SMALL INNOVATIVE BUSINESS DEVELOPMENT IN
NOVOSIBIRSK REGION (RUSSIA)

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Introduction

Nowadays there is growing necessity in Russian economy in turning to the development based on innovations. It is impossible to catch up in country’s economic development and increase its competitiveness in the global markets without support from innovations. Analysis of the nature and the peculiarities of innovation activities is of special significance for searching for the ways of turning Russian economy from the resource-based economy to the new, knowledge-based one.

As it is shown in literature innovation activities are systematic ones, variety of different factors influence the dynamics and the results of innovation process. That is why my research is based on the theory of National Systems of Innovation (NSI).

NSI conception proceeding from Schumpeter’s idea of competition based on innovations as the main factor of economic development, from special role of knowledge and from importance of institutional aspect is a systematic approach to describe the process of innovations. The elements of the system of innovation (such as innovative firms, research and development organizations, regulation and institutions, etc.) are analyzed not as separate parts but as interconnected aggregate. Under these conditions the efficiency of the system of innovation as a whole is determined not only by the efficiency of separate elements but also by the efficiency of their interaction.

Innovative business, especially the small one, is the central element of the system of innovations. Innovation business is the one to carry out innovation activities; innovation business is the one to promote adoption of innovations being the first to use them. In this respect the study of innovation business is extremely important for finding out the problems of functioning of the Russian innovation system and for searching for the ways to transition towards innovative development.
The main **objective** of my work is to estimate how institutional conditions influence the development of the small innovative business, with rules and regulations of interaction of the companies with the external environment and internal models of management being taken as the basic institutions.

Methods of the study include general scientific methods such as well as special methods of econometric and statistical analysis. My research is based on the State statistical data of Russian Federation and the survey of small innovative business in Novosibirsk region that is based on special questionnaire conducted in 2009-2010.

**Small innovative business in Novosibirsk region**

This research is a part of a group work of several researchers of the Institute of Economics and Industrial Engineering of Siberian Branch of Russian Academy of Science (IEIE of SB RAS) that is conducted since 2009 (Kravchenko et al, 2009).

In 2009-2010 in IEIE of SB RAS small innovative business study was conducted in Novosibirsk region. The data for the study was collected through the questionnaire of the small innovative companies; about 60 managers of small innovative companies took part in the questionnaire.

In the questionnaire managers of small innovative companies were asked to rate factors that influence business development. We analyze the factors at different stages of the life cycle of business, the companies were asked to rate the factors at different stages of development: at the founding stage and at the stage of growth.

Let us give some characteristics of the sample of companies under study. Two thirds of companies are young, they were founded less than ten years ago. Half of the respondents provide services and others produce goods. The companies operate mainly in B2B market. The novelty level is high: more than half of products are new for Russian and world market. Own ideas and results of own research and development are the main source of innovative ideas. The majority of the companies (more than 80%) are financed mostly from the firm’s resources.

In this paper I focus on the problems that small innovative business faces in its development and what government can do to help business to cope with the problems. First I analyze barriers for development and then I discuss forms of governmental support.

I put forward the following **hypotheses** for the discussion in this paper:

- There are factors that are important for business development depending on the stage of development and they are determined by the stage of development. Every stage of development has its own “special” barriers that hamper the progress of business.
When growing business becomes stronger and needs less support from the government. At the stage of growth the barriers are lower and support becomes less important comparing to the founding stage.

Governmental support is called to reduce the biggest obstacles that small innovative business can confront. The most desirable forms of support are those that are aimed to fight against the highest barriers for development.

**Barriers for development**

Small innovative business as other economic agents faces various barriers for development in its activities. These barriers that create obstacles for successful development are an integral part of economic environment. This problem is widely discussed in literature, with factors of external and internal environment being considered (Molz., Tabbaa, Totskaya, 2009; Index OPORY 2007-2008). On the one hand, there are internal barriers created by nature of small innovative business, and any company finds them in their way of development. On the other hand, there are external barriers that are attributes of particular NSI.

