8 Customers in Russia	8	50,0	6	3,36	4,4	5,6	16,3	15,0	8,8	50,0
9 Joint venture partners	9	45,0	9	3,24	7,5	5,6	10,6	11,3	10,0	55,0
10 Suppliers in Russia	10	43,8	8	3,26	3,8	6,3	16,3	10,0	7,5	56,3
11 Shareholders	11	36,9	13	2,92	10,0	7,5	2,5	9,4	7,5	63,1
12 Competitors	12	36,9	11	3,12	8,8	3,1	9,4	6,3	9,4	63,1
13 Customers abroad	13	33,1	14	2,77	8,1	5,0	9,4	7,5	3,1	66,9
14 Intermediaries	14	33,1	12	3,11	5,0	5,0	10,6	6,3	6,3	66,9
15 Suppliers abroad	15	31,3	15	2,88	7,5	4,4	8,1	6,9	4,4	68,8

Notes: 1 – low perceived success of stakeholder involvement.
5 – high perceived success of involvement.

Our next research proposition implies that the type of product innovation can require various natures of internal and external stakeholders' interaction. The results of this test are presented in Table 2. The Analysis of Variance (ANOVA) test was performed to test for statistically significant differences in stakeholders' interaction success between firm groups. A significance level of 0.1 was applied. Just one out of all internal and external stakeholder groups has proved to have a statistically significant success of involvement: external research organisations. Success of involvement of external research organisations is significantly higher in cases where firms are developing radically new products (new for the industry). Further analysis of the differences in the share of firms involving particular stakeholder groups has also provided interesting results. Thus, one can see increased attention towards external research organisations, consultants, joint venture partners and the competitors of those firms developing the most radical new product innovations (new for the industry).

Table 2 Differences between the groups by the type of product innovation

	Share of firms involving this group of stakeholders (in percentage)				*Success of involvement (mean)*					
Types of new product innovation	*Modification (n = 18)*	*New for the firm (n = 54)*	*New for Russia (n = 38)*	*New for industry (n = 35)*	*Modification (n = 18)*	*New for the firm (n = 54)*	*New for Russia (n = 38)*	*New for industry (n = 35)*	*F*	*Sig.*
Top management	88,9	85,2	84,2	85,7	4,19	4,04	4,37	3,73	1,954	0,125
Production	83,3	92,6	84,2	91,4	3,80	3,68	4,21	4,03	1,504	0,217
Sales	77,8	66,7	71,1	85,7	3,50	3,88	4,04	3,66	0,912	0,438
Marketing	100	87,0	86,8	94,3	4,05	4,14	4,24	4,06	0,236	0,871
R&D	88,9	94,4	97,4	100,0	4,37	4,15	4,29	4,25	0,266	0,850
Suppliers in Russia	66,7	42,6	52,6	48,6	2,83	3,21	3,35	3,29	0,301	0,824
Suppliers abroad	38,9	31,5	28,9	40,0	2,42	2,82	3,27	2,71	0,611	0,612
Customers in Russia	61,1	48,1	57,9	48,6	3,36	3,11	3,45	3,58	0,641	0,591
Customers abroad	27,8	33,3	34,2	42,9	3,60	2,72	2,84	2,33	1,272	0,295
Intermediaries	33,3	35,2	31,6	40,0	3,33	2,94	2,91	3,28	0,304	0,822
Shareholders	38,9	31,5	34,2	45,7	3,28	3,00	2,76	2,50	0,527	0,666
Competitors	33,3	40,7	23,7	54,3	2,83	2,86	3,00	3,36	0,433	0,730
Consultants	38,9	46,3	47,4	74,3	2,71	3,20	3,33	3,19	0,351	0,788
External research organisations	61,1	50,0	42,1	77,1	2,54	2,96	3,50	3,70	3,012	0,035
Joint venture partners	50,0	42,6	39,5	62,9	3,11	3,17	3,26	3,31	0,065	0,978

Assuming the existence of a positive link between the involvement of internal and external stakeholders and a firm's performance, we have tested this using the self-classification of the firms in our sample by the current economic situation (varying from 'near bankruptcy' to 'excellent'). No firms in the sample have classified themselves as being 'near bankruptcy', but the other four options were used to compare the data on the success of internal functions and external stakeholder groups' involvement in firms' R&D activities and the number of firms in each performance group involving specific stakeholders.

The differences in the success of interaction with particular groups of stakeholders were tested by means of ANOVA. A significance level of 0.1 was applied. A number of internal and external stakeholders have proved to differ strongly in the perceived success of interaction, depending on the economic situation of the firm (see Table 3). There is a strong increase in the involvement of all the internal functions of the firm in R&D

activities when moving from 'bad' to 'excellent' performing firms, but at the same time, the share of firms involving internal functions in each performance group is decreasing, except for the involvement of top management.