Here we consider such barriers as *cash shortages, shortage of qualified staff, high cost of development of the new offering, high economic risk connected with new offering, long payback period* to be the ones of the first group. They are related to the activities of the company and exist regardless of characteristics of system of innovation. The second group of factors deals with characteristics of external environment and includes institutional, organizational and financial infrastructure, governmental policy in the sphere of innovations, etc. Here we talk about such barriers as *lack of a supporting infrastructure, lack of governmental financial support, lack of legal structure for the innovation, low demand for the new offering, lack of ready market for the new offering, lack of information about the new process or product, little information about markets for the product or service, few opportunities for collaboration or cooperation with other firms and institutions.* They are created by the system of innovation itself and all the agents have to overcome these obstacles that are the same for everyone in the system.

Average ratings and rankings (in the brackets) of barriers for development given by the small innovative business in Novosibirsk region are shown in Table 1, with 5 standing for the most important factor and 0 standing for the least important one.
Table 1. Barriers for development

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Founding Stage</th>
<th>Stage of Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1 Cash shortages</td>
<td>3,25 (1)</td>
<td>3,06 (1)</td>
</tr>
<tr>
<td>B2 Lack of governmental financial support</td>
<td>1,50 (12)</td>
<td>1,45 (13)</td>
</tr>
<tr>
<td>B3 High cost of development of the new offering</td>
<td>2,04 (9)</td>
<td>2,20 (5)</td>
</tr>
<tr>
<td>B4 Low demand for the new offering</td>
<td>2,21 (6)</td>
<td>2,53 (4)</td>
</tr>
<tr>
<td>B5 High economic risk connected with new offering</td>
<td>2,45 (4)</td>
<td>1,94 (4)</td>
</tr>
<tr>
<td>B6 Long payback period</td>
<td>2,20 (7)</td>
<td>1,7 (10)</td>
</tr>
<tr>
<td>B7 No ready market for the new offering</td>
<td>2,22 (5)</td>
<td>1,86 (9)</td>
</tr>
<tr>
<td>B8 Lack of a supporting infrastructure</td>
<td>1,82 (10)</td>
<td>1,98 (7)</td>
</tr>
<tr>
<td>B9 No legal structure for the innovation</td>
<td>2,59 (3)</td>
<td>2,74 (3)</td>
</tr>
<tr>
<td>B10 Shortage of qualified staff</td>
<td>2,73 (2)</td>
<td>2,90 (2)</td>
</tr>
<tr>
<td>B11 Lack of information about the new process or product</td>
<td>1,80 (11)</td>
<td>1,54 (11)</td>
</tr>
<tr>
<td>B12 Few opportunities for collaboration or cooperation with other firms and institutions</td>
<td>1,39 (13)</td>
<td>1,48 (12)</td>
</tr>
<tr>
<td>B13 Little information about markets for the product or service</td>
<td>2,13 (8)</td>
<td>2,14 (6)</td>
</tr>
</tbody>
</table>

The most significant obstacles for business development are cash shortages (B1), shortage of qualified staff (B10) and lack of legal structure for the innovation (B9). They are considered to be barriers on every stage of development. High economic risk connected with new offering (B5) and lack of ready market for the new offering (B7) hinder from business development only at the beginning and are not viewed to be barriers at the stage of growth. Since the novelty level is high sometimes at the starting point when the company introduces completely new product market can be changed and the risks are higher. It is unlikely that at the stage of growth small innovative company will introduce a product that will be completely different to what it has been doing before, hence these barriers decrease. On the other hand, low demand for the new offering (B4) and high cost of development of the new offering (B3) that are viewed to be barriers at the stage of growth don’t interfere at the founding stage.

The sample structure has an influence on the ratings of the barriers. For example, few opportunities for collaboration or cooperation with other firms and institutions (B12) and lack of information about the new process or product (B11) could have low ratings because the main source of innovative ideas are company's own ideas and results of company’s own research and
development. The needs for searching for partners for scientific cooperation and new technologies for business development are small; therefore, companies don’t consider presence or absence of these barriers to be significant obstacle.

Some of the barriers hamper the progress of business more at the founding stage, others at the stage of growth. However, on the average ratings are higher on the founding stage than on the stage of growth. Such is the case as it is obvious that it is easier to develop an existing business or to launch new line within an existing business than to start a completely new one from the beginning.

Earlier we distinguished two groups of barriers – internal and external ones. The NSI influences small innovative business through the barriers that we have referred to as external. And we can talk about the power of the influence judging by the value of the ratings of the barriers.

Only one of the three most significant barriers is the external one, this is the lack of legal structure for the innovation (B9). The other two – cash shortages (B1) and shortage of qualified staff (B10) – deal with the inner factors of the company. However, the last mentioned factor is under the direct influence of the system; shortage of qualified staff is caused on the one hand by inability of the company to recruit specialists and on the other hand by the absence of the specialists in the system at all.

Small innovative business feels the influence of the NSI mostly through lack of legal structure for the innovation (B9), low demand for the new offering (B4) and lack of ready market for the new offering (B7). The other barriers of the external environment are not considered to extremely important.

With the development of business the importance of internal barriers declines, their ratings decrease. Thus, internal barriers don’t influence so greatly on the small innovative business activities no more. It is obvious that the company with working experience has easier access to the financial resources so companies rate cash shortages (B1) lower at the stage of growth than at the founding stage. Also when launching new line within an existing business other business activities can support the company and, therefore, in companies’ opinions at the stage of growth economic risk connected with new offering (B5) becomes lower and payback period (B6) is not as important as at the founding stage.

On the other hand, such internal barriers as high cost of development of the new offering (B3) and shortage of qualified staff (B10) are considered to hinder from business development more at the stage of growth. It doesn’t contradict our previous conclusion that the influence of internal barriers declines with the development of business if we examine the barriers mentioned here more deeply. Firstly, the development of the new offering costs high both at the founding
stage and at the stage of growth; but at the stage of growth the company also has to take into account the existing business that may also need investments in contrast to the founding stage when the company has only one project. It means that the same project could seem to be more expensive at the stage of growth. Thus, high cost of development of the new offering (B3) is considered to be more significant. Then, at the early stage of development companies usually have fewer employees, the demand for qualified specialists increases with the development of business, and the inability to find qualified staff becomes an acute problem. Thus, shortage of qualified staff (B10) should indeed be a higher barrier at the stage of growth, and this is exactly the case here.

The ratings of the external barriers at the founding stage and at the stage of growth are on the average close to each other. In other words the barriers for development created by the NSI influence agents that are at the different stages of development equally. It proves our proposition that the barriers of the external environment are the same for everyone in the system.

It is worth mentioning that on the average companies rate internal barriers higher than the ones of the external environment at every stage of development. Internal barriers turn out to be more significant for small innovative business that the barriers of the external environment. Indeed, in the situation when the product novelty level is high and the company can influence the market factors inside the company take on special importance.

In our research we analyze not only average ratings that companies give to the barriers but also the co-ordination of the ratings. The value of the coefficient of variation gives the idea of how close companies are in their opinions. The coefficients of variation for the barriers are shown on the fig. 1.

Fig. 1. Barriers for development: coefficients of variation
The most significant barriers for development both at the founding stage and at the stage of growth are cash shortages (B1), shortage of qualified staff (B10) and lack of legal structure for the innovation (B9). Here companies’ opinions are the closest to each other – the value of the coefficient of variation are the least for these barriers. Hence, here we can talk not only about the great influence of these barriers on business development but also about the universality of the influence.

The biggest scattering is observed for the ratings of lack of governmental financial support (B2) and few opportunities for collaboration or cooperation with other firms and institutions (B12). These are the least significant barriers for business development.

Earlier we have mentioned that internal barriers are considered to be more significant obstacles for business development than external ones. Companies agree with each other in this point: scattering of the ratings is lower for the internal barriers. The only exception is lack of legal structure for the innovation (B9); companies are unanimous when rating this barrier, this is indeed significant obstacle. Variances in ratings of other factors of external environment can testify that different parts of innovation activities adapt to the environment in different ways and take obstacle created by the environment differently.