Table 3 Firm performance and stakeholder involvement: testing the statistical differences

	Share of firms, involving this group of stakeholders (in percentage)				*Success of involvement (mean)*					
Subjective performance perception	*Bad (n = 6)*	*Satisfactory (n = 44)*	*Good (n = 79)*	*Excellent (n = 21)*	*Bad (n = 6)*	*Satisfactory (n = 44)*	*Good (n = 79)*	*Excellent (n = 21)*	*F*	*Sig.*
Top management	83,3	84,1	86,1	81,0	2,60	4,08	4,15	4,29	3,681	0,014
Production	100	81,8	91,1	66,7	3,83	3,78	4,06	4,21	0,687	0,562
Sales	66,7	81,8	65,8	66,7	2,00	3,64	4,04	4,07	4,910	0,003
Marketing	100	81,8	87,3	76,2	3,17	4,17	4,22	4,50	2,800	0,043
R&D	100	97,7	92,4	85,7	3,17	3,86	4,49	4,56	6,129	0,001
Suppliers in Russia	66,7	52,3	36,7	33,3	3,75	3,39	3,28	3,43	0,214	0,886
Suppliers abroad	66,7	38,6	25,3	19,0	1,75	2,76	3,20	3,75	1,881	0,148
Customers in Russia	83,3	54,5	46,8	33,3	4,60	3,42	3,30	3,71	2,178	0,098
Customers abroad	50,0	45,5	25,3	23,8	1,67	2,70	3,10	3,00	1,179	0,329
Intermediaries	50,0	38,6	29,1	19,0	5,00	2,94	3,35	2,50	3,109	0,036
Shareholders	50,0	36,4	30,4	42,9	2,00	2,75	3,33	2,67	1,044	0,382
Competitors	66,7	36,4	36,7	19,0	3,75	2,81	3,21	4,00	0,884	0,456
Consultants	50,0	52,3	50,6	42,9	1,00	2,91	3,55	3,44	4,764	0,004
External research organisations	50,0	47,7	57,0	47,6	3,67	2,71	3,53	3,10	2,177	0,098
Joint venture partners	50,0	50,0	41,8	38,1	2,33	3,32	3,13	3,50	0,548	0,652

Statistically significant differences were identified when comparing the success of stakeholders' involvement among the groups, including the involvement of top management, sales, marketing and R&D, customers in Russia, intermediaries, consultants and external research organisations.

6 Discussion

Understanding the nature of innovativeness in the firms in transition economies requires considering a number of factors on the firm, market and macro levels. As discussed above, multiple inconsistencies in transition economies' development could be compensated by the firms' thoughtful strategy, aimed at leveraging the existing

resources in interfirm collaboration and the interfunctional alignment within the firm. This approach was applied in this study to test the role of internal and external stakeholders in the NPD in Russian firms. When testing for specified research propositions, a major research question concerned a focus of study: whether there is a sufficient level of internal alignment and external embeddedness of the firms in their environment, which are required to compete successfully with local and international competition.

While the only significant effect of the type of innovation was found in the case of involved external research organisations, this effect is significant enough, since it was previously stated that the lack of links between the business and research institutes is one of the weakest points in the Russian innovation system (Cervantes and Malkin, 2001). Our results partly confirm this statement, since only successful firms that offer radically new products report a significantly higher performance of cooperation with external research organisations. At the same time, these firms are present in the sample and, though their share in the economy is difficult to extrapolate from the present sample, the trend is represented by the data collected in this study.

The role of business performance in the study can be understood twofold. Firstly, it can be implied that those firms that are more successful in NPD will also have better business performance. But the causal relationship can also be turned otherwise when considering that business performance was assessed as past performance and can be seen as an accumulated effect of the previous strategic decisions of the firm's management. This accumulated effect can help differentiate between those firms that are more capable of learning from the changing environment and transforming market and those who have failed due to various reasons. In Russia's case, these results should be interpreted in the light of the short history of market economy development and can reflect particularly well the level of management strategy and the firm's ability to cope with the transition process.

The relationship between the success of involvement of external stakeholders and firm performance does not seem to be linear. In general, there is a detectable trend wherein the number of firms involving each stakeholder group decreases when moving from 'bad' to 'good' and 'excellent' performing firms. Some exceptions can be mentioned concerning external research organisations, shareholders, consultants and joint venture partners, which seem to stay relatively stable as a share of firms involving these stakeholders in each performance group.