On the whole the more significant the barrier is (its rating is higher) the closer are the ratings (the coefficient of variation is lower). In addition, scattering of the ratings is independent of the stage of business development; values of the coefficient of variation at the founding stage and at the stage of growth are close to each other. This allows us to talk about nonrandom nature of the ratings and statistical validity of the conclusions.

**Forms of governmental support**

The government is an important part of NSI; it determines the rules of the game. One of the government’s key functions is to reduce the influence of the barriers for development. The government possesses a variety of instruments to fulfill this function, one of which is governmental support of small innovative business. For the support to be efficient it is necessary to question small innovative business in what parts of the activities they need assistance.

Average ratings and rankings (in the brackets) of forms of governmental support given by the small innovative business in Novosibirsk region are shown in Table 2, with 5 standing for the most important factor and 0 standing for the least important one.
Table 2. Forms of governmental support

<table>
<thead>
<tr>
<th>Forms of Support</th>
<th>Founding Stage</th>
<th>Stage of Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial support</td>
<td>2,78 (2)</td>
<td>2,30 (7)</td>
</tr>
<tr>
<td>Provision of information about markets, etc.</td>
<td>2,90 (1)</td>
<td>3,12 (1)</td>
</tr>
<tr>
<td>Creation of associations of related businesses</td>
<td>1,37 (9)</td>
<td>1,98 (9)</td>
</tr>
<tr>
<td>Instruction on business practices</td>
<td>2,43 (3)</td>
<td>2,32 (6)</td>
</tr>
<tr>
<td>Cooperation with major firms in the area</td>
<td>1,84 (7)</td>
<td>2,54 (2)</td>
</tr>
<tr>
<td>Cooperation with research and educational organizations</td>
<td>1,86 (6)</td>
<td>2,27 (8)</td>
</tr>
<tr>
<td>Sponsoring of exhibitions</td>
<td>2,32 (4)</td>
<td>2,53 (3)</td>
</tr>
<tr>
<td>Operation of technology transfer centers, business incubators and the like</td>
<td>2,02 (5)</td>
<td>2,35 (4-5)</td>
</tr>
<tr>
<td>Changes in legislation</td>
<td>1,81 (8)</td>
<td>2,35 (4-5)</td>
</tr>
</tbody>
</table>

Provision of information about markets, etc. is the form of support that companies would like to receive at every stage of development. At the founding stage financial support and instruction on business practices are also important, however, as the company grows sponsoring of exhibitions and cooperation with major firms in the area gain significance.

Instruction on business practices is essential at the founding stage. Small innovative business is often started by the inventors who have the idea how to make an innovative product but may be lacking specific knowledge about operation of business; therefore they have need for instruction on business practices. At the stage of growth this form of support is still important (the rating is practically the same), but now it is not one of the most important forms of support. It means that even though the companies still strive for education, other aspects that need to be considered appear.

Sponsoring of exhibitions becomes important on the stage of growth, it means that companies prefer to exhibit working business rather that raw ideas.

Significant role of provision of information about markets, etc. shows that companies face difficulties in finding available information.

It is interesting to mention that on the average the support on the stage of growth is rated higher that on the founding stage.

The purpose of the support is to help small innovative business to overcome the barriers for development. Each of the forms of governmental support deals with certain barrier (or
several related barriers). Therefore we compare small innovative companies’ ratings of the forms of support and their ratings of the barriers.

Financial support is rated high at the founding stage though lack of governmental financial support (B2) is considered to be among the least significant barriers. At the same time the biggest obstacle is cash shortages (B1). It means that small innovative business has needs for governmental financial support, but the existing support is not a solution since business thinks that there is enough of it now (as lack of governmental financial support (B2) is rated rather low). Thereby, new forms of governmental financial support should be worked out to meet the needs of small innovative business.