The overall trend signifies that the better the performance of the respondent firms, the more selective the firms are in structuring relationships with both internal and external stakeholders, while the success of NPD-related interaction with these stakeholders mostly increases when moving from 'bad' to 'excellent' performing firms. This evidence supports the statement by Kock and Torkkeli (2008) on the role of the selective approach in managing innovation-related collaborations. The exceptions are presented by some stakeholder groups like intermediaries, for example. The role of intermediaries is diminished by 'excellent' performing firms, reflected by a lower share of firms involving intermediaries in NPD processes and less successful NPD-related interactions. Surprisingly, the same pattern can be seen in the case of customer involvement. Customers should be regarded as one of the key stakeholder groups involved in R&D activities. This is also supported by the market orientation literature and follows the

principle "to serve the market" (Berthon *et al*., 1999). But in the case of our sample, this trend is not supported – the share of 'good' and 'excellent' performing firms involving customers in R&D activities is lower than in the case of 'bad' and 'satisfactorily' performing firms, but the success of interaction is also relatively lower while still staying rather high when compared to other stakeholders.

Thus, the analysis of stakeholder groups' involvement in NPD by Russian firms has provided some interesting evidence on the existing patterns and priorities in product innovation-related collaboration both within and outside the firms' boundaries. In particular, these results have confirmed the role of internal stakeholder integration as a necessary step for integration and the more active involvement of external stakeholders. The role of external research organisations has proved to be the key factor for the achievement of successful NPD and compensation for existing market failures and institutional issues.

7 Managerial implications

Product innovation is one of the key fields for a firm's success and competitiveness, making this sphere essential for effective integration with relevant stakeholders. By discussing the theoretical foundations of the current study, it was implied that the role of stakeholders differs significantly, depending on their role and potential to influence firm development in the future or their legitimacy/power to control and determine certain decision-making steps.

The key research question has been formulated with the idea to measure, define and describe the patterns of Russian firms in developing links with internal and external stakeholders within R&D-related activities. The findings of the study provide evidence of the existence of certain interaction patterns when involving internal and external stakeholders in NPD-related processes.

Confirming the suggestions of Hart and Sharma (2004) on dividing the core and fringe stakeholders on the criteria of different patterns of involving them in innovation processes and the differences in their potential contributions, we can define differences in the patterns of stakeholder involvement in NPD. Differentiation between the stakeholders can be made on the base of two criteria – the success of interaction and the frequency of involving particular groups of stakeholders by other firms in NPD.

There is a clear pattern by the firms in the sample to involve more external stakeholders when all the internal functions already actively participate in R&D and innovation processes. Thus, there is a certain requirement for the level of internal integration to enable the effective involvement of external stakeholders in innovation-related processes.

Finally, one of the main implications of stakeholder involvement in R&D activities can be derived from the link with firm performance. The current study provides just a first insight into the potential relationship between the level of firms' economic performance and the pattern of internal/external stakeholder involvement.

8 Conclusion

Investigating the role of stakeholder involvement in innovation-related process can discover vital sources of long-term competitive advantage and radically change a firm's business model. Nevertheless, the existing studies do not provide a comprehensive picture on the potential patterns of interaction with internal and external stakeholders when developing and introducing new products in emerging economies. NPD is often the only way to survive for local firms competing against international market players and the existing internal resources and cooperation within the network of partners can be a unique source to leverage a firm's competitiveness.

The study has provided empirical evidence on the share of firms involving internal and external stakeholders in R&D activities and the level of perceived success of NPD-related interactions. The discovered link between the number of internal and external stakeholders involved provides a basis for discussion on an integrated model of stakeholder interaction, where interfunctional coordination within the firm can have a mediating role in determining success in the involvement of external stakeholders. Another result is evidence on the existing differences between the groups of firms with various levels of performance. At the same time, the data showed the lack of evidence on the role of the type of product innovation, ranging from modifying existing products to offering new products at the industry level. This finding requires further research to explain the variances in motivation to collaborate with stakeholders when simply modifying the product or offering radical product innovation.

Our results clearly indicate the role of the effective use of external research organisations by Russian firms in product innovations. In fact, there are examples of successful companies that are able to compete in European market and extensively used external competences and know-how. Weak links between existing research institutes (often regarded as a heritage from the former Soviet Union's centrally planned economy) and business have been the major factor in the existing innovation gap (Cervantes and Malkin, 2001). The empirical findings of our study proved, on the contrary, that the role of external expertise is used by the most successful Russian firms and also contributes to the creation of radically new products.

Certain limitations of the study should be mentioned. First, the study is based on the analysis of a cross-sectional sample. Secondly, only large firms with more than 500 employees have been included in the analysis. Thus, the size factor was been considered by defining and describing stakeholder involvement patterns. Finally, the study creates a basis for further casual analysis, but presents just the descriptive results at this stage. Nevertheless, these first results provide an outlook on the current distribution of firms' attention to internal and external stakeholders' selection, involvement and interaction.

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