Lack of legal structure for the innovation (B9) is considered to be one of the most significant barriers for development. Yet companies don’t rate changes in legislation as one of the most desirable forms of support, on the contrary it has one of the lowest ratings. On the one hand small innovative business sees a lot of problems in the legal structure. But on the other hand it probably doubts that it is possible to introduce effective changes in legislation. Moreover, the effect will not appear right away while business needs some help at the moment. Hence changes in legislation are put closer to the end of the list.

For the forms of governmental support it is also worth looking at the coefficient of variation of the ratings of factors. The coefficients of variation for the forms of support are shown on the fig. 2.
Provision of information about markets, etc. is the form of support viewed to be the most desirable both at the founding stage and at the stage of growth. Here companies have shown the greatest unanimity; the value of coefficient of variation for this form of support is the least both at the founding stage and at the stage of growth. At the founding stage, moreover, financial support and instruction on business practices are important; these forms of support take the second and the third place in co-ordination respectively. We can observe the same situation also at the stage of growth: cooperation with major firms in the area and sponsoring of exhibitions being the second and the third important forms of support take the second and the third place in co-ordination of companies’ opinions. Hence, when rating the most necessary forms of governmental support just as when rating the most significant barriers companies show the greatest unanimity.

The biggest scattering of the ratings takes place for the creation of associations of related businesses which is the form of support that received the lowest ratings.

Therefore, here, just as in the case of barriers for development we observe the following tendency: the more necessary is the form of support (its rating is higher) the closer are the ratings
(the coefficient of variation is lower). At the same time, if the ratings of the form of support are close at different stages of development its coefficients of variation are also close at the founding stage and at the stage of growth. Here also we can talk about nonrandom nature of the ratings and statistical validity of the conclusions.

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We have shown that small innovative business can answer what forms of support and when it needs. It should be taken into consideration when working governmental policy in the sphere of innovation. The question here is what forms of support should be put into practice first of all. On the one hand, those that are the most needed should be implemented in the first place. They will give the desirable effect right away. On the other hand, the purpose of the support is to help business and remove barriers. In this respect those forms of support that are called to cope with the most significant barriers should be also implemented even if small innovative business doesn’t think of them as of first-priority ones. However, governmental support as a part of environment can deal only with the factors of the external environment, that is to say the support cannot smooth over internal barriers without direct instructions what business needs to be done here. Thus, two conflicting issues – today’s needs and future perspective – should be solved when working governmental policy in the sphere of innovation.

**Conclusion**

To conclude we test the hypotheses put forward above:

- **There are factors that are important for business development depending on the stage of development and they are determined by the stage of development. Every stage of development has its own “special” barriers that hamper the progress of business.** – Indeed, some barriers are higher at the founding stage (such as high economic risk connected with new offering and lack of ready market for the new offering), others – at the stage of growth (such as low demand for the new offering and high cost of development of the new offering). On the other hand, there are “universal” barriers that are always significant (such as cash shortages, shortage of qualified staff and lack of legal structure for the innovation).

- **When growing business becomes stronger and needs less support from the government. At the stage of growth the barriers are lower and support becomes less important comparing to the founding stage.** – This is the case, for the small innovative business on the average barriers are higher at the founding stage than at the stage of growth. However, it wants to receive more support.
Governmental support is called to reduce the biggest obstacles that small innovative business can confront. The most desirable forms of support are those that are aimed to fight against the highest barriers for development. – Indeed, companies suffer the most from cash shortages and financial support is among the most desirable forms of support. Though, this is true only for the founding stage.

Companies that are now at different stages of their development go through the same stages at different moments of time. Moreover, those agents who have not passed this or that stage of development are more conjectural in talking about it. For these reasons it would be interesting to analyze the questions of this paper not for the whole sample but for the groups of companies divided according to the stage of development they are at.

Apart from the governmental support there are inner resources that are inside the company to help it to withstand the barriers. These are the factors that company needs to achieve success. It is also important to analyze the factors of success for more complete understanding of the ways how small innovative business operates.

These questions will be discussed in further parts of the research.

References: