ADVANTAGE NORTHWEST RUSSIA

The New Growth Centre of Europe?

Grigory Dudarev, Sergey Boltramovich,
Pavel Filippov and Hannu Hernesniemi

Sitra • Helsinki • 2004

Sitra Reports series 33
ISBN 951-563-445-8
ISSN 1457-571X (Sitra)
ISBN 951-563-450-4 (URL:http://www.sitra.fi)
ISSN 1457-5728 (URL:http://www.sitra.fi)
SITRA - The Finnish National Fund for Research and Development

ETLA's publication series B, no. 206
ISSN 0356-7443 (ETLA)
ETLA - The Research Institute of the Finnish Economy

Printed in Edita Prima Ltd, Helsinki 2004

Preface

The shot fired in 1917 from the battleship Aurora in St. Petersburg, where the Russian revolution began, changed the world. It was followed by 85 years of Russia shutting itself out from the rest of the world. It is going to take decades before all the achievements facilitated by the enormous societal experiment are adapted into the present capitalistic world order. Russia is, however, already reclaiming its position in the international division of labour.

Finland's fate, standard of living and its business success are closely linked to its eastern neighbour. Finland has also been, and still is, an important neighbour to Russia. These were the premises from which we began planning this project in December 2000, when Dmitri Mezentsev, Vice Chairman of the Centre for Strategic Research's Board, visited Helsinki. I am grateful to Dr. Mezentsev, without whose initiative this important research could not have gotten started and whose efforts were crucial to the success of the project. The end-result comprises a valuable analysis of Europe's new growth centre, Northwest Russia, the region's competitiveness and research-based proposals for its enhancement.

Our Russian and Finnish researchers investigated this vast region during the research project. They visited the mines and smelters of Kola, Karelia's paper machine and tractor factory, the sawmills and pulp factories in Archangel, the huge steel mill in Vologda, various firms in oil rich Komi, progressive Novgorod, the overlooked Pskov, and Kaliningrad located within the EU. The region is geographically larger than Germany, France and Great Britain put together. Its administrative centre is St. Petersburg, which, combined with the surrounding Leningrad region, comprise Russia's western window to the world.

The economy of Northwest Russia has started to boom. The economy's most important industries include energy-related industries, mining, basic metals and the forest industry. The food industry is also growing rapidly and is experiencing brisk investment activity. Thanks to these industries and along with the rising standard of living, the region's transport industry and the construction sector are also expanding.

It became clear during the research period that Northwest Russia's administrative centre, St. Petersburg, is also the engine driving technological progress in Russia. It used to be the hub for telecommunications development. Popov invented the radio there at the same time as Italy's

Marconi. Bonch-Bruevich invented the electron tube in 1915, and colour televisions were developed already in the 1930s. St. Petersburg is also the centre for Russia's energy and space technologies and for many other industries. Currently, the metropolis's scientific-technical potential is extremely under utilized, but the rapid growth of programming businesses provides an indication of things to come in the future. In the programming area, Russia is growing to become the next India or Israel.

The programming industry is a good example of new entrepreneurship. Northwest Russia now needs new entrepreneurs. During Soviet times, large firms accounted for almost all of industrial activity and private entrepreneurship was not allowed before perestroika. For these reasons, Russia almost fully lacks small and medium-sized industrial enterprises. This study reveals the opportunities opening up to this community of entrepreneurs. Large firms are concentrating on their core areas of expertise and want to outsource some of their activities. Western firms locating to Russia also need local subcontractors. Informed government and regional industrial policy decisions as well as foreign venture capital will be needed in the future to encourage business activity amongst small and medium-sized firms. A historical opportunity for globalisation is also being offered to EU firms by starting operations in Russia.

This book and the series of books preceding it focus on Europe and Finland's neighbouring Northwest Russia. In this respect, I would like to emphasise that Finnish firms are in an exceptional position. Our companies have the opportunity to build over-the-border subcontracting chains and, by combining Finnish and Russian factors of production, to become some of the world's most competitive producers. Northwest Russia also provides promising investment opportunities for Finland's small and medium-sized enterprises. These firms now have an historical opportunity to internationalise their operations by investing in Northwest Russia, side by side with large Finnish companies, and build their own as well as Russia's future.

Due to its geographical proximity to Europe and industrial heritage, this Russian region will become the most rapidly integrating region with the world economy. The results of the study and industrial policy proposals that emerge are extremely valuable for facilitating the development and integration process of Northwest Russia. In the next stage cluster and industry strategy studies should be extended to encompass Russia in its entirety.

Helsinki, January 2004

Kari Tolvanen
Vice President
Sitra

Authors' Preface

This study concludes the series of publications devoted to analysing the industrial competitiveness of Northwest Russia. This three-year long project was accomplished by the research-based consulting company Solid Invest (St. Petersburg, Russia), the Research Institute of the Finnish Economy (ETLA), and the Centre for Strategic Research (Moscow, Russia). The project and this final report was financially supported by the Finnish National Fund for Research and Development (Sitra). The preceding industry studies were supported by twenty leading Finnish firms interested in Russia.

Previous publications contained a preliminary analysis of the competitiveness of industry in Northwest Russia. They also singled out and analysed in great detail the following sectors of the economy with the highest potential for competitiveness: the forest, energy, metallurgy and metalworking clusters, as well as the cluster of information technologies and telecommunications. The present work summarizes the results of this research in order to reveal the key aspects and tendencies affecting developments in Northwest Russia's industrial competitiveness in the medium to long term. Special attention has been paid to the need for forming a consistent industrial policy aimed at increasing investment and to an analysis of new opportunities for the Northwest Russian economy. These opportunities are opening up as a consequence of lively international cooperation, in particular industrial cooperation with the countries of the Baltic Sea region and Northern Europe.

The Chapters 1, 3, 5, 6 and 7 were prepared by Sergey Boltramovich with assistance of Pavel Filippov and edited by Grigory Dudarev. The Chapters 4, 8, 9 were written by Grigory Dudarev. Hannu Hernesniemi contributed to the study by providing valuable assistance, supervision and editing of the text. Cases in the Chapter 4 were prepared by Sergey Boltramovich, Pavel Filippov and Grigory Dudarev.

The authors wish to express their gratitude to all those who took part at various stages of this study, and who have assisted in bringing this book to fruition and making it available to the reader.

We would like to thank Sitra and Finnish firms for their longsighted investment in this research on the Northwest Russian economy. Busy businessmen from various industries often found the time to meet with us to discuss our research results in Helsinki and to participate in our

seminars held in St. Petersburg and Moscow. We would also like to express our appreciation to the Russian ministry officials and representatives of Russian businesses who participated in these seminars, where the most important questions regarding the development of various industries were discussed. Many Russian firms also opened their doors to our team of researchers conducting case studies.

Our special thanks go out to Professor Sergey Sutyrin of St. Petersburg State University, whose comments helped us in writing the sections on international collaboration, Vladislav Yurkovsky, who bore the burden of formatting the text and the graphics, and experts on specific industries - Dmitry Efremov and Dmitry Belov (the forest cluster), Alexey Osipov and Anton Savchenko (the energy cluster), Vladimir Gorelov (the metal cluster), and Andrey Averin (the cluster of information technologies and telecommunications).

The authors are grateful to the translators of the study, Sergey Afonin, Mary C. Gannon and Astamur Panov, as well as to Anthony de Carvalho and John Rogers for language checking. The final design and layout of the text was done by Tuula Ratapalo. Our Project Assistants, Veronica Voinovian and Anna Ignatieva, displayed organizational skills that were indispensable in this project.

The authors sincerely hope that the ideas and approaches embedded in this study will attract the attention of readers whose professional activities bear a direct relation to the issues addressed, and that it will also interest those who are concerned with issues of regional economic development.

We especially hope that this book will be valuable for western businessmen and strategic investors interested in Russia. We also believe that this book, particularly the Russian version, will be a good "tool" for strategy managers of Russian firms and industrial policy officials.

St. Petersburg – Helsinki, January 2004

Grigory Dudarev, Sergey Boltramovich, Pavel Filippov, and Hannu Hernesniemi

Summary

Many countries of the Baltic Sea region have undergone major revolutionary changes in the 1990s. The collapse of the Soviet Union and Eastern bloc, reunification of Germany, the expansion of the European Union, and market reforms in many countries were among the most far-reaching transformations in an economic and institutional sense. As these changes take root more and more challenges arise. After the initial settlement of the domestic issues attention is paid more to the improving of international collaboration and deriving additional advantages from international trade. The current state of affairs that one could observe today in these countries is only an indication of the trends that will gain much more momentum in the coming years. We are only in the beginning of the major geopolitical processes in this region. These dynamic processes that emerged in the 1990s will shape the future of the countries in the region for many years to come. In the present study we will concentrate on changes and trends in one of the less studied parts of this area - Northwest Russia. The transformation of this region, its integration into the international trade with the other Baltic Sea countries will have a major impact on many countries.

There are many events of importance when considering Northwest Russia today. The recent inception of the Baltic countries into the European Union brings the borders of the common European economic space to the Russian borders. At the same time Russia is undergoing major changes in its economy, society and institutions. Transition to the market economy, changes in the legislation and institutions opened the borders and markets for international trade and investment, substantially altering the industrial structure and corporate landscape in Russia. In the present study we aim to assess the development of Northwest Russia, its economy, industries and clusters of economic activities in the framework of the new conditions. We look also at this region as a potentially competitive location for certain industries and activities owing to the existing raw materials, high wage differential between EU and Russia, availability of a skilled labour force and industrial traditions, as well as numerous resource complementarities. Exploiting opportunities offered to the business in the Northwest by the potentially large and rapidly growing domestic market in Russia is yet another matter that is addressed in the

present paper. It is considered to be the major driving force behind the development of the local industries in the period of reform.

The Northwest is the only region in Russia that borders the European countries, i.e. Finland, Norway, the Baltic countries, Poland, and also Byelorussia. It has an access to multiple sea routes, the Baltic Sea in the Leningrad and Kaliningrad regions and the deep North and Barents Seas in the Murmansk, Arkhangelsk regions and Republic of Karelia. As a result the large and increasing portion of the Russian foreign trade is forwarded through the Northwest. In the medium term, the region's role as the main trade gateway of the country will certainly grow further also owing to the regions' advantageous location inside Russia. In the east the region is bordering the Urals federal district. This is another important industrial area of Russia that includes major oil reserves and the gas fields of Western Siberia, providing most of Russia's raw energy exports today. To the south of Northwest Russia lies the Central federal district with its centre in Moscow, where the major share of domestic consumption in Russia is concentrated.

The most important competitive advantages of Northwest Russia, as identified in our study, are the location in close proximity to the markets of Europe and Russia and position of the international trade hub for other regions in Russia (over 30% of the total), plentiful natural resources (primarily timber, metal ores, oil and gas), infrastructure that is among the best available in Russia, industrial traditions, low-cost labour and an advanced system of education and professional training. The inherited system of R&D and innovation developed in the Soviet period has not been a factor of competitiveness so far, but if targeted policies are carried out, it could still become a major source of sustainable advantages owing to existing resources and traditions.

Development of the Northwest could be facilitated by the dynamic processes that could strengthen the above-mentioned advantages:

- The position of the region as a trade venue between Russia, Europe and the Americas could lead to increased investments, deeper processing locally and service development. Investments in ports, terminals, oil pipelines and mobile telecommunication networks act as a proof of this trend. Investment is also heading towards processing of the transported goods as the recent increase in timber processing demonstrates.
- The second dynamic development factor that has yet to acquire sufficient momentum is foreign investment. It is attracted to Northwest Russia by the better infrastructure and the proximity to the export and domestic markets. The volume of the foreign investment could be substantially increased through the focused

activities of the regional governments. In comparison with Moscow and its neighbouring regions Northwest Russia is also on the winning side owing to lower operating costs. Joint efforts of the companies in Nordic countries that could provide manufacturing expertise and competitive operating costs in Northwest Russia could offer the companies and the industries involved in over-the-borders cooperation in the Baltic Sea region a competitive alternative for allocation of manufacturing in Southeast Asia.

- The third important factor is the complementary character of the European and Russian economies - the first one need what the other one is well equipped to offer. Europe needs the raw materials of Northwest Russia for its own consumption and further processing. Northwest Russia needs European technologies and access to marketing channels. In the future it is foreseeable that many activities will be moved to new locations inside the region. There is a demand for shifting of more processing to lower cost locations in Europe that the Northwest Russia could well accommodate.

The Region

Northwest Russia is one of the seven federal districts in Russia. Its territory is approximately 1,678 thousand km^2 or 10 per cent of the entire Russian territory. The population of Northwest Russia is 14.3 million people and total GRP at 21.9 USD billion is also close to 10% of the total in Russia. Administrative centre of the region is located in St. Petersburg. The other regions in the Northwest Federal District are the Leningrad region that surrounds the City of St. Petersburg, the Republic of Karelia, Murmansk, Pskov, Novgorod, Arkhangelsk and Nenets autonomous regions as well as the Komi Republic and Kaliningrad region (an enclave surrounded by the EU countries). The level of economic development varies greatly among the regions of the Northwest.

St. Petersburg and its neighbouring area represent by far the largest concentration of population, business activity as well as of the education and R&D institutions in the Northwest. During the Soviet period St. Petersburg was a centre for military and space technologies. This shaped the development of many related industries as well. This city was also an undisputable leader in shipbuilding, energy technologies and machine-building in Russia. Also manufacturing of electronics was concentrated here in the last decades of the Soviet period. A substantial system of education and professional training and a large number of research institutions were established in that period to meet the demand for labour,

R&D and basic science on behalf the above-mentioned industries. As the Soviet Union and socialist planning system collapsed, the City of St. Petersburg was among the most affected.

The markets that opened in Russia motivated development of certain successful industrial activities in the City of St. Petersburg. These were primarily the food industry, mobile telecommunications and software development. Notwithstanding the overall difficulties of the transition, the level of university education in many areas was maintained. Increased transportation and investments in ports - the Sea Port of St. Petersburg, Primorsk, Vysotsk and Ust-Luga - added to the increase in business activity in St. Petersburg and the Leningrad region. The Leningrad region also managed to attract foreign manufacturing companies owing to its good transport infrastructure, proximity to the market in St. Petersburg and favourable investment climate. Leningrad region is also an important resort and leisure location for the residents of St. Petersburg, which is an important additional source of income and area of development.

There are substantial mineral, oil and gas resources located in the Northern part of Northwest Russia. Thanks to these reserves the Murmansk, Nenets automomous regions and Republic of Komi are among the most successful industrial areas of Russia measured in terms of GRP and industrial output per capita. Nevertheless the economy of the Murmansk region is heavily dependent on the mining and metals processing activities and as a result is prone to volatility associated with metal price fluctuation on the world markets. Fishing and military manufacturing also have a substantial economic effect in the Murmansk and Arkhahgelsk regions. The most prospective new oil and gas region of Timan-Pechora is located in the Komi Republic and Nenets autonomous region. The largest unused reserves of natural gas in Russia are also located in the seas washing the Nenets and Jamal-Nenets autonomous regions.

Owing to the existing reserves the share of the Northwest Russia in the total production of oil and gas in Russia is bound to increase in the future. In addition to the above-mentioned increase there will be also growth in volumes of oil and gas from fields of Western Siberia transported via the Northwest to the European and North American markets. Such changes increase the importance of efforts aimed at elimination of the environmental pollution and risk of industrial accidents in the mining, metal processing, energy and oil and gas industries.

The forest resources in the Northwest are four times larger than in Finland, a country with the largest concentration of forest industry in the world. Notwithstanding the large forest reserves in the Northwest Russia harvesting here averages only 40% of the total allowable annual cut, which is only 60% of the total annual cut in Finland. Most of the timber is exported raw, i.e. without processing. In the Republic of Karelia and

its eastern neighbour, the Arkhangelsk region, the forest industries account for the largest share of total industrial output, whereas in many other regions this industry is among the leaders. As regards the development potential measured by the unutilised annual cut, Komi and Vologda are the most promising areas. Thanks to the favourable investment climate international forest companies also invested in the forest industry of the Novgorod region. Northwest Russia is the most promising area for the development of the forest industries in future owing to the proximity to the European and largest domestic markets of Central Russia.

The regions of Novgorod and Pskov, which at the time of the princedom around one thousand year ago were the political and economic centres of the region, today are among the average performers. The Pskov region even belongs to the low GRP per capita regions of Russia. These regions cannot rely on natural resources and therefore development of industrial activities and services (both are leisure and resort areas for inhabitants of Moscow and St. Petersburg) is very important. The location of these regions creates additional opportunities. The distance to consumer markets in St. Petersburg and Moscow from the Novgorod region is roughly the same. The Pskov region borders EU-newcomers Latvia and Estonia. Unfortunately the over-the-border economic activity in the region is in its very beginning.

The Kaliningrad region is located inside the expanding European Union. Its isolated location is clearly an obstacle for the links and trade with the other regions of Russia. There are also no signs of integration of this region into the Northwest Russia. On the other hand the location inside the European Union could lead to creation of an important trade gateway and manufacturing location (the BMW car assembly factory is already a success story in this sense).

Changes Owing to Transition to the Market Economy

The transition of Russia to a market economy is a long and painful process. Economic and institutional transformation was complicated by the large scale of problems inherited from the Soviet period. Such obstacles as huge imbalances in production and allocation of certain activities, numerous large, ambitious infrastructure and industrial development projects that were finally left unfinished or were implemented quite irrationally (once market economy logic is used for consideration). Our examination of companies in various industries suggests that in general the development proceeded very chaotically; the integrity of decisions is often questionable, due to a lack of information and biases rooted in the past.

Among the typical results of the hasty and chaotic decision-making, as well as underdeveloped legal framework during the process of privatisa-

tion, are a continuing struggle for assets, the slow development of small and medium-sized businesses, the high dependence on non-transparent tariff policy pursued by government monopolies, etc. Nevertheless, through a painful trial and error process, the elements of a new economic and political system are emerging and gradually gaining strength. Bifurcation is not possible - there is no return to the past. Free markets and economic development is being held back by many factors. The most significant of these have to do with ineffective government regulation.

Notwithstanding the general difficulties of transition there are industries and companies that perform reasonably well. Primarily that refers to the raw materials such as oil and gas, ore extraction and timber harvesting and their initial processing based activities. The demand for equipment, technologies and services as well as for consumer goods connected to the above-mentioned businesses was behind the initial growth in domestic manufacturing that could be observed starting in 1999. The sharp depreciation of the domestic currency in 1998 strengthened this trend substantially.

There are also companies in the high-tech areas such as information technologies that demonstrate the signs of success in Russia. One could observe a growth trend in these activities fuelled by international and domestic demand as well.

Generally speaking one could observe that the initial process of economic transition is coming to its end. A new industrial structure skeleton has formed in Russia. Even though many things still remain unclear, as far as the further development is concerned, there is already a basis for the focused decision-making and development of certain industries that enjoy existing or could enjoy potential competitive advantages.

Clusters in the Northwest Russia

As a basis for analysis of the industry structure changes, development trends and possible policy measures the authors used the 'diamond' model and the industrial cluster concept developed by M. Porter in the well-known book *The Competitive Advantage of Nations*. Besides the subsequent theories related and underlying this concept are applied to broaden the views presented in the study.

The cluster approach emphasizes the importance of inherited skills, industrial capital and traditions. Education and research are also considered important, as well as the close links between manufacturers and their suppliers. In addition to close links, geographical proximity is emphasized. In fact similar ideas underlay the creation of regional industrial complexes in the Soviet Union starting from the 1970s. The main differences between regional industrial complexes and industrial clusters were

allocation of resources and supplies neglecting the markets and customer needs and aspiration for mass employment and standardization instead of competitiveness, lower costs and flexibility. Owing to these differences, the transition to the market economy has led to destruction of many long-established links in the industrial complexes. As we see from the analysis in the present study the new industry structure and links are already formed in Russia that could be among the signals of the end of the initial transition to the market economy.

Analysis of the foreign trade statistics shows that at present the most viable and internationally competitive industries in Russia are those connected with the production of raw materials and semi-finished goods. They derive their advantages from the abundance of natural resources and relatively low costs. Very modest expenditures for environmental protection also contribute to the cost advantage. As everyone knows all these factors have a temporary nature. Therefore a great deal of effort is still needed to provide for sustainable development of the Russian industries in the coming years.

The authors have identified the four groups of industries in Northwest Russia that enjoy a relatively high level of competitiveness and around which the clusters of companies including also related and supporting activities as well as education, R&D etc are formed. They are the forest, energy, metals, and the information and communication technologies (ICT) clusters.

The forest cluster is better developed in the Northwest than in other regions of Russia. The largest company in the forest industry, Ilim Pulp Enterprise, is located in St. Petersburg. Kondopoga, Syktyvkar, IP Svetogorsk and Arkhangelsk pulp and paper mills are other large forest industry companies located in the region. Nevertheless its forest resources are utilized to a limited degree primarily because of the poorly developed transport infrastructure and processing industries allocation imbalances created in the Soviet period. The large but decreasing share of products, in the first place round wood sawn timber, plywood, pulp, and newsprint are exported. Domestic consumption is starting to play a clear, dominating role in the sales of the local companies and, as a result, in the new investment decisions at the corporate level. Production allocation decisions in the new manufacturing facilities contrary to the Soviet period are carried out based on the optimal operational costs, access to the raw materials and markets.

The energy cluster of Northwest Russia specializes in its established areas, which include the electric power industry, power engineering, oil and gas transit from the other Russian regions, and oil refining. The share of the region within Russia's total production of oil and natural gas is small. It may, however, increase significantly, due to the exploration of

new large deposits in the north of the Timan-Pechora oil and gas province and in the Barents Sea. The oil sector is the most prosperous. It is almost completely privatised and has been distinguished by dynamic expansion in recent years: new oil wells, pipelines, and sea terminals have been launched; exports are growing; and the construction of new refining facilities and the expansion of existing facilities is underway.

The gas sector is still monopolized by state-owned Gazprom. The status quo in this industry will probably sustain for several more years. Reforms are close to take-off in the electric power industry; their implementation, however, will require a lot of time and significant expenditures. In the future we will probably see an increase of the efficiency of some power plants, and a decreasing share of nuclear power (currently over 40 per cent of all electric power in the region). Frequent failures to provide heat and power in many locations, multiple capacity bottlenecks in the grid as well as very high costs of up-grading centralised heat supply networks will motivate development of the dispersed small scale energy production based on the maximum utilization of local resources. Development of the power industry will also require sizable investment, and will, perhaps, be realized with the participation of the leading multinational companies. Anticipated liberalisation of the electric and heat energy markets will ease creation of the competitive energy producers.

The product portfolios in the metal cluster have undergone a shift from products with higher added value to primary metals, which are more competitive on the world market, and, recently, backwards to manufacturing of pre-processed components for assembling at machine-building companies. This signalled a change in the industry structure. These changes are associated with gradual dissolution of the large metal-processing agglomerates created in the Soviet period and creation on their basis of the smaller manufacturers with clearer segmentation and specialization. Nevertheless the Severstal holding company, which covers the entire metallurgy cycle - from mining iron ore to the manufacture of metal products, is still the undisputed leader in Northwest Russia in ferrous metallurgy. Non-ferrous metallurgy is represented by a number of smaller companies. The region, however, has the preconditions for significant growth of the aluminium industry: raw materials, seaports, and the unused potential of power plants. There are also plans and projects aimed at development of the higher value added, consumer-oriented manufacturing in the Northwest (aluminium can factory near St. Petersburg, etc).

The brisk development of the ICT cluster in the Northwest of Russia can be attributed to the high educational, R&D, and industrial potential of St. Petersburg. The rapid increase in domestic demand, not only in St. Petersburg, but also in other regions of the Northwest, has been the driving force behind the development of the telecommunications sector.

The mobile operator Megafon which started in this region belongs to the Russian leaders in its segment and is rapidly expanding its activities all over the country. The information technology sector is already exporting a substantial portion of its products (offshore programming). Manufacturers of electronic equipment and components also have export potential but demand is stagnate at the moment. The deepening of cooperation with the ICT cluster of Finland and Sweden that are among the world leaders, may enhance the prospects for successful development of the ICT cluster of Northwest Russia.

The domestic demand for locally manufactured goods has decreased in many areas in the past decade. A surge in the export of products became a prerequisite for survival for many companies under these circumstances. Notwithstanding its important initial role the successful export of low processing stage products is not sufficient for development of the sustainable competitive clusters in Northwest Russia. Growth in the activities carried out locally in the value chain is required for many clusters to preserve their competitive standing in the future. This requires availability of more sophisticated suppliers locally, i.e. more flexible and diverse higher process stage manufacturing, a higher quality labour force, capacity for innovations etc. Development of local manufacturers and suppliers is the main challenge for the region in the medium term if the levels of living standards are to be increased to become closer to the neighbours. Achieving economies of scale and scope for the domestic manufacturing in a wider range of activities is an interactive process fuelled by the increase in domestic demand. This is a self-enforcing trend if the quality requirements of the local consumers are increased to the highest levels in the world. The first signs of recovery and growth in this direction have already appeared in the recent years.

The expansion of the Northwest Russia economy will not come only from the growth in the domestic markets. An increasing share of the international trade is crucial. It is envisaged that the international trade, especially with the neighbouring countries will grow at ever increasing rate in the future. This growth in trade will by far exceed the rate of growth in GDP owing to an increase in trade associated with more industrial investments and quickly increasing specialisation of the Northwest Russia companies. Our analysis demonstrated that there are numerous prerequisites for such development in Northwest Russia. Nevertheless development in this direction requires commitment from the government on the regional and federal levels in Russia. There are many obstacles for trade that require urgent removal, many regulations and procedures are out-dated. Development of the Northwest Russia, its pace and success will largely be a function of the success in solving the above

problems. The regions that pay the most attention to the investment climate will bear the best fruit in the near future.

Globalisation of the economic activities is a worldwide trend that Russia will not be able to escape. We urge more understanding and action on behalf of the Russian decision-makers in the direction of integrating the country into the global economy. The location, resources and inherited capital in the Northwest Russia allows for an excellent opportunity to be successful. Making the most of this opportunity is the task of all people living and working in this region.

Russia Needs Foreign Companies - Including SMEs

The very important conclusion of the research is that Russia needs foreign direct investments. It needs big multinational companies that can introduce new technology and know-how in financing and marketing, opening at the same time international markets for new products. On the other hand, Russian industry desperately needs SMEs and therefore has plenty of space for foreign small and medium-sized manufacturers and business services.

In the Soviet period production was concentrated in large industrial plants. Very often they tried to do everything themselves in order to secure production, since no subcontractors were available. They were also given permission or ordered to manufacture new products. Large research institutes took care of services for companies. In the Soviet Union it was forbidden to found private companies and the society did not have any mechanism that would generate new SMEs. In the new Russia plenty of small enterprises emerged in consumer services but few in industry. The biggest problem for many companies in Russia is lack of subcontractors. Russian companies, too, have started to outsource operations.

In the international comparison, it may be easiest for Finnish SMEs to settle in Northwest Russia. The reasons are simple: 1) The close proximity of Finland and Northwest Russia and familiarity with each other's conditions allow management of direct investments and keeping of costs at a reasonable level. 2) The same clusters are important for both Finland and Northwest Russia, but their products complement each other, which offers business opportunities. 3) Investments by large Finnish companies have been directed to Northwest Russia in particular, and these companies trust the subcontractors they have already found and tried. 4) In addition, the difference in labour costs by the Finnish-Russian border is the biggest in the world. It would be profitable for many Finnish companies to subcontract to Northwest Russia, for example manufacturing of marine technical products. This would make the products more competitive in the world market and would increase market shares.

Tiivistelmä

Tutkimuksessa analysoidaan Luoteis-Venäjän yritysten ja johtavien yritysklustereiden kilpailukykyä ja tulevaisuudennäkymiä. Luoteis-Venäjän merkittävimmät klusterit ovat tuotannon ja viennin perusteella energiaklusteri ja metallinjalostusklusteri. Huomattavia kehitysmahdollisuuksia on metsäklusterissa, koska saatavilla on runsaasti raaka-aineita ja lähellä Euroopan markkinat. Uutta elinkeinotoimintaa edustaa ICT-klusteri, jossa ohjelmistotuotannosta voi kehittyä samanlainen menestysala kuin Intialle tai Israelille.

Luoteis-Venäjä rajoittuu Norjaan, Suomeen ja Baltian maihin sekä Valko-Venäjään ja Kalinigradissa myös Puolaan. Maantieteellinen yhteys Euroopan unioniin antaa Luoteis-Venäjälle tärkeän sillanpääaseman. Se on Euroopan Unionin maiden kauppatie Venäjän markkinoille. Vastaavasti Luoteis-Venäjän kautta kulkee pääosa Venäjän viennistä EU:n markkinoille. Idässä alueen rajana on Ural, jonka takana sijaitsevat Uralin ja Siperian alueen teollisuuskaupungit. Eteläpuolella on väkirikas Keski-Venäjän suurpiiri, jonka keskus on ostovoimainen Moskova.

Luoteis-Venäjän merkittävimmät kilpailuedut ovat maantieteellinen sijainti Euroopan ja Venäjän omien markkinoiden läheisyydessä, runsaat raaka-ainevarat, Venäjän oloissa paras liikenneinfrastruktuuri, teolliset perinteet, edullinen työvoima ja toimiva koulutusjärjestelmä. Neuvostoliiton aikana kehitystä tutkimus- ja innovaatiojärjestelmästä ei ilman suuria muutoksia näytä olevan kilpailuetua alueen teollisuudelle.

Luoteis-Venäjän kehitystä nopeuttavat edellä mainittuja kilpailuetuja vahvistavat dynaamiset prosessit:

- Asema Venäjän sekä Euroopan ja Yhdysvaltain välisenä kauppatienä tulee lisäämään investointeja, jalostusta ja palveluita. Jo nyt tämä kehitys näkyy merkittävinä investointeina satamiin, terminaaleihin, öljyputkiin ja matkapuhelinverkkoihin. Myös kuljetettavien tuotteiden jalostukseen investoidaan esimerkkinä puunjalostus. Palveluista voimakkaimmin ovat kehittyneet logistiikkapalvelut.

- Toinen dynaaminen kehitystekijä, tosin ei vielä kovin vahva, ovat ulkomaiset investoinnit. Niitä Luoteis-Venäjälle vetää muuta Venäjää parempi infrastruktuuri sekä vienti- ja sisämarkkinoiden läheisyys. Investoinnit ja suorat sijoitukset voisivat olla huomattavasti suuremmat, jos alueiden hallitukset edistäisivät niitä toimen-

piteillään. Luoteis-Venäjä kilpailee Moskovan kanssa selvästi alhaisemmilla liiketoiminnan kustannuksilla. Yhdistämällä esimerkiksi Itämeren maiden piirissä osaamista ja edullista työtä yli rajojen, Itämeren alueen teollisuus olisi nykyistä huomattavasti kilpailukykyisempi Kaukoidän maita vastaan.

- Kolmas merkittävä tekijä on Luoteis-Venäjän ja muun Euroopan talouksien komplementaarisuus - toisiaan täydentävyys. Eurooppa tarvitsee Luoteis-Venäjän raaka-aineita sekä omaan käyttöönsä että jalostaa maailmanmarkkinoille. Luoteis-Venäjän teollisuus tarvitsee kehittyäkseen Euroopan tuotantoteknologiaa ja markkinakanavia. Tulevaisuudessa on ennakoitavissa toimintojen uudelleen sijoittumista.

Alueiden erikoispiirteet

Luoteis-Venäjä on yksi Venäjän seitsemästä suurpiiristä. Sen pinta-ala on 1 678 000 neliökilometriä eli kymmenesosa Venäjän koko pinta-alasta. Asukkaita alueella on 14,3 miljoonaa. Luoteis-Venäjän hallinnollinen pääkaupunki on Pietari. Muut Luoteis-Venäjän alueet ovat Pietarin ympärillä levittäytyvä Leningradin alue, Karjalan Tasavalta, Murmanskin alue, Pihkova, Vologda, Arkangeli ja sen autonominen alue Nenetsia sekä Komin tasavalta ja EU:n sisällä sijaitseva Kaliningrad. Luoteis-Venäjä on taloudellisessa mielessä erittäin vaihteleva alue.

Pietari ja sen ympäristö muodostavat Luoteis-Venäjän ylivoimaisesti suurimman väestön, yritystoiminnan sekä koulutuksen ja tutkimuksen keskittymän. Neuvostoliiton aikana siitä kehitettiin sota- ja avaruusteknikan keskus, mikä suuntasi monen teollisuudenalan tuotantoa. Pietari oli myös laivanrakennuksen, energiateknologian ja eräiden muiden koneenrakennusalojen ehdoton keskus. Viimeisinä vuosikymmeninä sinne keskitettiin strategisena pidettyä elektroniikkateollisuutta. Näiden työvoimatarpeista vastaamaan perustettiin massiivinen korkeakoululaitos sekä tuotekehityksestä ja tutkimuksesta huolehtimaan lukuisia isoja instituutteja. Kun Neuvostoliitto ja sosialistinen talousjärjestelmä romahtivat, se koski Luoteis-Venäjän alueista eniten Pietaria.

Uusi Venäjä ja sen muuttuneet markkinat ovat luoneet uusia menestysaloja Pietariin, kuten elintarviketeollisuus ja ohjelmointiliiketoiminta. Yliopistokoulutus on säilynyt vahvana. Kasvavat kuljetukset ja investoinnit satamiin - Pietarin pääsatamaan, Primorskiin, Vysotskiin ja Ust Lugaan - ovat lisänneet taloudellista toimeliaisuutta Pietarissa ja Leningradin alueella. Leningradin alueelle on sijoittunut ulkomaalaisia yrityksiä johtuen sen hyvistä liikenneyhteyksistä, Pietarin läheisyydestä ja Pietarin kaupunkia paremmista sijoittumisehdoista.

Luoteis-Venäjän pohjoisosissa on merkittäviä malmi-, öljy- ja kaasuvaroja. Niiden ansiosta Murmanskin alue, Nenetsien autonominen alue ja Komi sekä Vologda, jossa jalostetaan rautaa ja terästä, sijoittuvat Venäjän varakkaimpien alueiden joukkoon. Murmanskin alueen talous on kaivostoiminnan ja metallienjalostuksen varassa. Myös kalastuksella ja sotilastukikohdilla on merkittävä taloudellinen vaikutus. Komissa ja Nenetsien autonomisella alueella sijaitsee Timan-Petsoran öljy- ja kaasualue, jossa uusia kenttiä otetaan tuotantoon. Venäjän suurimmat hyödyntämättömät kaasuvarat sijaitsevat Barentsin- ja Karan merellä. Komin ja Nenetsian naapurialueella Jamalo-Nenetsiassa on merkittävät kaasuvarat.

Luoteis-Venäjän asema Venäjän kaasun ja öljyn tuotannossa kasvaa tulevaisuudessa. Lisäksi sen kautta kuljetetaan kasvavia määriä Länsi-Siperian öljyä ja kaasua Itämeren kauppatietä pitkin Eurooppaan ja Jäämeren satamista Pohjois-Amerikan markkinoille. Kaivostoiminnan, metallienjalostuksen ja öljy- ja kaasuteollisuuden ympäristötuhojen ja onnettomuusriskien minimoiminen ovat tärkeä haaste Luoteis-Venäjälle.

Luoteis-Venäjän metsävarat ovat nelinkertaiset metsäteollisuusmaahan Suomeen verrattuna. Metsätaloudesta ja metsäteollisuudesta elävät erityisesti Karjalan tasavalta ja sen itänaapuri Arkangelin alue, mutta metsä on merkittävä tulonlähde muillekin alueille. Käyttämättömien hakkuumahdollisuuksien perusteella Komin ja Vologdan alueet näyttävät lupaavilta metsäteollisuuden sijoittumisalueilta. Yrityksille ja sijoituksille myönteisen politiikan ansiosta metsäteollisuusyritykset ovat tehneet investointejaan myös Novgorodiin.

Huolimatta suurista metsävaroista hakkuut Luoteis-Venäjällä ovat vain noin 60 prosenttia Suomen hakkuista, ja merkittävä osa hakatusta puusta viedään jalostamattomana. Luoteis-Venäjä on raaka-aineiden, Euroopan markkinoiden läheisyyden ja omien kasvavien markkinoiden sekä Venäjän oloissa parhaan kuljetusverkoston takia metsäteollisuuden tulevaisuuden sijoittumisalue.

Novgorod ja Pihkova, joiden ruhtinaskunnat olivat poliittisia ja taloudellisia valtakeskuksia vajaa tuhat vuotta sitten, ovat nyt Venäjän tulovertailussa keskitasoa, Pihkova jopa huonoimmin toimeentulevien joukossa. Niiden luonnonvarat ovat vähäisemmät kuin muiden alueiden ja teollinen rakenne ohuempi. Pihkovalle, samoin kuin Leningradin alueelle, jopa pietarilaisten mökkiasukkaiden kysyntä on tärkeä tulonlähde. Alueiden sijainti luo mahdollisuuksia. Novgorodista on lyhyt matka niin Pietarin kuin Moskovankin markkinoille. Pihkova rajoittuu uusiin EU-maihin Latviaan ja Viroon, ja rajan ylittävä liiketoiminta on vasta kehityksen alkuvaiheessa.

Kaliningrad sijaitsee laajentuvan EU:n sisällä. Eristetty asema selvästi haittaa sen yhteyksiä muuhun Venäjään, eikä se näytä integroituvan osaksi Luoteis-Venäjän kiinteytyvää talousaluetta. Toisaalta sen sijainti EU:n sisällä voi tehdä siitäkin merkittävän kauppareitin Venäjälle.

Markkinatalouteen siirtymisestä aiheutuvat muutokset

Venäjän siirtyminen markkinatalouteen on pitkä ja kivulias prosessi. Neuvostoaika jätti jälkeensä suuria ongelmia. Tuotanto ei vastannut rakenteeltaan todellista kysyntää, eikä se ollut sijoitettu optimaalisesti markkinoihin nähden. Sotatarviketuotannolla ja niin sanotulla raskaalla teollisuudella, kuten metallien ja tuotantovälineiden tuotannolla, oli liiallinen painoarvo kulutustavaratuotantoon nähden. Monet suuret infrastruktuurihankkeet ja teolliset investointiprojektit jäivät kesken, kun Neuvostoliitto hajosi. Myöhemmin niiden tarkoitus tuntuu jopa käsittämättömältä, kun markkinatalous on muuttanut yhteiskunnan toimintaa. Tutkimalla eri teollisuudenaloja huomaa, että kehitys neuvostotaloudesta markkinatalouteen on edennyt kaoottisesti, päätökset eivät ole olleet johdonmukaisia ja usein niiden perusteet on helppo asettaa kyseenalaiseksi. Päätösten tekemisen tukena ei ole riittävästi informaatiota nykyisestä tilanteesta, jolloin ne on perustettu vanhaan kokemukseen.

Tyypillisiä seurauksia hätäisestä ja kaoottisesta päätöksenteosta ovat esimerkiksi jatkuvat taistelut tuotantovälineiden omistusoikeudesta, pienen ja keskisuuren yritystoiminnan hidas kehitys sekä energiamonopolien erittäin epäselvä tariffipolitiikka. Joka tapauksessa uuden talousjärjestelmän peruspilarit ovat vähitellen muotoutumassa. Prosessia hidastavat kuitenkin monet tekijät, esimerkiksi taloudellisen toiminnan säätelyn puuttuminen, mikä lisää epävarmuutta, ja valtiovallan tehoton elinkeinopolitiikka.

Transitiokauden vaikeuksista huolimatta muutamat teollisuudenalat menestyvät suhteellisen hyvin. Näistä esimerkkeinä ovat raaka-aineita - öljyä, kaasua ja malmeja - tuottavat ja jalostavat yritykset. Näiden alojen tuotantovälineiden ja palvelujen kysyntä samoin kuin niiden piirissä työskentelevien kulutustavarakysyntä ovat vahvistaneet talouden kasvua. Merkittävä kasvutekijä oli myös vuoden 1998 ruplan arvon aleneminen, joka suuntasi kysynnän kotimarkkinoilla tuotettuihin tuotteisiin, koska tuontituotteiden hinnat nousivat voimakkaasti. Alkanutta kasvua voimistamaan tarvittaisiin Venäjän valtion ja aluehallinnon tarkasti kohdistettuja elinkeinopoliittisia toimenpiteitä.

Myös joidenkin korkean teknologian alojen kuten informaatioteknologian kehityksestä on havaittavissa ensimmäisiä merkkejä. Puhelinverkkoihin rakennetaan kehittyneitä sovellutuksia, Internet-pohjaiset palvelut lisääntyvät ja ohjelmistotuotanto on vahvassa kasvussa. Näitä edistävät sekä kotimainen kysyntä että osittain vienti. Transitioprosessin ensimmäinen vaihe on ohitettu. Uuden Venäjän toimialarakenne on hahmottumassa. Vaikka tulevaan kehitykseen liittyy vielä paljon epävarmuutta, on jo tunnistettavissa, millä Venäjän toimialoilla on osoitettua tai potentiaalista kilpailukykyä. Tämä on hyvä pohja näitä aloja edistävälle elinkeinopolitiikalle.

Luoteis-Venäjän klusterit

Toimialarakenteen muutoksen ja kehitystrendien analysoimiseen käytettiin M. Porterin Kansakuntien kilpailuetu -kirjassa kehittämää klusterikäsitettä ja kilpailukyvyn kehitystä selittävää ns. timanttimallia. Itse asiassa käytetty kilpailukykymalli on kokoelma useamman tutkijan kehittelemiä kilpailukykyä selittäviä malleja, joten sitä käyttämällä kilpailukykyä tarkastellaan hyvin monipuolisesti. Lisäksi käytettiin uudempia aluetalouden malleja.

Klusterinäkökulma korostaa perityn tiedon ja taidon, teollisen pääoman ja tradition merkitystä. Myös koulutusta ja tutkimusta ja muita uusien tuotannontekijöiden kehitysmekanismeja pidetään tärkeinä. Kilpailuetua syntyy myös läheistä suhteista tuotantopanoksia ja teknologiaa tarjoaviin yrityksiin. Tiiviiden suhteiden lisäksi maantieteellisen läheisyyden merkitys korostuu.

Itse asiassa samantapaisia ajatuksia teollisuuden kehittämisessä oli käytetty myös Neuvostoliitossa 1970-luvulta lähtien, kun pyrittiin rakentamaan ns. alueellisia teollisia komplekseja. Perusero klustereiden ja kompleksien välillä oli, että jälkimmäiset eivät voineet käyttää markkinoita ja hintoja ohjaamaan resurssien allokointia ja tarjontaa, eivätkä kuluttajien näkemykset välittyneet valmistajille. Tuotannossa tavoiteltiin massatuotantoa ja standardisointia sen sijaan, että olisi pyritty kilpailukykyisyyteen, kustannusten säästöön ja joustavuuteen. Näiden erojen takia siirtyminen markkinatalouteen on johtanut monien pitkän ajan kuluessa syntyneiden yritysten välisten suhteiden katkeamiseen. Tässä tutkimuksessa on analysoitu uusien siteiden ja klusterirakenteiden syntyä, mitkä antavat hyvän pohjan tulevalle kehitykselle.

Venäjän ulkomaankaupan analyysi paljastaa, että parhaiten viennissä ovat menestyneet ne alat, joissa vienti voi perustua runsaisiin, edullisiin raaka-aineisiin ja niistä valmistettuihin alhaisen jalostusasteen tuotteisiin. Varsin vaatimattomat investoinnit näiden alojen ympäristönsuojeluun myös osaltaan mahdollistavat alhaiset vientihinnat. Venäjä elää luonnon kustannuksella, eikä tarpeeksi huolehdi luonnonvarojen uusintamisesta ja säästäväisestä käytöstä. Tulevina vuosina tarvitaan oleellisia muutoksia toimintatapoihin ja ympäristön tilaa kohentavia investointeja kestävän kehityksen aikaansaamiseksi.

Tutkimuksessa tunnistettiin neljä klusteria, joissa Luoteis-Venäjän yrityksillä on suhteellisen hyvä kilpailukyky vientimarkkinoilla ja Venäjän markkinoilla. Näissä klustereissa on myös yrityksiä palvelevaa koulutusta, tutkimusta ja kehitystoimintaa sekä jonkin verran yrityspalveluja, jotka ovat kilpailukyvyn edellytyksiä. Nämä klusterit ovat metsäklusteri energiaklusteri, metallinjalostusklusteri ja informaatio- ja viestintäpalvelujen ja teknologian klusteri.

Metsäklusteri on Luoteis-Venäjällä paremmin kehittynyt kuin muilla Venäjän alueilla, koska kuljetusinrastruktuuri on parempi kuin muilla alueilla ja markkinat suhteellisen lähellä ja alan teolliset perinteet pitkät. Venäjän suurimman metsäteollisuusyhtiön Ilim Pulpin pääkonttoritoiminnot sijaitsevat Pietarissa. Kontupohjan, Syktyvkarin, Arkangelin ja International Paperin Sverogorskin (Enson) sellu- ja paperitehtaat ovat muita klusterin merkittäviä yrityksiä. Huolimatta Venäjän oloissa vahvasta yrityskannasta, metsäteollisuuden kehitysmahdollisuudet Luoteis-Venäjällä ovat merkittävät. Metsävarat Luoteis-Venäjällä ovat neljä kertaa suuremmat kuin sen läntisen naapurimaan Suomen. Vuotuiset hakkuut ovat kuitenkin vain noin 60 prosenttia Suomen hakkuista ja 40 prosenttia alueen hakkuumahdollisuuksista. Luoteis-Venäjä vie puuraaka-ainetta, sahatavaraa, vaneria, selluloosaa sekä sanomalehtipaperia. Metsäteollisuutta voitaisiin uudistaa nostamalla jalostusastetta. Uusinvestoinnit mekaaniseen metsäteollisuuteen ovat alkaneet. Jotta uusinvestoinnit sellu- ja paperiteollisuuteen olisivat mahdollisia, tarvittaisiin varmuutta siitä, että saatavilla on runsaasti ja pitkäaikaisesti puuraaka-ainetta. Tämä edellyttäisi, että tehtaat tai niiden käyttämät hakkuuyhtiöt saisivat käyttöönsä nykyistä laajempia hakkuualoja pitemmillä vuokrasopimuksilla. Siirtyminen maksimissaan 49 vuoden vuokrasopimuksista 99 vuoden vuokrasopimuksiin lisäisi myös kiinnostusta metsän uudistamiseen. Istutuksia, harvennushakkuita ja muita metsähoitotoimenpiteitä tarvitaan hakkuumahdollisuuksien kasvattamiseksi ja investointeja metsäautoteihin hakkuumahdollisuuksien paremmaksi hyödyntämiseksi. Länsi-Eurooppa on tärkeä markkina-alue Luoteis-Venäjän metsäteollisuudelle. Kuitenkin viime vuosina Venäjän kotimarkkinat ovat lähteneet kasvuun ja niiden tärkeys on huomattu myös investointipäätöksissä.

Luoteis-Venäjän energiaklusteri on klustereista tärkein mitattuna osuudella tuotannosta ja viennistä. Klusterin tuotevalikoima kattaa energiaraaka-aineet ja niihin perustuvan jatkojalostuksen, sähkön ja lämmön tuotannon sekä energiateknologian valmistuksen. Luoteis-Venäjän osuus Venäjän öljyn ja kaasuntuotannosta on vielä suhteellisen pieni. Se kuitenkin nousee, koska uusiin öljy- ja kaasuesiintymiin Timan-Pechoran öljy- ja kaasualueella investoidaan aktiivisesti. Lisäksi Venäjän suurimmat kaasureservit sijaitsevat Luoteis-Venäjän mannerjalustalla Barentsin merellä ja Karan merellä. Myös kasvava määrä Länsi-Siperian öljyä kulkee Luoteis-Venäjän kautta, mistä syystä Itämerestä näyttää muodostuvan uusi ”Persianlahti”. Venäjän merkittävimmät tulevaisuuden öljyvarat ovat heti Uralin takana Nenetsiassa ja Jamalo-Nenetsiassa. Lähes kokonaan yksityistetty öljyteollisuus on tällä hetkellä Venäjän teollisuudenaloista menestyksekkäin. Se näkyy myös investoinneissa. Uusia öljylähteitä otetaan tuotantoon, öljyputkia, terminaaleja ja satamia rakennetaan, ja vienti kasvaa. Uutta öljyn jalostuskapasiteettia on rakenteilla ja suunnitteilla.

Kaasusektori on vielä valtion omistaman Gaspromin hallussa. Sen monopoliasema luultavimmin säilyy vielä vuosia. Sen sijaan sähköntuotannossa ja sähkömarkkinoilla uudistukset ovat nyt lähtemässä käyntiin, mutta niiden läpivieminen kestää vuosia ja vaatii huomattavia investointeja. On todennäköistä, että investoinnit kohdistuvat tuottopotentiaaleiltaan parhaiden voimaloiden tehonnostoihin. Ydinvoimalla tuotetun sähkön osuus tullee laskemaan nykyisestä 40 prosentista. Sähkön ja lämmön katkot sekä niiden riittämättömyys talvikausina ovat merkittävä ongelma monilla Luoteis-Venäjän alueilla. Sähkönsiirtokapasiteetissa alueiden välillä on pahoja pullonkauloja. Taloudellisesti lähes ylivoimaiseksi ongelmaksi muodostuu kaukolämpöverkkojen uudistaminen. Näistä syistä johtuen hajautettu sähkön ja lämmön tuotantokapasiteetti, joka hyödyntää paikallisia raaka-aineita, tulee kasvamaan. Sähkön ja lämmön tuotannon kehittäminen vaatii niin merkittäviä investointeja, että se tuskin onnistuu ilman suuria, monikansallisia yhtiöitä. Energiamarkkinoiden odotettu liberalisointi luo mahdollisuuksia kilpailulle ja markkinoita uudelle energiateknologialle.

Metallinjalostusklusteri on läpikäynyt melkoisen mullistuksen Neuvostoliiton ajoista. Tuolloin klusteri tuotti raaka-aineita ja jatkojalosteita Pietarin, Moskovan, Uralin ja Volgan koneteollisuudelle ja rakennusprojekteihin. Kun näiden markkinat romahtivat, metallienjalostus palasi ”juurilleen” valmistamaan alhaisen jalostusasteen tuotteita. Kotimarkkinoitten sijasta se suuntautui vientiin, jossa tuotteet osoittautuivatkin kilpailukykyiseksi, koska tuotantokustannukset - raaka-aineet, työvoima ja energia - olivat kilpailijoita edullisemmat ja tuotantokapasiteettia ei tarvinnut laajentaa. Nyt on merkkejä siitä, että metallituotteiden ja komponenttien valmistus kotimaisille asiakkaille on jälleen elpymässä. Luonteenomainen piirre Luoteis-Venäjän metallienjalostukselle on sen pitäytyminen lähes täysin malmiraaka-aineeseen, jota on ollut runsaasti saatavilla. Romuraaka-ainetta kerätään lähinnä vientiin.

Metallienjalostuksessa on odotettavissa asteittaisia muutoksia, joilla suurista neuvostoaikana luoduista yhtiöistä irtautuu pienempiä, kapeammille aloille erikoistuvia yhtiöitä. Raudan ja teräksen tuotannossa Severstal kuitenkin hallitsee koko tuotantoketjua - kaivokset, tuotannon ja sen ensivaiheen jatkojalostusta ja on hankkinut omistukseensa jopa asiakasalojen yrityksiä. Jalometallien tuotannossa toimii useampia yhtiöitä.

Alumiiniteollisuudella on Luoteis-Venäjällä hyvät kasvumahdollisuudet. Käytössä on runsaat raaka-ainelähteet, halpaa sähköenergiaa ja laitoksia voidaan sijoittaa optimaalisesti satamien läheisyyteen kuljetuskustannusten minimoimiseksi. Myös Venäjän kotimarkkinoilla on kysyntää alumiinituotteille, esimerkiksi Pietarin olutteollisuuden kysyntää tyydyttämään on rakennettu alumiinitölkkitehdas.

ICT-klusteri on kehittynyt nopeasti Luoteis-Venäjällä. Erityisesti ovat kehittyneet matkapuhelinliikenne, Internetin sisältötuotanto ja käyttö, tietoliikenne sekä ohjelmistotuotanto. Pohjan näille liiketoiminnoille ovat luoneet Pietarin voimakas korkeakoulujärjestelmä, tutkimustoiminta sekä nuori ennakkoluuloton yrittäjäkunta. Pietari oli Neuvostoliiton elektroniikkateollisuuden keskus Neuvostoaikana. Neuvostojärjestelmän kaaduttua, valtion sotilas- ja avaruuselektroniikan tilaukset loppuivat ja tuontituotteet syrjäyttivät maan oman kulutuselektroniikan vanhentuneet tuotteet. Tietotekniikan ja tietoliikennevälineiden tuotanto on vieläkin suhteellisen vähäistä, mutta merkkejä uudesta tuotannosta on jo. Pietari olisi palkkatason ja työvoiman puolesta hyvä keskus sopimusvalmistukselle, jos komponenttien ja valmiiden tuotteiden tullauskäytäntö olisi joustavampi.

Matkapuhelinliikenteessä Luoteis-Venäjällä toimiva puhelinoperaattori North-West GSM on ollut edelläkävijä. Nyt se muodostaa keskeisen osan Megafonia, joka kehittää matkapuhelinliikennettä koko Venäjän laajuisesti. Matkapuhelinten käyttö Pietarissa ja Luoteis-Venäjällä ylittää valtakunnan keskiarvot. Viime vuosina lisääntynyt kilpailu on pudottanut hintoja ja kasvattanut voimakkaasti kysyntää. Kiinteän linjan puhelinliikenne on yhä monopolien hallussa. Kilpailun puute ja paikallispuheluiden osittaisesta maksuttomuudesta johtuva huono kassavirta estävät kiinteän puhelinliikenteen kehittymistä.

Pietarin vahvuusalue on ohjelmointiliiketoiminta. Toisin kuin kaksi muuta venäjän ohjelmointiliiketoiminnan keskusta - Moskova ja Novosibirsk - Pietari suuntautuu vientiin.

Luoteis-Venäjän ICT-klusterin kehitystä voi merkittävästi vahvistaa yhteistyön lisääntyminen suomalaisten ja ruotsalaisten yritysten kanssa, jotka ovat maailmanmarkkinajohtajia esimerkiksi matkapuhelimissa niiden verkoissa ja eräiden alojen teollisuusautomaatiossa.

Venäjä tarvitsee ulkomaalaisia yrityksiä - myös pieniä ja keskisuuria

Tutkimuksen keskeinen lopputulema on että Venäjä tarvitsee ulkomaisia suoria sijoituksia ja investointeja. Tarvitaan suuria monikansallisia yrityksiä, jotka voivat tuoda uutta teknologiaa ja rahoitus- sekä markkinointiosaamista ja samalla avata kansainvälisiä markkinoita uusille tuotteille. Toisaalta Venäjän teollisuudessa on huutava pula pienistä ja keskisuurista yrityksistä ja näin myös runsaasti tilaa ulkomaisille pienille ja keskisuurille valmistajille sekä yrityspalveluille.

Neuvostoaikana tuotanto oli keskitetty suuriin tuotantolaitoksiin. Usein ne pyrkivät tekemään kaiken mahdollisen itse turvatakseen tuotantonsa, koska alihankkijoita ei yksinkertaisesti ollut saatavissa. Samoin uu-

det tuotteet annettiin tai määrättiin niiden valmistettaviksi. Isot tutkimusinstituutit puolestaan hoitivat yrityspalvelut. Neuvostoyhteiskunnassa yksityisten yritysten perustaminen oli kiellettyä eikä ollut mekanismia, joilla yhteiskunta olisi synnyttänyt uusia pieniä ja keskisuuria yrityksiä. Uuden Venäjän aikana pieniä yrityksiä on syntynyt runsaasti kuluttajapalveluihin, mutta ei juurikaan teollisuuteen. Nyt monien Venäjälle sijoittuneiden ulkomaisten yritysten suurin ongelma on alihankkijoiden puute. Myös venäläisyhtiöt ovat alkaneet ulkoistaa toimintojaan.

Kansainvälisessä vertailussa juuri suomalaisten yritysten on helpointa ja kannattavinta teettää alihankintaa Venäjällä. Erityisesti suomalaisten pienten ja keskisuurten yritysten on helppoa sijoittua Luoteis-Venäjälle. Syyt ovat yksinkertaiset: 1) Suomen ja Luoteis-Venäjän läheisyys ja toistensa olojen tuntemus tekevät suorista sijoituksista ja alihankinnasta hallittavia ja pitävät kustannukset kurissa. 2) Samat klusterit ovat tärkeitä Suomessa ja Luoteis-Venäjällä, mutta tuotteiltaan ne ovat toisiaan täydentäviä, mikä antaa liiketoimintamahdollisuuksia. 3) Suurten suomalaisten yritysten Venäjän sijoitukset ovat kohdistuneet nimenomaan Luoteis-Venäjälle ja ne luottavat hyväksi kokemiinsa alihankkijoihin. 4) Lisäksi työvoimakustannusten erot Suomen ja Venäjän välisellä rajalla ovat maailman suurimmat. Monien suomalaisten työvaltaisten tuotteiden, kuten meriteknisen teollisuuden tuotteiden, alihankintaa kannattaisi siirtää Luoteis-Venäjälle, jolloin lopputuotteiden kilpailukyky maailmanmarkkinoilla paranisi, markkinaosuus kasvaisi ja vaativat työpaikat myös Suomessa lisääntyisivät. Tuotantoverkkojen tehokkaan toiminnan kannalta on parasta, että alihankintavalmistuksen Venäjällä hoitaisivat nykyiset suomalaiset alihankintayritykset.

Contents

1	Introduction		1
2	Theoretical Framework - New Economic Geography and Cluster Concept		5
	2.1	What Is behind the Economic Growth?	5
	2.2	New Economic Geography and Agglomeration Effects	6
	2.3	"Diamond" Model	10
	2.4	Cluster Concept	13
3	Benchmarking of Northwest Russia		17
	3.1	Northwest Russia and Its Regions	17
	3.2	Northwest Russia Compared to Other Russian Regions	28
	3.3	Northwest Russia Compared to Finland and Sweden	33
4	Long Way to a Market Economy		41
	4.1	Regularities and Features of the Transitional Period	41
	4.2	Transformation of Companies during the Transitional Period	49
5	Developing Clusters of Northwest Russia		63
	5.1	Early Signals of Competitive Edge	63
	5.2	What Are the Potential Clusters of Northwest Russia?	73
	5.3	The Forest Cluster - from Russian Forests to World Markets	76
	5.4	The Energy Cluster - Energy^3: Raw Materials, Production, Technology	88
	5.5	The Metal Cluster - the Melting Iron Curtain	108
	5.6	The ICT Cluster - Busy Lines, Hectic Programming	120
6	Analysis of Competitiveness of Northwest Russia		133
	6.1	Factors of Competitiveness - General Points	133
	6.2	Factor Conditions - Still the Basis of Competitiveness	136
	6.3	Demand Conditions - Large Exports to Survive	151
	6.4	Firm Strategy, Structure and Rivalry - Adapting to New Conditions	165

6.5 Related and Supporting Industries - Emerging and Growing 180
6.6 Government - Absence of Targeted Industrial Policy 190
7 Northwest Russia: Integrating with Northern Dimension Countries 200
7.1 Need for International Cooperation and Possibilities of the Northern Dimension Concept 200
7.2 Industrial Cooperation between Northwest Russia and Northern Dimension Countries 212
8 Industrial Strategy for Success 227
8.1 Industrial Strategy, Economic Policy and Cluster-based Approach 227
8.2 A New Industrial Strategy and Policy Agenda 230
8.3 Industrial Strategy Goals and Measures in Russia 233
8.4 Concluding Remarks 240
9 Conclusions - Looking into the Future 242
References 250

Figures

Figure 2.1 "Diamond" Model 10
Figure 2.2 Cluster Chart 14
Figure 3.1 Northwest Russia 17
Figure 3.2 Area, Population and GRP of Northwest Russia Regions in 2000, % of the total 19
Figure 3.3 Industrial Output by Region of Northwest Russia in 2001, % 21
Figure 3.4 Investment Ratings of the Northwest Russia Regions in 2002-2003 26
Figure 3.5 Federal Districts of Russia 29
Figure 3.6 Area, Population and GRP of Russian Federal Districts in 2000, % of the total 29
Figure 3.7 Industrial Production by Russian Federal District in 2001, % 31
Figure 3.8 Industrial Structure of Northwest Russia in 2001, by sales 32
Figure 4.1 Structure of Consumption in Northwest Russia 43
Figure 4.2 Investments into Fixed Assets in Northwest Russia (% to previous year) 44

Figure 4.3	Foreign Direct Investments in Northwest Russia in 1996-2001, USD million	45
Figure 4.4	Evolution of Industrial Competitiveness in Russia	46
Figure 5.1	Main Agglomerations of the Northwest Russian Forest Cluster	77
Figure 5.2	Structure of the Forest Cluster of Northwest Russia	78
Figure 5.3	Forested Area and Raw Wood Stock in Northwest Russia	79
Figure 5.4	Determinants of Competitiveness of Northwest Russian Forest Cluster	81
Figure 5.5	Use of Annual Allowable Cut (AAC) in Northwest	86
Figure 5.6	Northwest Forest Products Sales in 1999	88
Figure 5.7	Largest Agglomerations of the Energy Cluster in Northwest Russia	89
Figure 5.8	Structure of the Energy Cluster of Northwest Russia	90
Figure 5.9	Oil and Gas Industries in Northwest Russia	92
Figure 5.10	Determinants of Competitiveness of the Northwest Russian Energy Cluster	96
Figure 5.11	Cost of Oil Production at the Mouth of the Oil Well in 2001	98
Figure 5.12	Demand for Primary Energy (million tons oil equivalent) and Electric Power (TWh) and Its Forecast in Northwest Russia	99
Figure 5.13	Existing and Designed Power Networks in Northwest Russia	106
Figure 5.14	Metallurgy and Metalworking Agglomerations in Northwest Russia	109
Figure 5.15	Structure of the Metal Cluster of Northwest Russia	110
Figure 5.16	Determinants of Competitiveness of the North-west Russian Metal Cluster	112
Figure 5.17	Consumption of Aluminium by Industry, %	118
Figure 5.18	Data Transmission Networks in Northwest Russia	121
Figure 5.19	Structure of The ICT Cluster of Northwest Russia	122
Figure 5.20	Determinants of Competitiveness of Northwest Russian ICT Cluster	126
Figure 5.21	Relative Portions of Different Standards on the Russian Cellular Market (figures correspond to the beginning of the year)	128
Figure 6.1	Determinants of Competitiveness of Northwest Russia	134

Figure 6.2	Northwest Russia's Share of Selected Natural Resources in Russia	137
Figure 6.3	Rate of Equipment Wear in Selected Industries of Russia in 2000	140
Figure 6.4	R&D Expenditures of Russia's Federal Budget	142
Figure 6.5	Transport Infrastructure of Northwest Russia	144
Figure 6.6	Density of Road Network in Northwest Russia and Northern Dimension Countries, km/100km^2	145
Figure 6.7	Density of Highways and Railroads by Region of Northwest Russia	146
Figure 6.8	Power Infrastructure of Northwest Russia	147
Figure 6.9	Number of University Graduates in St. Petersburg Compared to 1995	150
Figure 6.10	Production of Selected Russian Industries Compared to 1990,%	153
Figure 6.11	Export Share in Total Production of Selected Industries in 2000	154
Figure 6.12	Selected Products' Consumption per Capita in European Countries and Russia in 2000	156
Figure 6.13	Metal Consumption per Capita in Russia, kg	159
Figure 6.14	Russian Energy Exports in 2000	161
Figure 6.15	ICT Penetration in Russia and Selected European Countries in 1st quarter of 2002	164
Figure 6.16	Bank Assets in Russia and Selected European Countries in 2001, billion USD	185
Figure 6.17	Stock Exchange Turnover in Russia and Finland in 2001, billion USD	186
Figure 6.18	Industry's Share in Total Environment Pollution in Russia (2000), %	189
Figure 6.19	Distribution of Russian Industry by Types of Ownership in 2000, %	193
Figure 6.20	Share of State and Private High Schools in St. Petersburg in 2002/2003 Study Year	197
Figure 6.21	R&D Expenditures, % of GDP	199
Figure 7.1	Northern Dimension Countries	200
Figure 7.2	Largest Sea Ports of Countries of the Baltic Sea Region: turnover of cargoes in 2002, specialization	211
Figure 7.3	Main export flows in Northwest Russia	212
Figure 7.4	Largest Investment Projects of Companies from Northern Dimension Countries in North-west Russia	213
Figure 7.5	Largest Russian Investment Projects in Counties of the Baltic Sea Region	222

Figure 9.1 Market Growth and Market of Northwest Russia Industries 245
Figure 9.2 Stages of Industries' Development and Sources of Competitive Advantage 247
Figure 9.3 Development of Production Output of the North-west Russia Clusters 247

Tables

Table 3.1 Cities of Northwest Russia with More than 100,000 Residents, as of 1 January 2002 18
Table 3.2 GRP per Capita by Region of Northwest Russia in 2000, USD 20
Table 3.3 Industrial Output per Capita by Region of Northwest Russia in 2001, USD 22
Table 3.4 Key Industries of the Northwest Russia Regions, % of the Total Regional Industrial Output in 2001 23
Table 3.5 Top 15 Industrial Companies of Northwest Russia by Sales in 2001 24
Table 3.6 Foreign Investments by Region of Northwest Russia in 1996-2001, % of the total 27
Table 3.7 GRP per Capita of Russian Federal Districts in 2000, USD 30
Table 3.8 Industrial Output per Capita in Russian Federal Districts in 2001, USD 31
Table 3.9 Area, Population and Average Population Density of Northwest Russia, Finland and Sweden in 2001 34
Table 3.10 GDP (GRP) of Finland, Sweden and Northwest Russia 34
Table 3.11 Industrial Production in Northwest Russia, Finland and Sweden in 2001 35
Table 3.12 Production of Selected Industries in Northwest Russia, Finland and Sweden in 2001 35
Table 3.13 Industrial Structure of Northwest Russia, Finland and Sweden, % of the total sales 36
Table 3.14 Some Indicators of Transport and Communication Infrastructure in Northwest Russia, Finland and Sweden in 2002 37
Table 3.15 Investment in Economies of Northwest Russia, Finland and Sweden in 2001 37
Table 3.16 Investment in Economies of Northwest Russia, Finland and Sweden in 2001 38

Table 3.17	Key Strengths and Weaknesses of Northwest Russia	39
Table 4.1	Industrial Production Indices in Northwest Russia in 1991, 1996-2001	42
Table 4.2	Real Money Income in Northwest Russia in 1995, 1997 and 1999 – 2001	43
Table 5.1	Russian Competitive Products in OECD Market in 2000	64
Table 5.2	Competitive Russian Fuels Produced in the Northwest	65
Table 5.3	Competitive Russian Ferrous Metals Produced in the Northwest	65
Table 5.4	Competitive Russian Non-Ferrous Metals Produced in the Northwest	67
Table 5.5	Competitive Russian Precious and Rare-Earth Metals Produced in the Northwest	68
Table 5.6	Competitive Russian Forest Products Produced in the Northwest	68
Table 5.7	Competitive Russian Sea Products Produced in the Northwest	69
Table 5.8	Competitive Russian Chemicals Produced in the Northwest	70
Table 5.9	Other Russian Competitive Products Produced in the Northwest	71
Table 5.10	Productivity and Annual Output Growth in the Northwest Russia Industries	71
Table 5.11	Dimensions of the Northwest Russia Clusters (1-st part)	74
Table 5.12	Dimensions of the Northwest Russia Clusters (2-nd part)	75
Table 5.13	Largest Companies in the Forest Cluster of Northwest Russia	83
Table 5.14	Oil and Coal Seaports of Northwest Russia	93
Table 5.15	Contemporary Energy Markets in the Northwest Russia	101
Table 5.16	Largest Energy and Power Engineering Companies in Northwest Russia in 2002	102
Table 5.17	Largest Metal Companies in Northwest Russia	115
Table 5.18	Emissions (Carbon Oxides, Sulphur Oxides, Nitric Oxides, Metals Oxides and Others) by Enterprises of the Metal Cluster of Northwest Russia in 2000	116

Table 5.19	Number of ICT-related Students in Major Universities in Northwest Russia, 2000	124
Table 5.20	Daily Audience of St. Petersburg Newspapers, TV News Programs, and Russian News Portals (August 2002)	125
Table 5.21	Selected Companies of the Northwest Russian ICT Cluster	129
Table 6.1	Exports and Domestic Sales of Russian Forest Products in 2001	158
Table 6.2	Companies with Best Productivity in Northwest Russia in 2002	171
Table 6.3	The Largest Holding Companies in Northwest Russia in 2002	177
Table 7.1	Area, Population and GDP (GRP) of Northern Dimension Countries	201
Table 7.2	Russian Trade with Northern Dimension Countries in 2001	204
Table 7.3	Accumulated direct investments in 1999	208
Table 7.4	Russian Direct Investments Abroad, the Outflow of Capital from Russia and Export in 1995-2000, billion USD	208
Table 8.1	The Public Policy Challenges and Tools in the Developed Countries	232

Boxes

Box 4.1	Stages of the Industrial Competitiveness Evolution	47
Box 4.2	The Nevsky Plant: What is Transpiring in Machine building Companies?	49
Box 4.3	Severstal: an Industrial Giant in the Northwest Searching for Optimal Strategies	51
Box 4.4	Ilim Pulp: an Uphill Struggle for a Place Under the Sun	54
Box 4.5	Giprobum: a Typical Path of Development in a Large Russian R&D Organization	56
Box 4.6	The Telecommunication Business in St. Petersburg: Inheritor of Monopoly Loses in Efficiency to Vigorous New Provider	58
Box 4.7	Offshore Programming in St. Petersburg: The First Green Shoots in the Fertile Ground of Science	60
Box 6.1	Russia's Privatisation Chaos	157

1 Introduction

The present study sums up the results of a series of publications dealing with the competitive ability of the Northwest of Russia in new economic conditions, and the prospects for development of this region in its gradual integration into international economic networks.

The previous studies in this series gave a preliminary assessment of the economic state of Northwest Russia in the light of radical changes in the economic and political structure of the Russian Federation over the last decade. They provided a detailed analysis of the four most important branches of the economy for the Northwest, seen from the point of view of the cluster theory of competitive ability. These studies are

- Grigory Dudarev, Hannu Hernesniemi, Pavel Filippov: Emerging Clusters of the Northern Dimension - Competitive Analysis of Northwest Russia - Preliminary Study, Helsinki 2002.
- Grigory Dudarev, Sergey Boltramovich, Dmitry Efremov: From Russian Forests to World Markets - Competitive Analysis of the Northwest Russian Forest Cluster, Helsinki 2002.
- Pavel Filippov, Grigory Dudarev, Alexey Osipov: Energy^3: Raw Materials, Production, Technology - Competitive Analysis of the Northwest Russian Energy Cluster, Helsinki 2003.
- Sergey Boltramovich, Grigory Dudarev, Vladimir Gorelov: The Melting Iron Curtain - Competitive Analysis of the Northwest Russian Metal Cluster, Helsinki 2003.
- Andrey Averin, Grigory Dudarev: Busy Lines, Hectic Programming - Competitive Analysis of the Northwest Russian ICT Cluster, Helsinki 2003.

In the present study we provide a synthesis of the results of the studies listed above. This allows us to assess the current state and prospects for development of Northwest Russia as a unified economic body, which is simultaneously an important part of the Russian economy and a part of the economic space of Northern Europe.

What is the Russian Northwest? This region has a long history, during which its borders were defined in different ways, but the "core" of the territory has remained more or less constant. Throughout the existence of the Russian state, the role of the Northwest changed a number of times, which allows us to distinguish several fundamental stages in its development.

In the period of the rise of the state and the early Russian middle ages (9th-14th centuries), the Northwest was a place where the first Russian cities arose (Novgorod, Pskov), and the development of trade began with countries of Western Europe, and developed significantly. A republican system of government was formed, from which Russian expansion began towards the Urals and Siberia. It can be said that during this period the Northwest was not just the Russian "window on Europe", but an active participant in all international processes, at least in the Baltic Sea region.

In the late Russian middle ages (15th-17th centuries), the "window on Europe" was closed - Novgorod and the entire Northwest along with it came under the influence of the Moscow state and lost its autonomy. The republican government was liquidated, and contacts with European countries were significantly reduced. During numerous wars with Sweden, Russia lost its outlet to the Baltic Sea, and during this period developed as a closed state that was more Asian than European in nature.

The rule of Peter the Great opened a new stage of development for the Northwest. In 1703, the city of St. Petersburg was founded on land that was conquered from Sweden, and in ten years it became the new capital of Russia. St. Petersburg once more opened the "window on Europe", through which active international trade and cultural contacts were renewed. However, the two centuries that St. Petersburg was the capital had very little effect on the economic development of the surrounding territory. During this time, the Northwest essentially remained a poorly developed peripheral zone of Russia, which contrasted drastically with the isolated prosperous capital. At the same time, Moscow, despite its temporary loss of capital functions, essentially maintained its position as the economic and trade centre of Russia.

During the Soviet period, the role of the Northwest changed once more. Within the planned state economy it developed as one of the important industrial regions of the country, specializing in machine building, metallurgy and metal processing, and timber industry. In the Soviet years, the majority of industrial facilities were created, thereby determining the economic face of the region, and the foundation of the infrastructure was laid. St. Petersburg ceased to be the capital of the nation, and it was during this period that its role grew as a regional leader, the hub of economic networks of the Northwest.

In the 1980s the territory which now makes up the Northwest region belonged to the Northwest (Leningrad and Leningrad Region, Novgorod

and Pskov Regions), Northern (Murmansk, Arkhangelsk and Vologda Regions, Karelia and Komi Republics, Nenets Autonomous District) and the Baltic (Kaliningrad Region) economic regions of the USSR. A characteristic feature was the close ties with Estonia, Latvia and Lithuania, whose economies developed towards increased integration into the system of relations within the Soviet Union. Generally, the "window on Europe" was closed during the Soviet period - socialist bloc countries developed in isolation from international tendencies.

At the beginning of the 1990s, the Soviet Union ceased to exist, economic relations changed drastically, and currently the place and function of the region in the Russian economy is in the process of transformation. This difficult transition from a command economy, based on the needs of the entire USSR and socialist bloc countries, to a market economy that develops based on regional factors of competitive ability, is a long way from being completed. Thanks to its geographical location, the Northwest has gained another chance to play the role of a "window on Europe" for the new Russian economy, and time will show how successfully this chance will be used.

In 2000, seven federal districts were formed to improve the system of state administration and control of the regions. They unite the 89 regions belonging to the Russian Federation. One of the important tasks of the federal districts is to assist economic integration and elaborate strategic plans of development. In the present work, the Northwest of Russia is seen within this new formation - the Northwest Federal District.

It should be noted that besides the regions that traditionally belong to the Northwest, the district also includes the Kaliningrad Region. The political status of this enclave of the Russian Federation has yet to be clearly determined. The economic ties of the Kaliningrad Region with the other regions of the Northwest are very weak, and so its inclusion in the federal district is artificial, and based on fundamentally political reasons.

For an adequate analysis of the modern state and prospects of development of the economy of the Northwest of Russia, in the present study the authors have attempted to answer the following questions:

- What is the position of the region in the modern economic system of Russia and in comparison with neighbouring European states?
- What are the changes in the activity of companies during the formation of market relations?
- What are the economic sectors and clusters of the Northwest Russia, which have the greatest competitive potential?
- What are the potential of the Northwest as a connecting link between the Russian and European economies in new conditions?

- What are the most important matters for successful industrial policy in the Northwest?
- What are the key aspects that are holding up development, and approaches, which will allow these hindrances to be overcome most effectively?
- What are the main changes and features of economic development in the Northwest, which may determine the position of the region over the next decade?

The basis of the investigation is a cluster approach, which is widely used as an effective tool for analysing the development and drafting industrial policies in the countries of the Organization of Economic Cooperation and Development.

The present study uses data from open sources - information from the Russian Federation State committee for statistics, statistics from international organizations and individual countries, data from Russian and foreign economic associations, analytical materials published in various Russian and foreign publications, both printed and electronic. Additionally, the work includes the results of case studies carried out on the basis of an analysis of public information about major companies of the Northwest - leaders in their sectors. The case studies are supplemented by a series of interviews with the heads of these companies, designed to assess the real competitive ability and prospects for development of these companies. During the research, the authors held more than 100 interviews with representatives of companies from various branches of industry and service spheres, which allows us to say that the results received are representative.

The present study is intended for a wide range of readers. It is aimed at specialists interested in receiving additional information and a new look at problems of economic development of Northwest Russia and international corporations in the north of Europe. It may also be of interest to anyone who has a direct or indirect connection to the problems discussed in this work.

2 Theoretical Framework - New Economic Geography and Cluster Concept

2.1 What Is behind the Economic Growth?

The issues related to understanding the reasons behind the economic growth were on the agenda of economics scholars for a long period of time. Classical economists such as Adam Smith (1776), David Ricardo (1817), Thomas Malthus (1798) and, much later, Frank Ramsey (1928), Allyn Young (1928), Frank Knight (1944), and Joseph Schumpeter (1934) provided many of the basic ingredients that appear in modern theories of economic growth. Their ideas included the basic approaches of competitive behaviour and equilibrium dynamics, the role of diminishing returns and its relation to the accumulation of physical and human capital, the interplay between per capita income and the growth rate of population, the importance of geographical location, the effects of technological progress in the forms of increased specialization of labour and discoveries of new goods and methods of production, and the role of monopoly power as an incentive for technological advance, etc.

Kaldor (1963) listed a number of stylised facts that he thought typified the process of economic growth: per capita output grows over time, and its growth rate does not tend to diminish, physical capital per worker grows over time, the rate of return to capital is nearly constant, the ratio of physical capital to output is nearly constant, the shares of labour and physical capital in national income are nearly constant, the growth rate of output per worker differs substantially across countries.

Kuznets (1973) introduced the characteristics of the modern economic growth. He noted the rapid rate of the structural change, which includes shifts from agriculture to industry and further to services. He also argued that modern growth involves an increased role for foreign trade and that technological progress implies reduced reliance on natural resources. He also stressed an important role of the government (Kuznets, 1981) as the formulator of the rules under which economic activity is to be carried on, a referee and as a provider of infrastructure.

It was shown by Solow (1956) and Swan (1956) that there is also a conditional convergence between the countries, i.e. the lower the starting level of real GDP per capita relative to the long-run or steady state positions, the faster is the growth rate. This approach is also sometimes called the catch-up theory. It argues that the reason underlying such convergence could lie in a fact that countries at low-income levels may be able to grow faster than those at high-income levels since they can use technology already developed by the latter. These findings have significant explanatory power for economic growth across countries and regions. Although recent empirical studies indicate that we should include additional sources of cross-country variation, especially differences in government policies and initial stocks of human capital. There is also strong theoretical support for the certain divergence in terms of industrial and other specialization of the countries and regions based on the particular competitive advantages these regions possess or were successful to create.

Therefore the catching up country may benefit from late development, but there is no guarantee that it will. Economic theory suggests that it depends primarily on two factors, namely social capability and technological congruence (Abramowitz, 1990). Social capability involves the availability of an appropriate institutional framework, the role of government, primarily its capability for economic policy-making and the population's technological and skills level. Technological congruence refers to suitability of technology from high-income countries for use in follower countries.

There are also other important factors that could influence the catching-up of the economy. This is the psychic distance (Johanson and Vahlne, 1977), i.e. distance between different cultures - an idea complementing and extending the technology congruence into the immaterial areas such as the differences between countries in terms of language, education, culture, business practice etc.

2.2 New Economic Geography and Agglomeration Effects

It was noted by the leading researchers that location, concentration of activities in certain areas and other regional matters are important to understanding the economic growth of countries. Importance of the regional development aspects and peculiarities as sources of growth and the origins of disparities between the regions and nations have remained central to the preoccupations of policy makers and analysts. Already in the end of the 19th century Alfred Marshall introduced "industrial districts", later Joseph Schumpeter - "innovation clusters", Eric Dahmèn -

"development blocks", François Perroux - "development and growth poles", economic geographers - industrial and "high-technology" agglomerations. These concepts assessed the geographic concentration of economic activities from different perspectives.

Among the established facts of the economic geography today is that the force of agglomeration remains strong, even though transportation and communication costs continue to decline (Pred, 1966, 1974; Fishlow, 1965; DeVries, 1984; Hall, 1998; Teaford, 1986). There is also substantial evidence of persistence of the same activities in the same cities. Geographical centres of only of a few industries changed or were abandoned, once they were locked into a certain location (Brezis and Krugman, 1997; Storper and Walker, 1989; Henderson, 1997). It has also been estimated that in the United States, 380 localized clusters of firms employ 57% of the total workforce and generate 61% of the nation's output and 78% of its exports (Rosenfeld, 1996). Other researchers, using more conservative measures, still find that 30% of the US workforce is accounted for by localized employment clusters (Porter, 2001).

Transport costs are one manifestation of the more general problem of the geography of transactions between economic agents. With every round of progress in technology of transportation, the scale of production and the degree of predictability and substantive complexity of transactions continue to make costs of certain kinds of transactions sensitive to distance, and give rise to localized concentrations of economic activity (Leamer and Storper, 2001).

Until quite recently, the study of transactions focused on physical exchange of goods (especially intermediate goods) and people (spatial labour markets). Nevertheless it was also noticed that immaterial, tacit knowledge could be important in justifying the certain developments. Therefore more recent studies came to concentrate on immaterial transactions, involving the transmission and exchange of information, knowledge and ideas, especially in light of the ascendancy of the Internet. Thus, for many analysts the motor force of agglomeration are now not only above-mentioned factors but also the creation and communication of ideas, knowledge and information (Hall, 1998).

In review of current theories (Storper and Venables, 2002) of why economic activities and people might agglomerate in the cities it was suggested to group them into three groups according to principal reasons: (1) backward and forward linkages of firms, including access to the markets; (2) clustering of workers; and (3) localized interactions which promote technological innovation.

The geography of forward and backward linkages of firms is shaped by the interaction of increasing returns to scale with spatial transaction costs. Increasing returns cause firms to concentrate in few locations, and

the presence of significant spatial transaction costs induces them to locate close markets and suppliers (see for example, Fujita, Krugman and Venables, 1999). Uncertainty and information are important additional factors that play a role in spatial transactions costs. For example, transaction costs in highly specialized inputs and outputs may be high because transactions are irregular or occur in small volumes. Searching and matching for suppliers and customers is important in these activities, as it is for many services. The information needed to procure specialized inputs is complex, and in many cases cannot be codified or standardized. This reinforces advantages of the urban environment, in which there is a dense set of suppliers and demanders for goods and services.

The fixed costs related to workers' relocation remain high, creating a premium on matching with firms in a fairly narrow geographical area. There is also premium to diversity of choice offered by the larger concentrations of economic activities to employment seeking individuals. As a result the cities provide better choice and enforce further concentration of labour once this process (of concentration of economic activity) is started.

The notion that the city is a locus of inventiveness goes back to observations by Adam Smith, figures prominently in Marshall (1919), and was renewed by Jane Jacobs (1969). There is some fragmentary but fairly convincing evidence that cities – both big diversified ones and specialized ones - are centres of innovation in the production of ideas and knowledge and commercialisation (Feldman and Audretsch, 1999; Jaffe, Trachtenberg and Henderson, 1993). The notion that is aimed to explain this fact is that spatial proximity must somehow improve flows of information upon which innovators depend, creating technological "spillovers". Nonetheless the theory is quite spotty when it comes to accounting for the precise mechanisms behind knowledge spillovers. One avenue of inquiry has to do with the circulation of knowledgeable workers between firms. For example, in Glaeser's (1999) model of learning, people can absorb knowledge from contact with more skilled workers in their own industry, and the number of probable contacts an individual makes is a function of city size.

Jacobs (1969) advanced the idea that cities enjoy an advantage because of their economic and social diversity. This diversity, because it is highly packed in limited space, facilitates haphazard, serendipitous contact among people. Florida (2002) updates Jacobs to argue that the diversity found in cosmopolitan cities facilitates "creativity" because of the openness of their networks and their greater resistance to hide-bound tradition. Another recent line of reflection concentrates on the nature of the information, which is transmitted informally or locally. It is said to be a tacit component because it is difficult to set down in blueprints or to codify com-

pletely. The communication of this complex information is most efficiently carried out in a restricted geographical space. However little was about the way of how this process is carried out.

In another vein, Alfred Marshall, one of main inspirations for contemporary students of the "industrial district" (referring to the spatial concentration of many competitors as well as important parts of supply structures), also suggested the importance of direct and unplanned contact between economic agents (Becattini, 2000). In studying the textile districts of Lancashire a century ago, Marshall advanced two very different ides. In some passages, he made much of the fact of localized concentrations of competitive suppliers as the source of efficiencies deriving from spatial concentration. But in other passages, he thought about the qualitative dimensions of this concentration, culminating in his famous observation that "the secrets of industry become no mysteries they are in the air." (Marshall, 1919, Storper, 1997).

Numerous attempts have been made to transform his theory into a theory of networks underlying contemporary industrial districts. However, the network seems overly restrictive as a theory of this process, because virtually all the voluminous and rich descriptive evidence suggests that sometimes people know each other in these places, but sometimes they don't, and that even when they do, they are often careful not to share information that could be directly pirated by their competitors. Most importantly, if they do interact through networks, what do their interactions consist of and what are their incentives for undertaking such transactions? Transaction cost theory (Williamson, 1985) answers partly the above questions. Nevertheless there is still debate as relates to the importance and role of the networks.

Due to a wide diversity of theories and approaches as one could conclude from the above description of theories involved in the analysis of national, regional and city level development it could be very challenging to be able to derive the clear answers to certain urgent needs of the practical decision-making. Nevertheless as our goal in the present study is also to provide a comprehensive and applicable set of ideas we were looking also at possible studies that would provide wider and more practically applicable approach to analysis in question.

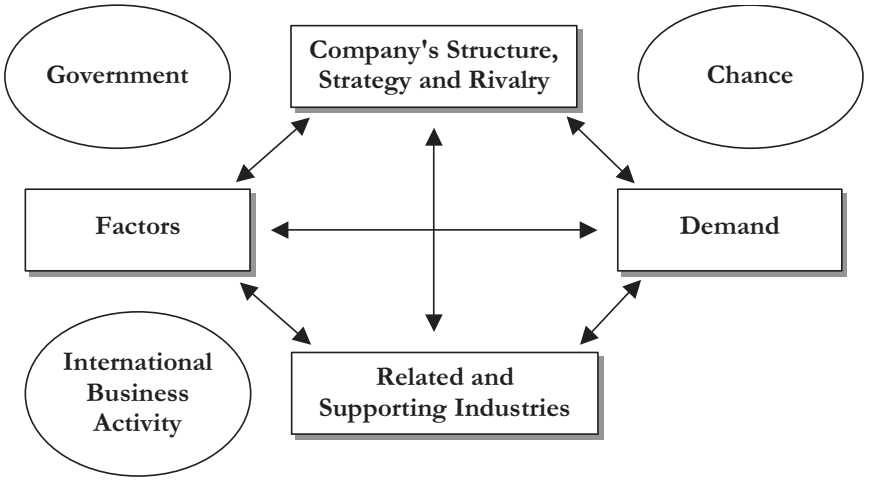
Among the most notable attempts to comply the above listed theories into more comprehensive and wide concepts that could be transferred into decision making and understanding of the particular development process we have identified the one presented by M. Porter in his book "The Competitive Advantage of Nations".

2.3 "Diamond" Model

As it is mentioned above the present study is inspired by the influential book "The Competitive Advantage of Nations", published in 1990 by Michael Porter, a professor of Harvard University, and by later research on matters related to regional development and competitive advantages. In the approach presented in his book, Michael Porter describes how companies find sources of competitive advantages in the specific combinations of skills and networks created in their industries and around it in specific countries and regions. He also studied the competitiveness of nations and regions in terms of their ability to offer companies an environment that provides unique advantages embedded in the networks and industrial structure of those particular regions. The study was grounded in detailed case studies of regions that are known for their persistent ability to provide the world with companies that are able to outperform others, such as Silicon Valley, Detroit, northwest and central Italy, etc.

As a main tool in the analysis presented in this study the "Diamond" model of national competitiveness was introduced. In this study this model is also used, although slightly adjusted, as a key tool for assessing and analysing the competitiveness of Northwest Russia. Although, initially, Michael Porter used this model for studying national competitiveness, it was later tested to fit the studies of regions that are positioned within boundaries of certain countries, or even to regions that comprise neighbouring areas of different countries.

Figure 2.1 "Diamond" Model



The "Diamond" model distinguishes four main sources of competitive advantage. These are:

- *Factors*. This category includes production factors such as natural resources and geographical location, as well as created factors inherited from preceding stages. The first group can include natural resources, demographic conditions, geographical location, etc. The second group usually includes production facilities, and positions on various markets, infrastructure, human capital and R&D potential.
- *Demand*. The presence of a sufficient demand for the primary goods is the necessary condition of development and a source of competitive advantage. Here it is important that existing demand allows achieving economies of scale in local production. This demand is formed by local and export constituents. The local demand is a necessary starting source for creating competitive advantages for firms that will cluster in the region, thus reinforcing local advantages. Such specific characteristics of domestic demand as high quality and diversification requirements of consumers, or user-producer cooperation and consequent demand for specific solutions and product/service combinations, which for certain reasons were not possible in the other regions, substantially enforce the sustainability of competitive advantages of domestic producers. In certain industries, the strong and rapidly growing export market and demanding foreign customers played an essential role in formation of competitive domestic producers as well. In this case access to the foreign markets played a key role in formation of the competitive advantage.
- *Related and Supporting Industries*. The existence of developed related and supporting industries could be a source of competitive advantage for regional companies due to the possibility of obtaining advantages from the early access to high quality and reliable supplies of essential and unique or rare components and materials, from the cost advantages gained from the competitive local supplies. This also allows for an increase of production efficiency as a result of specialization. An available developed system of subcontractors and suppliers in a given region makes it possible to offer more complex products and after-sale service systems. It creates a unique local system of industrial co-operation that exceeds and surpasses similar competitors' systems by their possibilities and degree of development.
- *Company's Structure, Strategy and Rivalry*. The industry structure is an important determinant of the possibility to gaining competitive advantage if the industries are competitive and the competition motivates leading companies to invest in the product and market offer-

ing, management and marketing as well as process development. In this case the larger markets for essential supplies and components are created, infrastructure could be better targeted to meet specific requirements of the particular industries, the competitive pressures also motivate higher organizational efficiency and training as well as spin-offs.

Porter offers for consideration two additional areas from which companies are able to draw sources of competitive advantage in his model:

- *Chance*. The role of chance or "luck" reflects rapid changes on world financial markets; changes in currency quotations, an unexpected growth in local/international demand and the event of war. All these sudden and unexpected events create situations on the market when unforeseen opportunities are created. In some cases these opportunities could become a source of competitive advantage.
- *Government*. The influence of government, through its current policy (liberal, deterrent, etc.), is only considered as an attribute in analysis. However, this policy determines the performance of all actors in the regional and/or national economy. A rational governmental policy provides for the growth of potential investor confidence and attracts capital, experience and technology to the economy.

As a result of studies of globalisation, another potential source of competitive advantage was later added to Porter's "Diamond" model of national competitiveness: this is *international business activity*.

International business activity became a source of competitive advantage for companies from particular regions as a result of their internationalisation, i.e. their ability to locate production facilities in regions that could offer the best advantages for the particular activity, and thus gain from access to several "diamonds" of the national advantage simultaneously.

As we discussed in earlier in this Chapter the regional as well as national competitiveness is based on the ability of the particular location to offer the firms opportunities to gain competitive advantage owing to the specific factor and demand conditions, high demand and quality conscious consumers, and developed networks of competitive companies in related and supporting industries located in this region. The regional or national "diamond" of competitiveness therefore could be a source for competitiveness of multiple interlinked firms that could be considered as a cluster. This approach developed by M. Porter was further developed and elaborated by the scholars and decision makers in various countries. In more detail it is described in detail the next chapter.

2.4 Cluster Concept

Clusters are networks of interdependent firms, knowledge-producing institutions (universities, research institutes, technology-providing firms), bridging institutions (e.g. providers of technical or consultancy services) and customers, linked in a production chain, which creates added value. The concept of cluster goes beyond that of firm networking, as it captures all forms of knowledge sharing and exchange. The analysis of clusters also goes beyond traditional sectoral analysis, as it takes into account the links to firms outside traditional sectoral boundaries. Cluster analysis is regarded in several OECD countries as an important tool providing a sound basis for industrial and technology policy.

Several factors help clusters emerge. Many successful clusters have historical roots, sometimes linked to available natural resources. The emergence of clusters, including the establishment of links with customers and other firms, takes time, however. For Finland, a number of factors were considered critical to the emergence of competitive clusters, namely: a critical mass of firms to enable economies of scale and scope, sufficient cases of successful entrepreneurship, demanding (often) international customers, a good mix of rivalry and co-operation, advanced supplier firms, flexible organization and management, continuous upgrading of knowledge, and attractiveness of industry for talented people. These critical factors are among the areas where governments may aid cluster formation.

Clusters can be identified at various levels of analysis. Micro-level analysis focuses on inter-firm linkages, industry (meso-) level analysis on inter- and intra-industry linkages in a production chain, and macro-level analysis on how industry groups constitute the broader economic structure. Cluster analysis can also be applied at the regional level. Regional clusters are often based on certain strengths, such as strong knowledge infrastructure (possibly linked to the strengths of a local university or research institute), the geographic location or infrastructure (such as the proximity of a major port or airport) or the presence of a major firm.

Cluster analysis relies on various techniques (input-output analysis, innovation interaction matrices, graph theory, correspondence analysis, case studies), depending on the questions to be addressed. Using these techniques it is possible to trace the interdependence of firms, which is sometimes based on trade linkages, sometimes on innovation linkages, sometimes on knowledge flow linkages and sometimes on a common knowledge base or common factor conditions.

In the Netherlands, cluster studies have played several roles. Initially, they served mainly as analytical tools to provide strategic advice on how to improve competitiveness and enhance co-operation and knowledge flows. Nowadays, they serve as an important input at the macro level on ways to

improve the mismatch between science (research institutes and institutes of higher education) and industry. At the micro level, they provide a way to target government efforts more precisely and focus them on areas where problems (systemic failures) have been identified. Science-based clusters, for instance might benefit from measures to strengthen the interaction between science and industry and to promote basic research. Process-oriented clusters, applying technologies developed elsewhere, might benefit more from diffusion-oriented programmes.

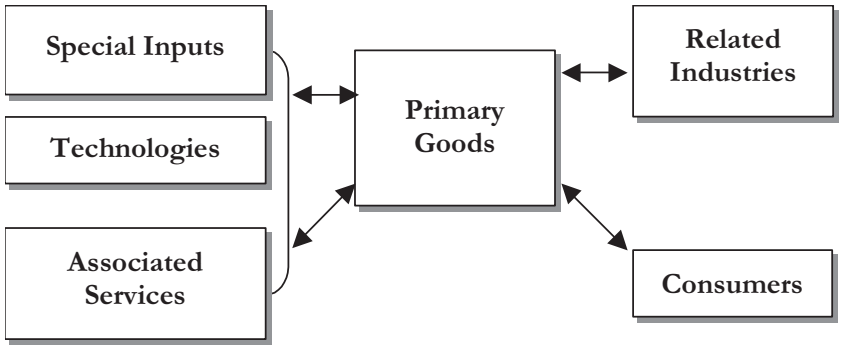
Cluster analysis offers other benefits (Roelandt and den Hertog, 1999):

- It offers a new way of thinking about economy and helps overcome the limitations of traditional sectoral analysis,
- It captures important linkages in terms of technology, skills, information, marketing and customer needs, which are increasingly regarded as fundamental to competition and to the direction and pace of innovation.
- It provides ways to redefine the role of the private and public sector and that of other institutions and can provide a starting point for a constructive business-government dialogue.

In larger OECD economies, such as the United States and the United Kingdom, or in federal states, cluster analysis often serves as an important tool for regional development. In such cases, it focuses mainly on the location of certain sectors and the need for physical and social proximity for effective cluster formation.

Cluster analysis presumes that no specific industry can be viewed separately from others, but should be analysed systematically within a cluster of vertically and horizontally linked sectors. It is obvious that the development of a key industry would give a push to the development of supplying and consuming industries, as well as service segments associated with the cluster.

Figure 2.2 Cluster Chart



A cluster structure can be illustrated as a set of separate, but closely interrelating sectors of the national economy, as well as special inputs inherent for the region. There are the following elements in a cluster:

- *Primary goods* - a list of goods or groups of goods, which are competitive on the world market and companies manufacturing these products form the core of the cluster.
- *Specialty inputs* - the main factors of production inherent for the country (region) and mentioned in the Factor conditions, are the raw materials, transport, infrastructure, labour force, educational system, RD&E etc.
- *Technologies* -a description of technologies, machines and equipment consumed by the core sector of the cluster and its producers.
- *Related and supporting industries* - the different sectors of the economy and particular companies, whose products are directly or indirectly consumed or may be consumed by the core sector.
- *Consumers* - the main consumers of primary goods manufactured by the companies of the cluster.

An analysis and understanding of the cluster and its structure can help companies to create focused development strategies, and authorities to identify the sources of competitiveness in their particular regions, and to create on the basis of this an efficient and active system of general development, of infrastructure and operational environment improvements, including relevant regulatory acts, actions and decrees of the legislative power.

The unresolved issues that underlie the wide use of the "cluster" concept are related to the following questions: Why do activities cluster? Why is clustering important? How can the clustering process be managed? Is that possible? What are the possible tools and factors that could influence clustering in certain regions? Can, and should, one do something about it?

Michael Porter in his book "The Competitive Advantage of Nations" presented some answers and explanations for many of the above questions. He incorporated implicitly many previous developments, mentioned above in the knowledge base (Rouvinen and Ylä-Anttila, 1999). Although, according to these authors, the framework presented by Porter is rewrap of old ideas, they agree that the "diamond" model is internally consistent and in the line with the mainstream competitiveness literature. The ambiguities surrounding the cluster concept (and other related concepts such as industrial districts), proper definitions, and their relationships to regional economic performance are the subject of extensive literature (Asheim and

Isaksen, 1997; Feser, 1998a, 1998b; Harrison, 1992; Heinenreich, 1996; Isaksen, 1997; Jacobs and de Man, 1996; Kaufman et al., 1994; Park and Markusen, 1995; Steiner, 1998).

Notwithstanding the fact that this model is obviously a good and comprehensive tool to assess competitiveness and clusters, i.e. represents a certain advance in this area, it has some drawbacks. As Penttinen demonstrated in 1994 they are the following: competitiveness can also be found outside clusters; the diamond model does not properly account for foreign direct investment and multinational enterprise; the model may not be suited to small open economies (as it was suggested by Rouvinen and Ylä-Anttila, 1999 we also used broader cluster definitions); the model may not be applicable to resource-based industries (Rouvinen and Ylä-Anttila, 1999 applied the model to resource-based industries successfully); the role of macroeconomic variables in the Porter's model is unclear; it is unclear whether model is dynamic or static; the studies may not be conducted with sufficient rigor (the loosely defined theory offers possibilities for misuse).

Despite of the limitation of the cluster concept and the diamond model, they seem to be very analytical and constructive tools when studying the networking of firms and industries and formation of their competitive edges. The Soviet economy was planned by using the concept of regional scientific-technical complexes. Partly these structures still function. New activities seem to have a cluster-nature, too. The cluster concept helps to anticipate the type of new businesses and even new lines of business that might emerge. The diamond model gives hypotheses of competitive edges. It is also a very practical tool for formulating industrial policy proposals, which could facilitate the development. These are the main reasons for using the cluster concept and the diamond model of competitiveness as methodological tools in the following chapters.

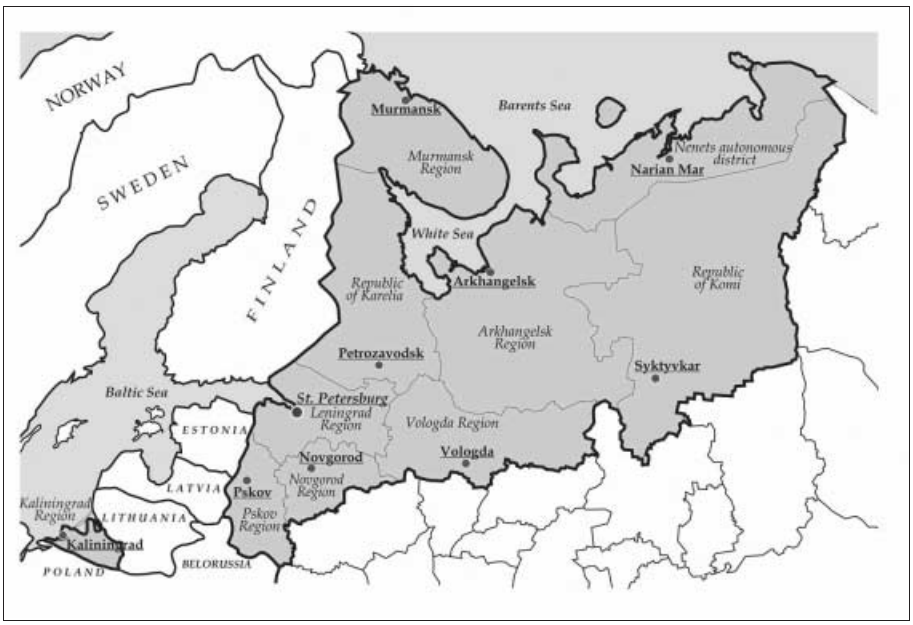
3 Benchmarking of Northwest Russia

3.1 Northwest Russia and Its Regions

If Northwest Russia is viewed within the boundaries of the Northwest Federal District (NWFD), it comprises 11 Russian regions: Republic of Karelia, Komi Republic, Nenets Autonomous District, Arkhangelsk, Murmansk, Vologda, Leningrad, Novgorod, Pskov and Kaliningrad Regions, and the City of St. Petersburg, which serves as the administrative centre of NWFD.

The republics of Karelia and Komi are national republics, but the population of Karelians (10% of the total population) and Komi (23%) is much smaller than the Russian population. The Nenets Autonomous District (12% of the population are Nenets) does not have the status of a

Figure 3.1 Northwest Russia



national republic due to the very small total population. Until recently it was a part of the Arkhangelsk Region. The Arkhangelsk Region still includes the polar archipelagos of Novaya Zemlya and Franz Josef Land, which do not have a permanent population and which are mainly used for military purposes.

One of the most important problems in the development of the Northwest is the low population density, and as a result the low density of economic activity. Among the regions of the Northwest Federal District, the largest in area is the Komi Republic (415,900 sq. km). The Archangelsk Region is almost as large (410,700 sq. km without the Nenets Autonomous District). For these regions, special approaches to planning are needed, including priority development of transport infrastructure and concentration of electric power generation. The other regions are much smaller - none of them are larger than 180,000 sq. km, and the population density is also low. The smallest and most densely populated is the Kaliningrad Region (15,100 sq. km). The area of St. Petersburg within the administrative boundaries of the city is even smaller - less than 2,000 sq. km.

The largest number of residents lives in the megalopolis of St. Petersburg - 4,596,000 people at the beginning of 2002, which is almost a third of the population of the entire Northwest Federal District. The second most populated area is the Leningrad Region, which surrounds St. Petersburg with 1,650,000 people. In recent years it has been developing successfully as an industrial region near a large centre of consumption and

Table 3.1 Cities of Northwest Russia with More than 100,000 Residents, as of 1 January 2002

City	*Region*	*Population, thousand people*
St. Petersburg	St. Petersburg	4,596
Kaliningrad	Kaliningrad	418
Murmansk	Murmansk	366
Arkhangelsk	Arkhangelsk	357
Cherepovets	Vologda	323
Vologda	Vologda	296
Petrozavodsk	Republic of Karelia	285
Severodvinsk	Arkhangelsk	231
Syktyvkar	Republic of Komi	226
Velikiy Novgorod	Novgorod	225
Pskov	Pskov	199
Velikie Luki	Pskov	114

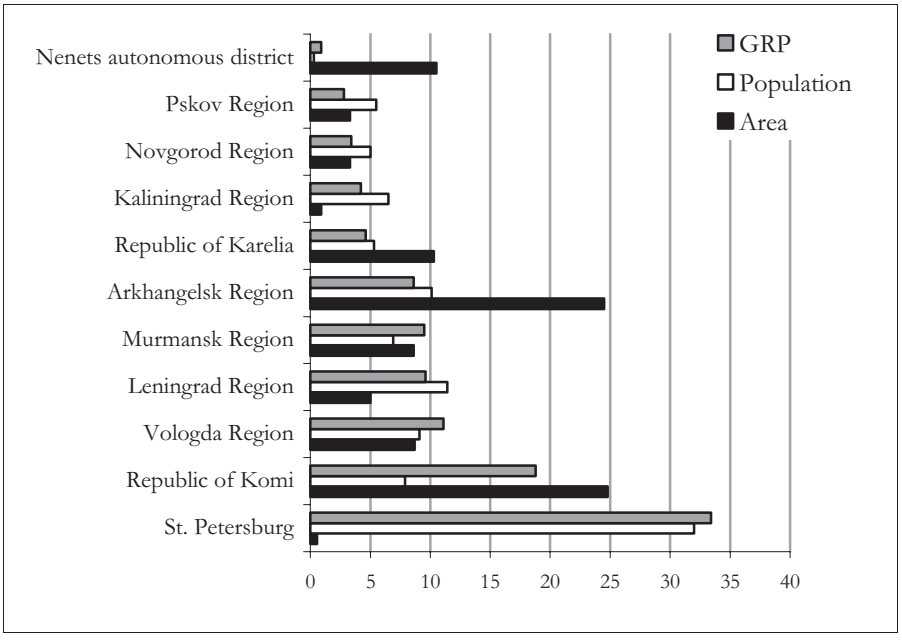
Source: Goscomstat, 2002

logistics. The Nenets Autonomous District has the smallest population, with only 45,000 people. The Republic of Karelia and the Pskov and Novgorod Regions also have small populations - from 700,000 to 800,000 people in each.

The city population in the Northwest currently makes up around 82% of the total population. The 12 largest cities with a population of over 100,000 people make up 53.3% of the total population of the region. Among them, St. Petersburg clearly stands out, with over 10 times the population of Kaliningrad, the second most populated city in the Northwest. Another 13 cities (5 of them are located in the Leningrad Region) have a population of 50,000 to 100,000.

Over the last decade, the population of all regions has decreased. The population in the entire Northwest has dropped by 1 million since 1992. In St. Petersburg alone the population has fallen by 400,000 - from 5 million to 4.6 million residents at the present time. This is connected with the mortality rate, which significantly exceeds the birth rate, and migration trends - the shift of the population from northern regions of Russia to southern regions. Even in Northwest regions with a migration growth of the population - mainly St. Petersburg and the Leningrad Region - a general and significant decline of the total population has been seen.

Figure 3.2 Area, Population and GRP of Northwest Russia Regions in 2000, % of the total



Source: Goscomstat, 2002

St. Petersburg is the centre of economic activity in the Northwest of Russia and leads in GRP: it accounts for a third of total regional GRP. Per capita, the GRP of St. Petersburg is less than the GRP of the Nenets Autonomous District, the Komi Republic, and the Murmansk and Vologda Regions, which have predominantly raw material-based industries and, therefore, more possibilities for exporting production. St. Petersburg, however, has structural problems inherited from the Soviet period, which have been aggravated by reform difficulties and led to low relative volumes of production. Generally, when talking of the current volume of GRP in Russian regions, it is necessary to remember that for the majority of them a significant amount of natural economy is still prevalent, and the prices of many goods in the domestic market remain low. This is connected with the delay in structural adaptation of domestic prices to a new level prescribed by the prices of imported goods and income from exports. All this leads to low GRP values in most regions.

Table 3.2 GRP per Capita by Region of Northwest Russia in 2000, USD

Nenets Autonomous District	7,180
Republic of Komi	2,302
Murmansk	2,123
Vologda	1,870
St. Petersburg	1,589
Republic of Karelia	1,340
Leningrad	1,279
Arkhangelsk	1,268
Novgorod	1,046
Kaliningrad	986
Pskov	782

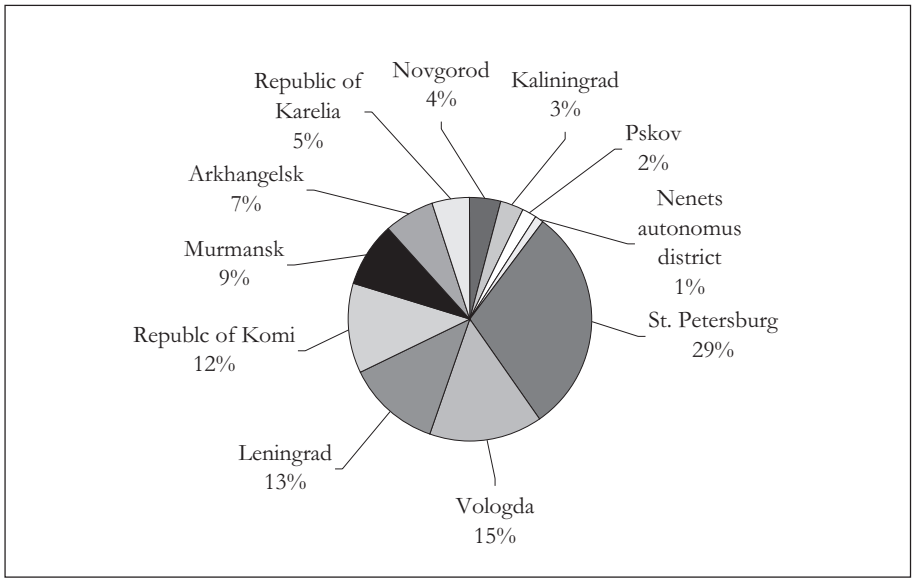
Source: Goscomstat, 2002

As for the structure of regional GRPs, industry dominates over services in the Vologda Region (by more than double), and also in the Leningrad, Murmansk, Arkhangelsk and Novgorod Regions, the Komi Republic and the Nenets Autonomous District. This is connected with the high portion of natural economy, and also with the extremely weak development of services due to the low population density, its low purchasing power and an insufficiently developed infrastructure. In other regions services dominate the GRP. In St. Petersburg and the Pskov Region it exceeds industry by more than double - while the GRP of St. Petersburg in 2000 exceeded the GRP of the Pskov Region by 12 times. For the

Pskov Region, this feature can be explained by the fact that the region is a traditional holiday destination for many St. Petersburg residents, who are able to pay for various services.

Nevertheless, St. Petersburg remains the largest industrial centre in Northwest Russia. The high portion of services in the structure of its GRP illustrates the possibilities of diversification and development of small and medium-sized businesses due to a synergetic increase in the effect of interaction of major production and large demand within one agglomeration. And this, in turn, augments the investment attractiveness of the city and spurs its active development.

Figure 3.3 Industrial Output by Region of Northwest Russia in 2001, %



Source: Goscomstat, 2002

In recent years, industrial output has developed most dynamically in St. Petersburg and the Leningrad Region - mainly due to the food and tobacco industries, and also thanks to a certain recovery after a prolonged slump in the machine building industry. Furthermore, significant industrial growth is seen in the Komi Republic and in the Nenets Autonomous District as a result of the development of the oil and gas sector there. The volumes of industrial output in the Vologda and Murmansk Regions show significant variation from year to year, depending on the results of work (above all on international markets) of the metallurgy enterprises located in these regions.

Table 3.3 Industrial Output per Capita by Region of Northwest Russia in 2001, USD

Nenets autonomous district	4,531
Vologda	2,324
Republic of Komi	2,102
Murmansk	1,811
Leningrad	1,545
Republic of Karelia	1,359
St. Petersburg	1,308
Novgorod	1,155
Arkhangelsk	936
Kaliningrad	588
Pskov	525

Source: Goscomstat, 2002

The Nenets Autonomous District tops the list of industrial output per capita because of the significant oil production in this region and very small population. Severstal, the largest industrial enterprise of the entire Northwest, accounts for the 2nd position held by the Vologda Region. The Komi Republic (3rd) and the Murmansk Region (4th) feature high in the list because of the large volume of exports of their main products (oil in the Komi Republic, and non-ferrous metals, fish and chemical raw materials in the Murmansk Region) and their small population.

St. Petersburg is 7th in this list because of the low efficiency of its infrastructure and industry. The industry of St. Petersburg is oriented primarily towards producing goods with a higher added value, which currently are of low competitiveness on the international markets. As a result, export volumes as well as domestic market volumes are small while domestic prices are low at the moment. This explains the relatively low level of industrial production per capita in monetary terms. Another reason is that St. Petersburg manufacturers buy energy, raw materials and services on the domestic market at prices lower than export prices - this also leads to low prices of final products and a small volume of industrial production in monetary terms.

Each region in the Northwest of Russia has an inherited industrial specialization, which is shown in the table below. Over the past decade, significant changes have occurred in the structure of industry in most regions. The share of the food industry and the energy sector has grown drastically - the decline in production in these industries was less than in others, and in some types of products (for example, beer and tobacco) the pre-reform level has already been exceeded. On the other hand, the share of mechanical engineering and light industry has significantly de-

creased - the deepest declines in production have been seen in these sectors. For example, the production of household electrical appliances (tape recorders, refrigerators, vacuum cleaners etc.) has virtually stopped in the Northwest.

Table 3.4 Key Industries of the Northwest Russia Regions, % of the Total Regional Industrial Output in 2001

Region	*Key industries*
Republic of Karelia	Forest - 48.7%, food - 13.8%, ferrous metallurgy - 12.8%
Republic of Komi	Energy - 74.3%, forest - 18.9%
Arkhangelsk	Forest - 48.8%, mechanical engineering - 15.7%
Nenets autonomous district	Energy - 97.0%
Vologda	Ferrous metallurgy - 58.2%, chemicals –9.6%
Murmansk	Non-ferrous metallurgy - 28.4%, food - 18.8%, energy - 18.2%, chemicals - 17.4%
St. Petersburg	Mechanical engineering - 35.6%, food and tobacco - 34.8%
Leningrad	Energy - 29.0%, food - 24.2%, forest - 18.0%
Novgorod	Chemicals - 29.9%, food - 21.8%, forest - 14.1%, mechanical engineering - 12.4%
Pskov	Mechanical engineering - 32.3%, food - 28.8%, energy - 16.3%
Kaliningrad	Food - 30.3%, energy - 30.2%, mechanical engineering - 19.6%, forest - 13.0%

Source: Goscomstat, 2002

Besides key industries, most regions have traditional types of activity, which make up a small amount of total output, but which give special features to the economic face of the region. They include flax weaving in the Vologda, Novgorod and Pskov Regions, dairy products in the Vologda Region, amber mining in the Kaliningrad Region, and raising of deer in the Nenets Autonomous District. Additionally, the military sector has special importance in the Northwest - even though the extent of military activity and military production has been drastically reduced over the last decade.

St. Petersburg's leading position in the industry of the Northwest is shown by the fact that of the 150 largest industrial companies operating in the region, more than a third - 55 companies - are based in the city. Another 49 companies from the Top-150 are located in the Komi Re-

public, and the Leningrad and Vologda Regions. The lowest level of industrial activity is seen in the Pskov Region - only 4 companies from the Top-150 are located there, and the largest of them, Pskovenergo, is only 74th on the list.

Table 3.5 Top 15 Industrial Companies of Northwest Russia by Sales in 2002

№	*Company*	*Region*	*Industry*	*Sales in 2002, USD million*	*Number of employees, thousand people*	*Sales per employee in 2002, USD thousand*
1	Severstal	Vologda	Ferrous metallurgy	1,923.6	39.6	48.6
2	LenEnergo	St. Petersburg	Electric power	717.9	17.6	40.8
3	Baltika Brewery	St. Petersburg	Beverages	676.0	7.9	85.6
4	SeverGasProm	Republic of Komi	Gas	624.8	13.8	45.3
5	Philip Morris Izhora	St. Petersburg	Tobacco	584.5	0.8	730.7
6	Apatit	Murmansk	Chemicals	522.8	14.1	37.1
7	Petro	St. Petersburg	Tobacco	513.5	1.8	285.3
8	KirishiNefteOrgSintez	Leningrad	Fuel and petrochemicals	510.3	6.3	81.0
9	Kola Mining and Metallurgy Company	Murmansk	Non-ferrous metallurgy	424.2	16.8	25.3
10	Akron	Novgorod	Chemicals	320.9	9.9	32.4
11	Neusiedler Syktyvkar	Republic of Komi	Forest	302.8	5.5	55.1
12	Titan Group	Arkhangelsk	Forest	293.6	20.7	14.2
13	Lukoil-Komi	Republic of Komi	Oil	275.7	4.4	62.7
14	Kotlas Pulp& Paper Mill	Arkhangelsk	Forest	235.2	8.6	27.3
15	VorkutaUgol	Republic of Komi	Coal	227.9	18.4	12.4

Source: Expert Northwest, 20-26.10.2003

There are few changes in the list of leading industrial companies in the Northwest from year to year. For example, in comparison with 2001, only one position in the Top-15 has changed: Leningrad NPP has dropped out of the list, and Titan Group (the owner of Arkhangelsk PPM) joined the list. The other significant change is the strengthening of biggest beer and tobacco companies' positions.

The indisputable leader of industry in the Northwest is the holding company Severstal based in Cherepovets (Vologda Region), one of the two largest ferrous metallurgy companies in Russia, and one of the top 20 companies in this sector worldwide. The subdivisions of other Russian industrial giants - the oil companies Lukoil and Surgutneftegas, the non-ferrous companies Norilsk Nickel and SUAL - are also located in the re-

gion. St. Petersburg's machine building companies are Russian leaders in shipbuilding (Severnaya shipyard, Admiralteiskie shipyards, Baltic Plant) and power engineering (Izhora Plants, Metal Plant, Electrosila and others - most of which are now parts of holding companies). Of the 10 leaders in the Russian forest industry, 6 are located in the Northwest.

Industry in the region was founded in the 18th century and developed in the 19th century, in many ways parallel to the development of St. Petersburg, then the capital of the Russian Empire. However, the main industrial capacities were constructed in the Soviet period, when economic development took place in accordance with centralized state planning. By the mid 1980s, in the Northwest several industrial agglomerations (so-called TPK) had been created. These enterprises were involved in the system of the division of labour within the entire Soviet Union and also actively took part in international cooperation - mainly with partners from Socialist bloc countries and developing countries.

Manufacturing industries were concentrated mainly in the City of Leningrad (now St. Petersburg), and the Leningrad, Vologda, Novgorod and Pskov Regions. Raw materials were delivered there from other regions of the Northwest - ores from the Murmansk Region; coal, oil and natural gas from the Komi Republic. Regions with manufacturing industries, in their turn, delivered to regions with mining industries machines and equipment, clothes and foodstuffs. The optimization of these links was very complex, as a significant number of partners was located far away from the Northwest, in other regions of the USSR and in Eastern European countries.

The rejection of the planned state economy in 1991-92 and the development of new economic relations required changes in the established corporate links, and shifting them to market principles. However, serious obstacles were presented by the following phenomena: administrative barriers raised with the goal of achieving greater independence for separate Russian regions; the collapse of the USSR, which caused a greater number of state borders and the introduction of various customs restrictions; and by the drastic reduction of the domestic market, in parallel with changes in the prices of most goods. As a result, many major manufacturers were forced to increase the portion of exports of their products - the demand from foreign consumers was more stable.

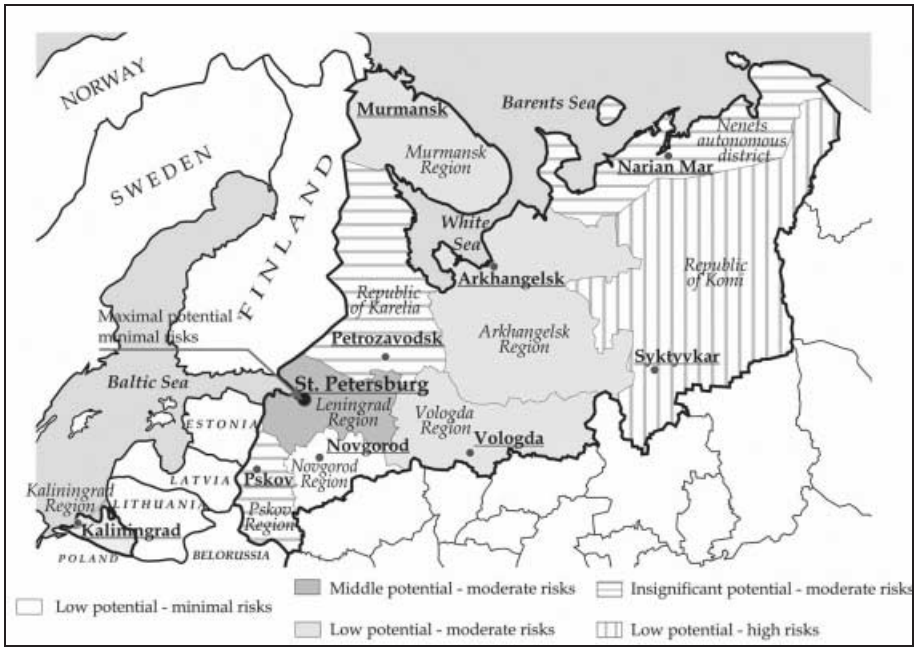
Now, there are clear signs of a process of reintegration and the revival of previously broken economic ties thanks to personal inherited contacts between top managers. This is partially caused by the specialization and technological dependence of enterprises on the production of others, a system also inherited from the Soviet period. However, an increasingly greater role in the process is played by new stimuli connected with changes in demand and the appearance of new solutions and products.

As the economy of the Northwest becomes integrated into the world market, foreign investment takes on greater significance for its development, especially as domestic investment in the development of production was extremely insufficient throughout the last decade. Besides the total amount of financial inflows into the economy, foreign investment has a very positive effect in streamlining the process for Russian companies of joining international trade networks, and filling a vacuum of suppliers and new products as well as overcoming the technological lag.

However, so far the sum effect of foreign investment aimed at satisfying the domestic demand is much less than the effect of Russian manufacturers switching to export-oriented production. To overcome this imbalance, it is necessary to develop not only factors of production, but to create a competitive environment in Russia as well. An analysis of the conditions which have great importance for this development is also the concern of the present study.

The investment climate in Russia was and remains the topic of numerous discussions and studies initiated by international agencies. Currently, the prevailing opinion is that the investment climate in the Northwest is essentially no different from that prevailing in the country as a whole, but there are significant differences among regions, con-

Figure 3.4 Investment Ratings of the Northwest Russia Regions in 2002-2003



nected both with the availability and various concentration of basic factors of production, and with the policies of local authorities

In this book, we use the amount of foreign investment as the main indicator of the investment climate. The largest volume of foreign investment in the Northwest is found in St. Petersburg and the Leningrad Region. The interest of foreign investors in these regions is due to the large consumer market and the concentration of transport infrastructure, which makes it possible to access other important markets.

Table 3.6 Foreign Investments by Region of Northwest Russia in 1996-2001, % of the total

Region	*Total foreign investments*	*Foreign direct investments*
St. Petersburg	54.6	43.3
Leningrad	20.3	36.4
Republic of Komi	7	6.2
Nenets autonomous district	5.4	0.2
Novgorod	5.1	4.1
Kaliningrad	2.0	2.3
Arkhangelsk	1.6	1.2
Republic of Karelia	1.3	2.3
Murmansk	1.2	1.9
Vologda	1.2	1.4
Pskov	0.3	0.7

Source: Goscomstat, 2002

Thus, the clear economic leader in the Northwest of Russia at present is its administrative centre, St. Petersburg. In 2000 it had the fourth largest GRP among the 89 Russian regions. St. Petersburg is also the most important centre of education and R&D in Northwest Russia. In the 1990s, it became a kind of "testing ground for economic reforms". On the one hand, this led to the numerous negative consequences of rapid privatisation, but on the other hand it created conditions for faster development of a competitive environment than in other regions.

The second group is made up of the Vologda, Leningrad, Murmansk and Arkhangelsk Regions and the Komi Republic, which have accounted for over 50% of the total GRP of the Northwest in recent years. The potential for development of the Leningrad and Vologda Regions is determined by their proximity to the largest Russian markets - St. Petersburg and Moscow. The main perspectives for development of the Komi Republic, the Arkhangelsk and Murmansk Regions, and also the Nenets

Autonomous District, are connected with their extensive natural resources, which have so far only partially been developed.

The Republic of Karelia, the Novgorod, Pskov and Kaliningrad Regions are currently more on the periphery of economic development in the Northwest. In 2000 their total GRP was only 15% of the total GRP of Northwest Russia. Nevertheless, these regions have some opportunities to develop successfully. The Novgorod Region has an important advantage in its location between the two largest consumer markets of Russia - Moscow and St. Petersburg. All the main routes which connect these two cities pass through the Novgorod Region.

For the Republic of Karelia, the Pskov and Kaliningrad Regions, their frontier location (The Pskov Region is one of the two regions of the Russian Federation which borders three countries) and their proximity to the markets of Western Europe are just as important. As a result, these regions, and also the Leningrad Region have opportunities for cross-border cooperation - the development of production oriented towards export and towards the domestic market by taking advantage of the labour force, infrastructure, natural resources, technology etc. on both sides of the border.

The Kaliningrad Region is an enclave of the Russian Federation. Its status has still yet to be clearly determined. Talks are underway between Russia and the European Union on organizing stable communication with the Kaliningrad Region in the conditions of Baltic countries near entry into the EU. Its economic ties with other regions of the Northwest do not play an important role because of its remote location and high transportation costs. In recent years in the Kaliningrad Region, a tendency has been seen in increasing cross-border cooperation between local companies and companies in neighbouring Lithuania and Poland.

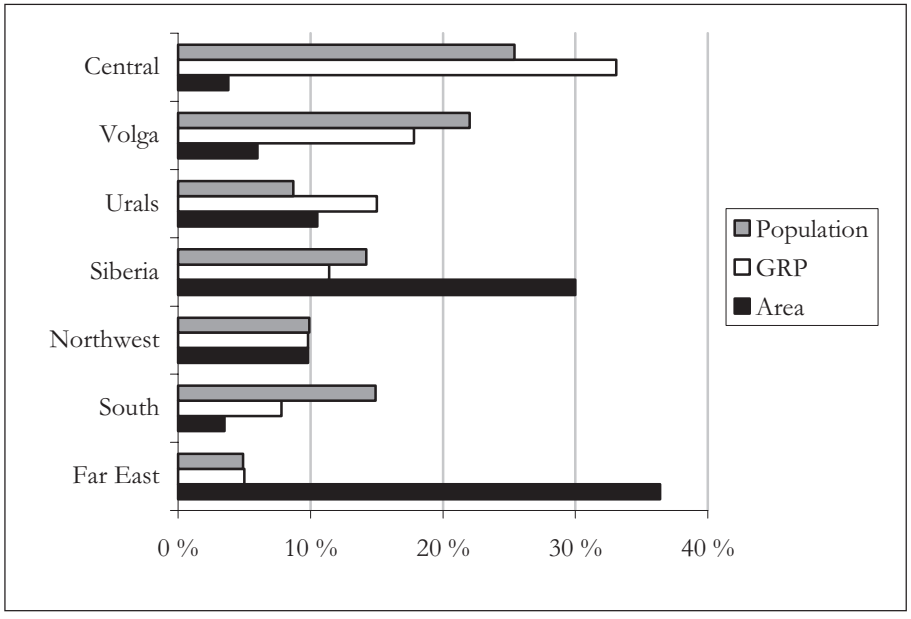
3.2 Northwest Russia Compared to Other Russian Regions

Within the context of the present review, in order to provide a more adequate economic positioning of Northwest Russia, it is reasonable to compare this region with other Russian regions of the same status, that is, with the other six federal districts of the country.

The area of the Northwest Federal District is about 1,678 thousand sq. km, which is 9.8% of the country's territory. This is the fourth largest federal district by area, and the largest in the European part of Russia. The population of the Northwest, as of 1 January 2002, was 14.259 million people, or 9.9% of the Russian population, which puts the district in the fifth position in the country.

Figure 3.5 Federal Districts of Russia

Figure 3.6 Area, Population and GRP of Russian Federal Districts in 2000, % of the total



Source: Goscomstat, 2002

In GRP, Northwest Russia holds also fifth position in the country. The dynamics of its share in the total GDP of Russia, on the whole, corresponds to the dynamics of industrial output, since Northwest Russia's

economy depends mostly on the manufacturing sector. In GRP per capita Northwest Russia ranks fourth, but its lag behind the Far East (the third position) is very small, and has been decreasing in recent years. On the whole, it is obvious that Northwest Russia does not fully employ its favourable location in the proximity of the European markets, as well as the abundance of its natural resources. One of the main reasons for this is the underdevelopment and the fragmented nature of infrastructure and industrial assets in the region.

Table 3.7 GRP per Capita of Russian Federal Districts in 2000, USD

Total Russia	1,550
Urals	2,668
Central	2,027
Far East	1,613
Northwest	1,533
Volga	1,259
Siberia	1,238
South	808

Note: "GRP" corresponds to the EU term "Regional Value Added"
Source: Goscomstat, 2002.

The dynamics of industrial production in Northwest Russia is generally similar to those of Russia as a whole. During the period between 1991 and 1998 the index of industrial production fell by more than twofold - 48.4%[1]. However, in other Russian regions the crisis was even deeper.

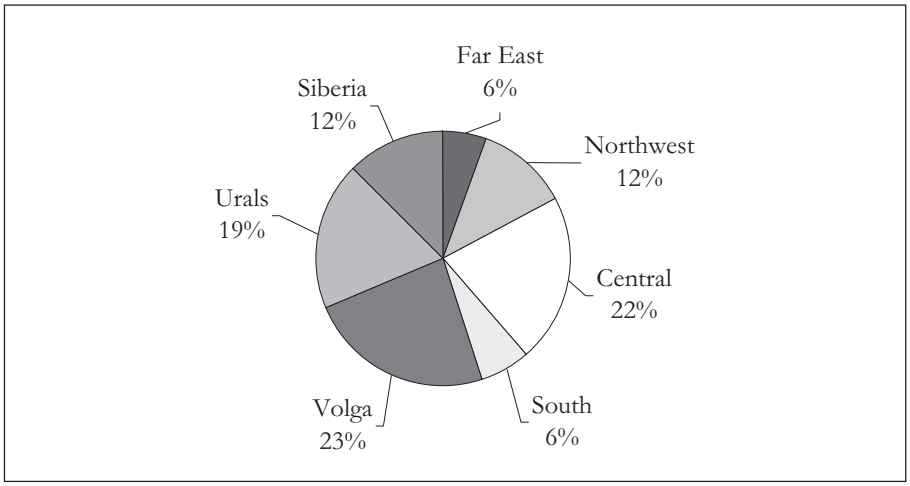
The biggest recession in Northwest Russia (and in Russia as a whole) was in 1994. In the following years the economy continued to contract, but at a slower rate. The first signs of growth were recorded only in 1998, due to the devaluation of the rouble after the financial crisis of August 1998. Since then the overall growth trend has been continuing, but the low rate of growth does not yet correspond to the rather high potential of the region.

In 2001, the industrial output of the region provided 11.7% of the Russian total, which puts it in fifth place among the federal districts. The surplus of the region's share in total industrial output over its share of total GRP reflects the industrial character of the economy of Northwest Russia.

---

1 Goscomstat data.

Figure 3.7 Industrial Production by Russian Federal District in 2001, %



Source: Goscomstat, 2002

The level of industrial output per capita puts Northwest Russia in second place in the country after the Urals Federal District, which produces most of Russia's oil and gas, Russia's main export commodities.

Table 3.8 Industrial Output per Capita in Russian Federal Districts in 2001, USD

Total Russia	1,193
Urals	2,617
Northwest	1,408
Far East	1,344
Volga	1,281
Siberia	1,035
Central	1,013
South	500

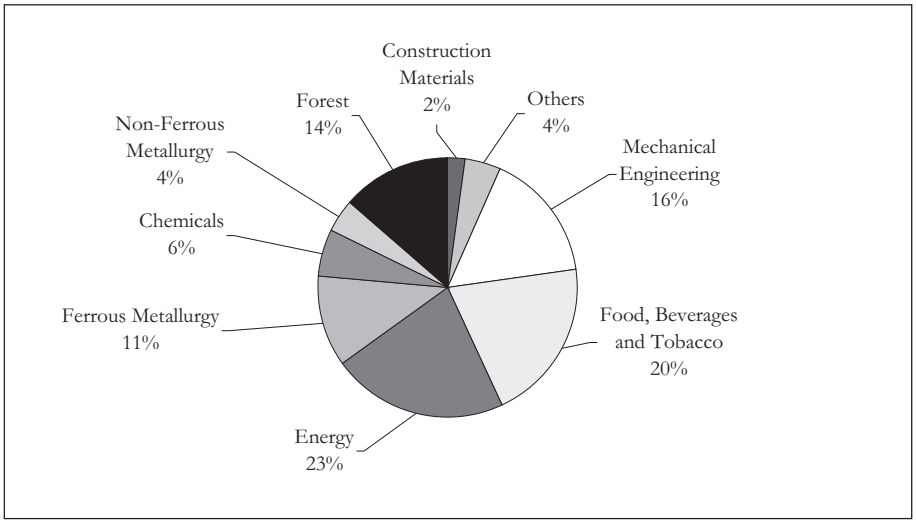
Note: "Industrial production" corresponds to the EU term "Gross production".
Source: Goscomstat, 2002

In accordance with the industrial specialization that had been practiced in the Soviet Union, Northwest Russia specialized in machine building (first of all, shipbuilding and power engineering), ferrous and non-ferrous metallurgy, mechanical wood-processing and pulp-and-paper industries. Their agglomerations are still the core of the regional economy and provide about 50% of the total industrial output of Northwest

Russia. An important problem that these agglomerations face is the underdevelopment of related and supporting industries.

The energy sector has a smaller share in Northwest Russia than in the Urals and Volga Federal Districts due to much smaller production of oil and natural gas. Electric power generation is distributed within the region rather unevenly, and this concerns both generating facilities and transmission grids. The electric power sector is dominated by nuclear power plants (over 40% of the total electric power generated in Northwest Russia) built in the 1970s, and this creates an additional risk of instability of power supplies due to the expected decommissioning of these facilities in the medium term.

Figure 3.8 Industrial Structure of Northwest Russia in 2001, by sales



Source: Goscomstat, 2002

Over the last few years, the highest growth rate was recorded in the food and tobacco industries. They have a large domestic market and are the most attractive for foreign investment. Among other industries, the most attractive for foreign investment during the past decade were the forest sector, construction materials industry and oil production, while metallurgy and machine building have been less attractive. The machine building industry has already lost its leading position in the economy of the region, but after the financial crisis of 1998 a certain revival was witnessed in this sector: there are examples of large foreign orders, as well as some foreign investment projects.

Among the Russian federal districts the highest level of foreign investment is recorded in the Central Federal District (primarily in the city of Moscow and the Moscow Region): in 1996-2001 it attracted over 50% of all foreign investment in Russia. Northwest Russia holds second place with a little over 10% of the total volume of foreign investment.

By the rates of growth of infrastructure, telecommunications and information technologies Northwest Russia (primarily, St. Petersburg and the Leningrad region) is the second in the country after the Central Federal District, whose leadership is guaranteed by the city of Moscow and the Moscow Region. On the whole, the Northwest serves as a kind of "European gateway" to Russia through which most of foreign trade is conducted, and new technologies get into and take root faster than in any other region of the country.

Finally, it is worth touching upon the Northwest Russia agriculture. All the territory of Northwest Russia is in the zone of risky farming, and that is why agriculture provides only a small share of the region's economy (about 9% of GRP) and accounts for only 6% of all Russian agricultural production. The main agricultural products of the region are flax, poultry, dairy products, meat and potatoes.

3.3 Northwest Russia Compared to Finland and Sweden

An analysis of the prospects for development and the current state of the economy of Northwest Russia would be incomplete without a comparison with foreign economies. Within the context of the present paper, it seems reasonable to compare Northwest Russia with the geographically close developed economies of Finland and Sweden.

Over its history, Northwest Russia has often interacted with these countries; their nature is quite similar; and, more importantly, it is these countries that have recently been actively engaged in mutually profitable cooperation with Northwest Russia. It is quite likely that cooperation and integration with Finnish and Swedish companies will continue, which will significantly contribute to the development of the Northwest economy and serve as the example of "best practice" for other Russian companies.

The territorial distribution of the population in Northwest Russia, Finland and Sweden is rather similar, with southern areas more densely populated than the north. However, in the Northwest Russia the average population density is much lower, which is partly explained by the cli-

mate, which is more severe than in Northern Europe. The low density of the population in Northwest Russia significantly undermines the development of the infrastructure, and raises the production costs.

Table 3.9 Area, Population and Average Population Density of Northwest Russia, Finland and Sweden in 2001

	Northwest Russia	*Finland*	*Sweden*
Area, thousand km^2	1,678	339	450
Population, thousand people	14,259	5,200	8,925
Average density of population, people/km^2	8.5	15.3	19.8

Source: Goscomstat, UN statistics, 2002

The vast territory of Northwest Russia determines the variety and amount of natural resources exceeding those found in Sweden or Finland. The region boasts vast forests, extensive energy resources (oil, natural gas and coal), iron ore, ores of many non-ferrous metals, as well as other mineral resources. In particular, there are considerable deposits of aluminium ores, which are lacking in the neighbouring countries, and in the Arkhangelsk Region the development of a large diamond deposit has been recently started.

However, Northwest Russia, which possesses extensive natural resources, lags much more behind Finland and Sweden in a number of basic economic indicators, including GRP (GDP), GRP (GDP) per capita and per unit of area.

Table 3.10 GDP (GRP) of Finland, Sweden and Northwest Russia

	Northwest Russia, 2000	*Finland, 2001*	*Sweden, 2001*
GDP (GRP), USD billion	21.9	131.5	240.3
GDP (GRP) per capita, USD thousand	1.5	25.3	26.9
GDP (GRP) per km^2, USD thousand	13.0	387.9	534.0

Source: Goscomstat, UN statistics, 2002

In the structure of GDPs of Finland and Sweden, industry has a smaller share than in the GRP of Northwest Russia, but Sweden and Finland significantly surpass their Russian neighbour in industrial production.

Table 3.11 Industrial Production in Northwest Russia, Finland and Sweden in 2001

	Northwest Russia	*Finland*	*Sweden*
Industrial production, USD billion	20.0	28.2	44.3
Industrial production per capita, USD thousand	1.4	5.4	5.0
Industrial production per km^2, USD thousand	11.9	83.2	98.4

Source: Goscomstat, UN statistics, 2002

At the same time, as regards the industrial production index Northwest Russia reaches the level of its neighbours, and in some cases even exceeds them. According to the majority of experts, such an imbalance between the monetary and the natural volumes of production is the result of the underdevelopment of the industrial structure in Russia, where mostly products with low value added are manufactured.

Table 3.12 Production of Selected Industries in Northwest Russia, Finland and Sweden in 2001

	Northwest Russia	*Finland*	*Sweden*
Electric power, billion kW/h	90.4	81.2	162.3
Electric power per capita, thousand kW/h	6.3	15.6	18.2
Electric power per km^2, thousand kW/h	53.9	239.5	360.7
Steel, thousand tons	9,863	3,276	5,220
Steel per capita, tons	0.7	0.6	0.6
Steel per km^2, tons	5.9	9.7	11.6
Paper, thousand tons	2,033	12,503	10,534
Paper per capita, tons	0.14	2.4	1.2
Paper per km^2, tons	1.2	36.9	23.4

Source: Goscomstat, 2002; statistical websites of Finland and Sweden

This distinctive feature is especially clear when comparing the structure of industry in Northwest Russia, Finland and Sweden. While in both countries the dominating industry is machine building, in Northwest Russia the leading sector is the energy sector, and the share of machine building is about 3 times lower than in Sweden or Finland. The structure of the machine building industry is also significantly different: in Northwest Russia the industry is dominated by heavy power, transport and metallurgy machines and equipment, while in Finland and Sweden mostly hi-tech machines and equipment (electronics, specialized vessels, automobiles, etc.) are produced.

Table 3.13 Industrial Structure of Northwest Russia, Finland and Sweden, % of the total sales

Industry	*Northwest Russia, 2001*	*Finland, 2001*	*Sweden, 2000*
Energy	21.9	7.5	9.9
Ferrous Metallurgy	11.5	2.5	3.1
Non-Ferrous Metallurgy	4.3	1.3	1.0
Chemicals	5.6	5.0	9.1
Mechanical Engineering	16.2	44.7	42.9
Forest	13.6	17.8	12.4
Food	20.4	5.8	7.0
Others	6.5	15.4	14.5

Source: Goscomstat, 2002; statistical websites of Finland and Sweden

Given all the above-described distinctions, the industry of Northwest Russia has a number of similarities with the industries of Finland and Sweden. Among them there are the relatively high share of the forestry cluster, a substantial predominance of ferrous metallurgy over non-ferrous metallurgy, and the high importance of nuclear power plants, which provided 41% of all electronic power produced in Northwest Russia, 37% in Sweden, and 28% in Finland (data for the year 2000).

The transport and telecommunication infrastructure of Northwest Russia is significantly less developed than in Finland and Sweden, both in terms of the density of networks and the quality of services. The only exception is the system of oil and natural gas pipelines providing the transportation of both the locally produced oil and gas and those produced in the Siberia and Volga regions. The underdevelopment of infrastructure is a serious obstacle to integration of Northwest Russia into the international networks of the Baltic region and Northern Europe.

Table 3.14 Some Indicators of Transport and Communication Infrastructure in Northwest Russia, Finland and Sweden in 2002

Indicators	*Northwest Russia*	*Finland*	*Sweden*
Density of railways, km/ thousand km^2	7.7	17.4	28.5
Density of paved highways, km/thousand km^2	40.0	147.8	361.5
Internet users, % of total population	7.7	50.9	57.3

Source: Goscomstat, 2002; statistical websites of Finland and Sweden

No less is the present lag of Northwest Russia compared to Finland and Sweden in investment attractiveness, which is reflected in the low aggregate volume of investments. The most important obstacles for foreign and domestic investments in Russia are the political instability, the low level of business culture and transparency, and the lack of effective mechanisms for investors' rights protection. Besides these, the major negative factors are the lack of coordination between the federal and regional bodies of power, the absence of clear development priorities, the slow process of transition to international standards, as well as a large number of bureaucratic barriers for conducting business.

Table 3.15 Investment in Economies of Northwest Russia, Finland and Sweden in 2001

Investments	*Northwest Russia*	*Finland*	*Sweden*
Investments in fixed capital, USD million	5,850	24,881	41,053
Investments in fixed capital per capita, USD	410	4,785	4,600
Total foreign investments, USD million	1,789	8,618	22,125
Total foreign investments per capita, USD	125	1,657	2,479
Foreign direct investments, USD million	457	3,615	12,734
Foreign direct investments per capita, USD	32	695	1,427

Source: Goscomstat, 2002; statistical websites of Finland and Sweden

The degree of integration of the economies of Finland and Sweden into the international trade networks is also much higher. This fact is illustrated by the comparison of export and import volumes, and is conditioned by the well-developed infrastructure of these countries, the adaptation of products and services to the international standards, unified customs procedures, and a number of other factors.

Export trade of both Finland and Sweden is characterized by its diversification. It is based on various products of machine-building industries, as well as on forestry and chemical products, metals and metal products, all of which have high added value. The enterprises of Northwest Russia at present export mostly oil and oil products, primarily metals, forestry products with low value added, fertilizers, and naval ships.

Table 3.16 Foreign Trade of Northwest Russia, Finland and Sweden in 2001

Export/Import	*Northwest Russia*	*Finland*	*Sweden*
Exports, USD billion	8.8	47.7	104.0
Exports per capita, USD	617	9,173	11,650
Imports, USD billion	6.7	37.7	89.4
Imports per capita, USD	470	7,257	10,018

Source: Goscomstat, UN statistics, 2002

Finally, it makes sense to compare the standards of living, which directly correlate with the quality of human capital. Two examples will suffice here. In August 2002 in St. Petersburg, the economic leader of Northwest Russia, the average monthly wages in industry was only USD190, which is very low, even taking into consideration the fact that due to the large amount of shadow economic transactions the real income may be twice as large. The average life expectancy at birth in today's Russia is more than 10 years lower than that in Finland or Sweden.

To conclude the comparisons made in this chapter, the authors want to emphasize the most important features that define the current position of Northwest Russia within the world economy.

1) On the regional level within the Northwest Federal District: significant disproportions in the distribution of resources, population, infrastructure, production capacities, etc. against the background of weak interregional links, which have suffered deep transformation over the recent decade and are presently being established anew. These processes will continue in the following

years and will probably lead to further differentiation of the regions of Northwest Russia.

2) On the level of the Russian federal districts: a relatively small share in the country's economy corresponding to the small share of the population. The natural resources are substantial, but inferior to the resources of the eastern Russian federal districts, while the key decisions are made by the bodies of power and financial institutions based in Moscow. The prospects for sustainable development of Northwest Russia are primarily connected with its proximity to the developed countries of Western Europe, which determines the possibility for extensive and mutually beneficial cooperation, and also with the emerging role of the Northwest as the most important transport and communication Russian "window" to Europe.

3) On the international level: possibilities for significant strengthening of integration and cooperation in all spheres of activity, first of all, with the countries of the Baltic region and Northern Europe. The key aspects for Northwest Russia in the processes of its integration into Europe are the following:

Table 3.17 Key Strengths and Weaknesses of Northwest Russia

Key strengths	*Key weaknesses*
❑ Extensive natural resources: oil, natural gas, ferrous and non-ferrous metal ores, wood; ❑ Existing infrastructure, as well as industrial and human capital; ❑ Rather well developed industrial agglomerations and major seaports; ❑ Possibilities for cross-border cooperation with the developed countries of Europe; ❑ Proximity to European transport corridors; ❑ St. Petersburg is the major city of Northern Europe, one of the main hubs of international networks of various types, and the main Russian gateway to Europe.	❑ Severe climate contributing to high production costs; ❑ Huge disproportions in distribution and low density of population and infrastructure, especially in the northern areas of the region which are rich in natural resources; ❑ Large distances between the centres; ❑ Inconsistency between the local and international standards for products and services resulting in problems of integration into the international trade networks; ❑ Weak interregional links; ❑ High dependence on decisions made in Moscow; ❑ Sharp decrease in the quality of education and R&D over the last decade.

Any plans for further development of Northwest Russia should take into consideration not only the national interests, which was the case in the Soviet period, but also the regional specifics and the long-term factors of competitiveness. These issues will be viewed in detail in the following chapters.

4 Long Way to a Market Economy

4.1 Regularities and Features of the Transitional Period

The ten-year transitional period was one of great difficulty for the economy of Northwest Russia. During the extended preceding period of the planned economy, a system of economic relations was formed that was defined by its own specific interdependent links, culture, and traditions of manufacturing and economic activity as a whole. A functioning environment was created that was intrinsically different from that of developed countries. It was based primarily on the principles of distribution that were characteristic of the centralized planned socialist economy of the USSR during that period. This economic environment proved to be very inefficient, and led to the serious problems of the 1980s that culminated in the collapse of the entire economic system at the beginning of the 1990s.

The market economy in Russia was built on the ruins of the old economic system and was complicated by the political chaos that reigned at the time. The distinguishing feature of the reform process was the fact that the dismantling of the old, and creation of a new system and social institutions, occurred simultaneously. This happened against a background of overall uncertainty and a legal vacuum, the consequences of which (in the area of property rights, for example) have only now begun to reveal themselves in numerous attempts to re-examine the results of privatisation and the agreements and transactions that were carried out during that period.

The period of rigorous economic reforms that began in Russia immediately after the collapse of the Soviet Union was a complex and painful one. It was more complex and painful here than in many other countries of the former Socialist Bloc, because of the unique nature of many of the processes, as well as the lack of time in which to undertake comprehensive planning. The size of the country (i.e. very long distances between centres of economic activity), as well as the low density of the population and underdeveloped infrastructure, played an important role here. The regulation of the processes of the transitional period was, and to some degree still remains, hampered by a shortage of professionals capable of

working under the new conditions. The high level of political instability and the frequent replacements of officials at the highest government levels (both regional and federal) only added to the problem.

In the beginning of the period of reform, the matters of highest priority were large-scale legislative and institutional transformations, and subsequently, macroeconomic stabilization. At the same time, many other basic issues were not addressed. The lack of attention to such fundamental questions as regional development and the need to spur scientific and technological progress (i.e. the creation of a nationwide innovation policy and a system of education and staff training that would operate within the market economy) led to serious deficiencies and imbalances in these areas. The consequences of the failure to address these issues are already manifesting themselves as limited growth and development in many regions and industries.

Over the course of the first stages of reform, many links between manufactures were broken. There was also a critical fall in the level of production and the per capita income. The drop in levels of production continued in most parts of Northwest Russia until 1996. The following years witnessed economic growth that was temporarily disrupted by the financial crisis in August 1998. The negative effects of the crisis were overcome and the growth continued; but by 2001, the system's limitations and poor efficiency of the existing operational environment became obvious. This led again to a significant curtailment in the rate of growth.

Table 4.1 Industrial Production Indices in Northwest Russia in 1991, 1996-2001

Regions	*1991*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*
Republic of Karelia	95	84	101	97	122	108	102
Republic of Komi	94	94	100.1	99	102	106	107
Arkhangelsk	95	93	100.3	103	122	130	106
Nenets autonomous district	99	113	109	100.6	111	123	104
Vologda	94	98	100.2	99.3	109	110	99.1
Kaliningrad	96	86	98	91	104	132	113
Leningrad	99	89	96	99.8	107	127	110
Murmansk	97	92	113	95	108	109	102
Novgorod	106	88	101	105	115	108	118
Pskov	95	83	93	102	120	111	108
St. Petersburg	101	77	107	99	106	127	100.8

Source: Goskomstat, 2002

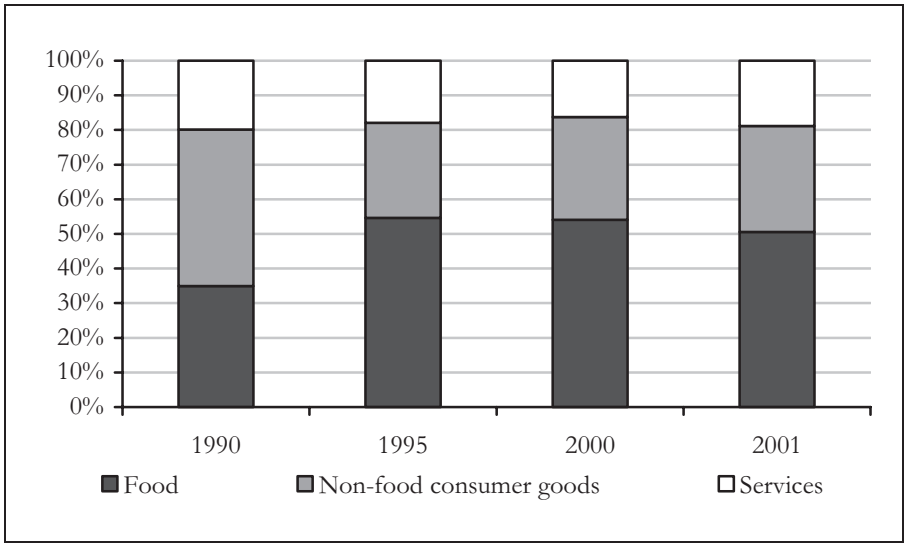
From 1991 to 1996, there was a concomitant drop in per capita real income. Expenditures for basic consumer goods prevailed in the overall structure of expenditures. The growth of the portion of non-essential goods and services became evident only after 2000.

Table 4.2 Real Money Income in Northwest Russia in 1995, 1997 and 1999 – 2001

Regions	*1995*	*1997*	*1999*	*2000*	*2001*
Republic of Karelia	81	100	91	111	103
Republic of Komi	89	114	88	117	123
Arkhangelsk	84	106	98	120	116
Nenets autonomous district	N/d	N/d	82	138	133
Vologda	90	109	89	120	112
Kaliningrad	73	109	103	119	90
Leningrad	83	96	88	107	111
Murmansk	86	102	85	117	102
Novgorod	84	95	82	106	109
Pskov	88	101	90	112	106
St. Petersburg	104	94	84	113	109

Source: Goskomstat, 2002

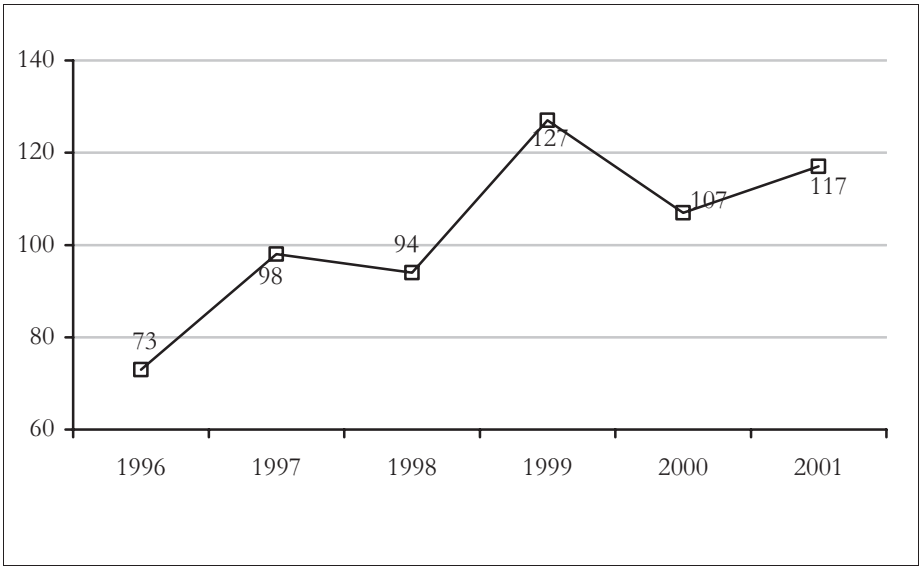
Figure 4.1 Structure of Consumption in Northwest Russia



Source: Goskomstat, 2002

The financial crisis of 1998 altered the patterns of consumption. The sharp devaluation of the ruble and the upswing of prices for imported goods drove up the demand for locally manufactured products. This resulted in an unexpected, yet extremely important thrust in the development of Russian manufacturers, and it stimulated the growth of investment in manufacturing. The initial rapid growth of investment soon tapered off, however, due to the fact that internal problems limited the potential for growth. These problems included: inertia in decision-making processes, the absence of the necessary infrastructure, and various bureaucratic obstacles. Thus, even after the simplification of procedures for registering a company, the official review of the request by the Federal Securities Commission can last many months because of the large number of formal requirements and restrictions that pertain to the simplest of cases.

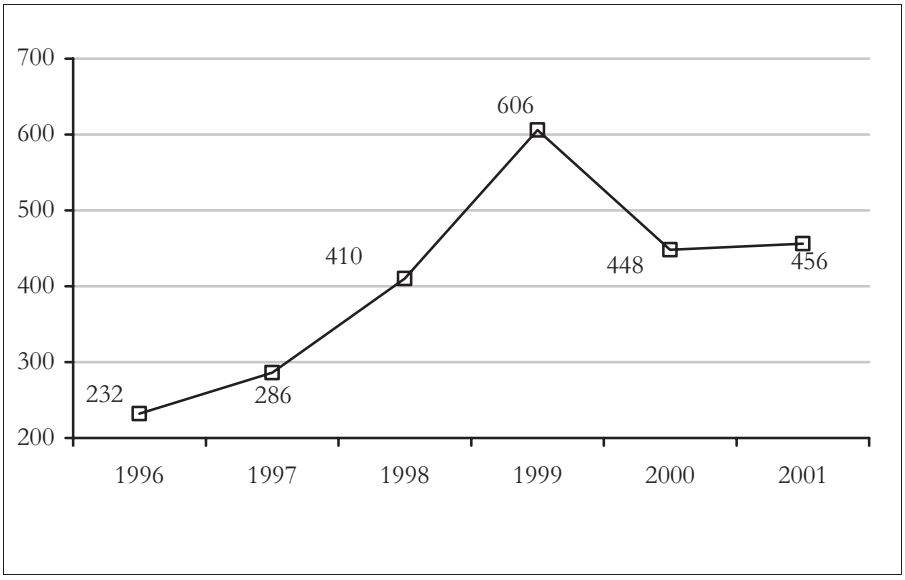
Figure 4.2 Investments into Fixed Assets in Northwest Russia (% to previous year)



Source: Goskomstat, 2002

Market reforms and lifted restrictions on the flow of capital opened Russia to foreign investment. Growth in investment was observed before the financial crisis of 1998, followed by a downturn. The vacuum that it caused was in part filled by Russian investors, who were able to derive an advantage from the drop in the cost of the ruble, and to gain a position on the domestic market.

Figure 4.3 Foreign Direct Investments in Northwest Russia in 1996-2001, USD million



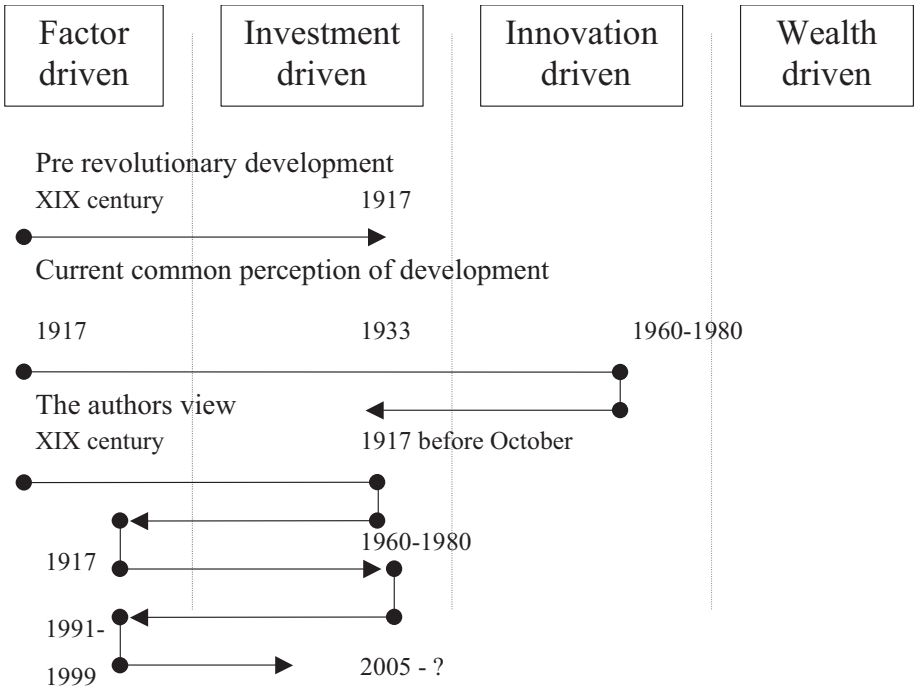
Source: Goskomstat, 2002

In spite of the positive tendency toward growth of foreign investment, its volume at present is rather small in comparison with that of some European countries with transitional economies (Poland, the Czech Republic, and Hungary). This unfavourable situation can be largely explained by the overall inability of Russian companies and government authorities to engage in effective cooperation with international investors. It is not only bureaucratic restrictions that contribute to this, but also the general disinclination toward cooperation, and poor knowledge of foreign languages and models of behaviour that prevail in developed countries. The psychological and cultural differences between Russian and foreign businesses remain significant. Government efforts to introduce the study of foreign languages, to familiarize Russian business with traditions of manufacture in other countries, to facilitate cross-border movement and communications, as well as to establish the notion of Russia as a country with conditions favourable to business, could bring rapid and positive economic results.

Although the transitional period in Russia has lasted for more than ten years, there are diverse views regarding the state of the economy in the beginning of the period of reform. Our evaluations based on the results of numerous polls of company executives and on expert analysis, are represented as the consecutive stages of the development of industrial competitiveness according to the classification devised by Michael Porter

(1990). Porter's classification, in our view, offers the most relevant framework for achieving the goal of our study - an analysis of the competitiveness of Northwest Russia.

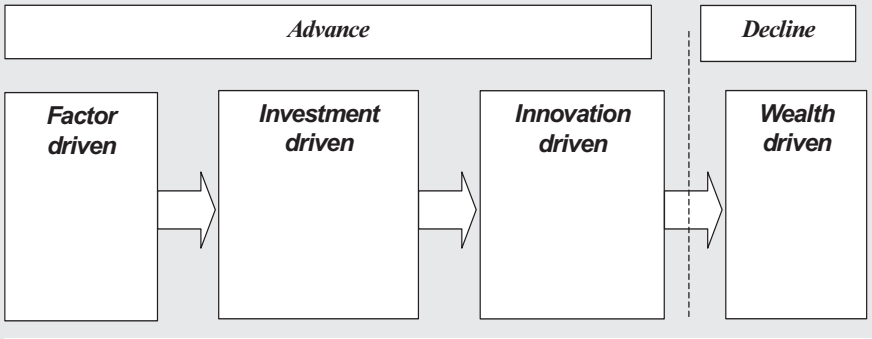
Figure 4.4 Evolution of Industrial Competitiveness in Russia



During the Soviet era, huge investments in upgrading industrial facilities were made. Some visible achievements in the development of new products and competition on international markets were made, and the associated transition of the country to the investment stage of development was to a large extent fictitious, due to enormous mistakes in the choice of locations, technologies, and processes. These mistakes were caused by the lack of genuine economic driving forces, such as demand and competition. There are some obvious signs of transition in the more advanced sectors of economy to the investment, or even innovation-driven, stages of development. These changes have yet to gain the substantial force they would need in order to drive the national and regional competitiveness into the investment and innovation-driven stages.

Box 4.1 Stages of the Industrial Competitiveness Evolution

Porter recognizes four major stages a developing country's industry passes through. Stages may be overlapping, and the nation may move to either direction in its progress. The first three stages (factor, investment, and innovation-driven) are successive improvements in national prosperity whereas in the fourth stage, wealth-driven industrialization, national competitiveness will decline.



Source: The Competitive Advantage of Nations. M. Porter (1990)

Factor-driven stage

In this stage competitive advantages are based on low wages and input prices. Domestic production of investment goods is almost nonexistent. Firms apply imported and well-known technologies. Internal research and development is limited. Firms often lack direct connections to the end users. The economy is very sensitive to the fluctuations in the world commodity markets. While a fairly high standard of living can be achieved, maintaining it in the long run is unlikely.

Investment-driven stage

National competitive advantage is characterized by the willingness and ability of domestic firms to invest aggressively. Companies try to acquire the best technology available on the global market, and they often aim to create competitive advantages based on economies of scale. Upon applying foreign technologies they are also enhanced to suit local conditions. Since production technology is bought rather than invented, domestic producers are nevertheless in the second tier as far as technological advances are concerned. The majority of successful companies make fairly standardized products.

Innovation-driven stage

In the innovation-driven stage a country should have a wide range of internationally competitive industries. While successful enterprises have strong linkages to the traditional sectors, fitting the national environment and history, brisk innovation activity has created many subsectors. Domestic research and development has increased competitiveness in traditional branches and spin-offs have generated seeds for new industries. Domestic rivalry is fierce, and linkages to customers are an important source of new ideas. Firms do not only adopt innovations made elsewhere, but also innovate themselves. Competitive strength is founded on specialized and advanced factors; highly skilled labour and firm-specific knowledge are crucial. Firms compete in global markets with differentiated products. The service content of manufactured products is high. In this stage the economy is less sensitive to cyclical fluctuations.

Wealth-driven stage

In this stage the economy enjoys the fruits of accumulated wealth. Firms try to improve their competitive position by mergers and acquisitions rather than by investing in new capacity. As a high level of income is reached, eagerness for change diminishes; everyone tries to maintain the status quo and dynamism is lost. Productivity growth is sluggish, and there is chronic under-investment in the economy. The wealth-driven stage is the beginning of decline.

It is evident that the competitiveness of Russian industry, even during the period of robust development of science-intensive manufacture, was based primarily on the factor of raw materials. A more precise understanding of each stage of economic development and the problems that characterize it, as well as the methods of effective government policy that address these problems, are essential for planning and implementing reforms. In view of this, we hope that an analysis of those features of the transitional period related to the development and transformation of industrial companies during this period will contribute to an assessment and elaboration of approaches to economic policy in the future. The vacuum that prevails at the regional level is especially noticeable, and this was a matter of priority in our study. This chapter, however, is aimed primarily at investigating the specific effects and consequences of the transitional period on individual companies.

4.2 Transformation of Companies during the Transitional Period

As we have discussed in the first section of this chapter, the primary efforts of government authorities were directed at institutional and macroeconomic reforms. Priority was often given to high rates of implementation rather than to quality, however. This was how privatisation of companies was carried out, for example. As a result, many companies began to experience difficulties. There was inadequate investment in manufacturing, often caused by the fact that company executives and employees (i.e. those stockholders that had no significant resources for upgrading) received large shares at very moderate costs, and over the course of time prevented the transfer of control to other investors with far more substantial investment potential. As a consequence of this policy, large companies often broke up into separate plants and areas. This in turn led to an increasing lack of coordination in carrying out large orders, the curtailment of development and introduction of new types of products, and a catastrophic drop in productivity and product quality. An account of the transformation of Nevsky Machine-Building Plant serves as a prime example of such a scenario.

Box 4.2 The Nevsky Plant: What is Transpiring in Machine building Companies?

The Nevsky Plant is one of the largest power engineering companies in St. Petersburg. It specializes in manufacturing gas-pumping compressors, other kinds of compressors, steam and hydraulic turbines, and metalworking. During the Soviet era, the Nevsky Plant was the absolute leader in manufacturing gas-pumping equipment: over 60 per cent of compressors installed at the country's main gas pipelines were manufactured by it. In addition, the company's products were exported to the countries of Eastern Europe, Asia, and South America.

Nevsky Plant was privatised in 1994. The process of privatisation was carried out in several stages. A significant share of the company's stock was distributed among its employees, many of whom later sold their stocks to third-party buyers. When the process of privatisation was over, the company ended up with no new, large proprietor capable of executing full control over it. The government, which has been characterized by rather low investment capabilities over the past decade, controlled 20 per cent of the company's stock. Another 20 per cent or so ended up in the possession of the international competitors of

Nevsky Plant, who expressed no interest in investing in the company's development. The remaining portion of the stocks was distributed as small stock bundles among a large number of independent participants in the market, most of whom had no expertise in machine building.

This unsuccessful process of privatisation had a negative impact on the company. The plant itself was decentralized: most of the shops and other subdivisions began functioning independently, and the unified technological cycle was disrupted. This led to the inability of Nevsky Plant to guarantee stipulated time frames and the requisite quality in fulfilling large and complex orders. As a result, there was a multiple drop in the volume of production, although the demand for the company's products fell only moderately in the post-Soviet period (unlike that of most other machine-building companies of the Northwest). This was due to the large demand for equipment from the gas monopoly Gazprom. In 2000, the turnover of Nevsky Plant was only $8.5 million.

The deterioration of economic conditions led to the loss of a large number of highly qualified personnel, and to the nearly complete disintegration of the company's R&D sector. The new, highly intricate structure became a serious hindrance in attracting outside investments. The attempts of various players to re-establish a single manufacturing complex have not yet met with success.

Struggles between owners of the company have led to a series of replacements of executives. Gazprom, for which the reform of Nevsky Plant is in its best interests, is currently trying to gain control over the company once again. The prospects for the company in the coming years most likely depend on the results of these efforts.

The example of the Nevsky Plant is in many ways typical for companies in the industrial sectors specializing in the manufacture of complex and technology-intensive products. The following processes were characteristic of these sectors during the period of reform:

- The disintegration of unified enterprises into separate manufacturing units controlled by small entrepreneurs, followed by a gradual and painful reunification, accompanied by the loss of a large portion of their manufacturing potential and staff, a growing lag in technological development and updating of products, and a general lack of flexibility and low quality of manufacturing.
- Isolation of the export-oriented stages of the production cycle into single, more successful companies; the disruption of links between those companies with the rest of the production process, resulting in a complete or partial break of the original chain of production.

- The attrition of the workforce, especially non-skilled workers and technicians, led to a serious staff shortage in many companies at the beginning of 2000, when the first signs of a growth in demand for products appeared.
- A substantial reduction in the number of developments of new types of products; the loss of competitiveness in the utilization of new technologies and materials.

Within a broader framework, vertically integrated associations broke up into separate companies; various basic and supporting manufactures, as well as installation and after-sale servicing companies, broke away and became independent profit-making ventures. Upon the completion of the initial restructuring of assets, these destructive processes were gradually reversed and followed by the reintegration of companies (by mergers and takeovers) into new multi-industry, vertically integrated holdings, often owned by large financial-industrial groups.

Companies that specialized in manufacturing raw materials and mass-market products with low added value underwent a different path of development, with the following characteristics:

- A significantly more stable situation during the whole course of the transitional period: substantially less fluctuation of income, volume of sales and product prices, and lower attrition of personnel.
- Continuity of the prevailing direction and structure of the company.
- Fairly smooth transition to export of products as the demand on the domestic market decreased.
- Continuation of high levels of profitability.
- Diversification of the largest companies into related and other industries.

Box 4.3 Severstal: an Industrial Giant in the Northwest Searching for Optimal Strategies

Today, Severstal is the largest industrial company of Northwest Russia, and one of the leaders in ferrous metallurgy. Its turnover in recent years has been about $2 billion.

The company inherited the Cherepovets Metallurgy Plant, which was built in 1955 to supply metal to machine-building companies in Lenin-

grad (now - St. Petersburg) and other Northwest cities. In the beginning of the 1990s, the plant was privatised. (The present owner of the company, Alexey Mordashov, was formerly one of its executives.) The structure of the company changed; a case in point is the Cherepovets Steel Rolling Mill, which manufactured metal products, and became an independent company. Like the country's other metallurgy companies, Severstal was affected by the sharp decline in the domestic market and was forced to export a significant part of its products due to a drop in the Russian machine-building industry in the 1990s. In certain years, the portion of exports reached 60 per cent; anti-dumping limitations imposed on Russian metal products on the markets of many countries and increasing international competition caused a reduction in exports to less than 40 per cent in 2001, however,.

Having successfully escaped serious ownership struggles, Severstal was an extremely active player during the entire reform period, continually applying new business strategies. The most important of these were the modernization of the main production equipment, the development of trade and service centres, integration, diversification, and restructuring.

Within the framework of the modernization of the main production facilities, the practice of melting steel using open-hearth furnaces was stopped. The manufacture of steel was carried out and will continue to be carried out primarily in oxygen converters, as well as utilizing the method of electric melting. In recent years, companies have also been involved in the creation of a chain of marketing and service centres, both inside the country and abroad. This is a new departure in Russian metallurgy. Formerly, manufacture and marketing were completely independent of each other.

Vertical integration in Severstal is taking place in both directions. The goal of integration with suppliers of raw materials is to provide stability in the operation of the main production process, as well as the ability to control prices for raw materials. Currently, there are two large-scale manufacturers of iron ore in the holding: Karelsky Okatysh and Olenegorsk GOK (mining&enrichment plant). In addition, Severstal possesses stocks of the two main manufacturers of coking coal in Russia: Kuzbassugol and Vorkutaugol. The upward policy of integration is reflected in the reestablishment of control over the Cherepovets Steel Rolling Mill and the acquisition from the Izhora Plants of the only super large-scale rolling mill (so called Stan-5000) in Russia in order to implement a highly promising project for manufacturing large-diameter gas pipes.

Severstal is characterized by very diversified activity. Two subdivisions have been formed for manufacturing mass-market products. These are Severstal Mebel (metal furniture) and Severstal Emal (enameled kitchenware). It is also making inroads into the machine-building

industry. The following plants have already been acquired by Severstal: Ulyanovsk Automotive Plant; Zavolzhsk Motor Plant; Kolomna Locomotive Plant; and Riga Railroad Car Plant (part of it). Severstal's participation in the transportation sphere has resulted in the creation of the affiliate Severstaltrans. Originally, it served the freight-shipping needs of the holding; but it soon became one of the largest shipping companies in Russia, possessing a number of important seaport terminals among its other facilities. Finally, Severstal has acquired assets in a business totally unrelated to its main specialization - mechanical woodworking. Here it possesses the controlling interest in one of Russia's largest plywood manufacturers, the Sveza company.

The rapid growth of the holding and the increasing complexity of its structure have necessitated the reformation of the company. Three new basic subdivisions - Severstal Resource (managing raw material suppliers), Severstal (managing metallurgic and metalworking manufactures), and Severstal Auto (managing machine-building companies) - were created to improve the management of the plants. The company is also striving to increase the transparency of its business. The results of the financial activity of 2001 were published in a report that was for the first time in compliance with international standards. The company is also planning on issuing stocks for international stock markets.

It is assumed that these measures will ensure the solidification of Severstal property rights and facilitate the attraction of investors. According to many experts, this may also become a pivotal issue for expanding the holding abroad.

As is evident from the characteristic example of Severstal, companies specializing in raw materials and semi-finished products were subject to a different logic of change during the period of transition to the market economy. This was primarily because large-scale raw materials companies began integrating themselves into international systems and competing on the global market earlier than others did. This enabled them to consolidate their position on the markets at an early stage, and to adopt modern methods of management and business organization. The following areas of development are most relevant to raw materials companies at present:

- Transition from a policy of diversification to a policy of specialization and concentration of activities in the companies' main areas of competence.
- Implementation of comprehensive programs for the reduction of expenditures (indispensable due to the growth of competition); the search for new sources of competitiveness to replace former sources (low cost of energy and labour, moderate transport costs, etc.).

- Decreasing the burden of social welfare through transferring a portion of social responsibility to local authorities, and through new approaches to the organization of production (the method of shifts).

The picture differed considerably in different industries, however. In the forest industry, for example, the complexity and high cost of gaining control over resources, as well as flaws in legislation, which limited the rights to forest tracts over a prolonged period of time, gave rise to a high number of corporate conflicts. These conflicts were often exacerbated by the fact that in many large companies in various industries, privatisation was carried out in the form of investment bidding, in which the winner was expected to offer the optimal program for development of production. In practice, unfortunately, in order to win the bidding, many investors took upon themselves obligations that proved to be beyond their capacities. This gave rise to many conflicts. The conflicts at the Kotlas Pulp and Paper Mill and Apatit (the so-called Khordovsky-YUKOS case) received the most publicity.

Box 4.4 Ilim Pulp: an Uphill Struggle for a Place Under the Sun

The history of the Ilim Pulp holding company is illustrative of the period of transition of the Russian economy. It clearly demonstrates the formation of a large corporation out of a small trade company that managed to win the struggle for the main assets in the industry, riding the wave of privatisation and property wars. Today, Ilim Pulp is the leading player in the forest cluster of Russia.

Ilim Pulp Enterprise was founded in 1992 by a group of businessmen, three of whom (Zakhar Smushkin, and Boris and Mikhail Zingarevich) are its present owners. Ilim Pulp began its activity as a trade company exporting pulp and paper products. Ilim Pulp's first significant acquisition was the purchase of 20 per cent of the stock of Kotlas Pulp and Paper Mill from the Russian Federal Property Fund in 1994, as a result of investment bidding. Investments biddings, which were one of the main instruments for privatisation of large-scale Russian manufacturing companies, entailed the purchase of stock from the government at par value, in exchange for the obligation of the buyer to invest certain amounts in the development of a given company over the course of a number of years. Gaining control over companies by means of participation in investment bidding was at that time typical for Russian businesses.

After Kotlas Pulp and Paper Mill, the company gained control of other significant assets in the pulp and paper industry in Siberia, Northwest Russia, and even abroad. In 2002, Ilim Pulp's turnover was close to USD1 billion. Today, the holding is comprised of the following:

Kotlas Pulp and Paper Mill, with a turnover of USD330 million in 2002
Bratsk Wood Handling&Processing Mill - USD285 million
Ust-Ilimsk Wood Handling&Processing Mill - USD250 million
St. Petersburg Paperboard&Printing Mill - USD80 million
Plzenska Papirna Paper Mill in the Czech Republic - USD16 million
Kommunar Paper Mill - USD12 million
Around 40 harvesting companies.

Over the course of its growth, the holding encountered resistance from other players. Other large companies from various sectors of Russian industry began expressing their interest in the assets of the forest cluster; and this led to especially serious conflicts. For example, at the end of 2001, Ilim Pulp nearly lost control over Bratsk Wood Handling&Processing Mill as a result of a conflict with Russian Aluminium (now Basic Element), the main player in the Russian aluminium market. Another conflict between the same parties arose in 2002 around Kotlas Pulp and Paper Mill. The cause of the conflict was typical of numerous Russian face-offs concerning property division: a contesting of the results of privatisation, based on partial violations of obligations by the owner (Ilim Pulp), which had originally been taken on in compliance with the regulations of investment bidding.

In the future, the management of Ilim Pulp intends to protect its property rights by issuing stocks for international stock markets. Strengthening its position, and as a result, reducing expenditures on corporate struggle, should allow Ilim Pulp to increase its investment in developing its production significantly. At present, the companies of the holding, like other Russian pulp and paper companies, are characterized by a prevalence of outdated technologies and low rates of productivity, in comparison with European forest companies. In addition, the increased transparency of business may attract investments from outside.

The abuse of the rights of minority stockholders is another typical problem. It has been the source of many other conflicts: those surrounding the Syask Pulp and Paper Mill, and the Vyborgskaya Tsellyuloza, Krasny Vyborzhets, and other companies. The potentially high risk of future conflicts surrounding property transfers remains one of the serious obstacles to attracting Russian and foreign investment. The instability of the situation is evident in the slow pace of upgrading of manufacturing facilities, as well as in the attempts of proprietors to "squeeze out"

the maximum profit (with the minimum investment) from companies, during the period when the above claims may become grounds for revision of property rights - ten years from the moment of closure of the transaction, according to current Russian legislation. Thus, we are now in the final phase of the period of possible claims connected with privatisation and the initial transfer of property. As this period draws to a close, the interests of owners of industrial assets will acquire a more long-term character. Therefore, greater attention will be paid to the existence and quality of project design and R&D resources, i.e. specialists and organizations that are capable of designing and planning companies and improving their technological processes.

Box 4.5 Giprobum: a Typical Path of Development in a Large Russian R&D Organization

GIPROBUM, the National Institute of Project Design for Companies of the Pulp and Paper Industry, is located in St. Petersburg. It was founded in 1929, and during the entire Soviet era was the leading design office for the country's pulp and paper industry. Projects of GIPROBUM were the source for the reconstruction of old enterprises and the construction of all new enterprises, including mills in Syktyvkar, Kotlas, Kondopoga, Segezha, Ust-Ulimsk, the Goznak factory in St. Petersburg, and others. According to experts, around 70 per cent of all pulp and paper facilities of the former USSR were designed by GIPROBUM. In addition, the institute carried out project designs for pulp and paper plants in the countries of the former socialist bloc: China, Slovakia, Romania, and Bulgaria.

Political and economic reforms of the 1990s had a crucial impact on the institute. In 1990, it was privatised and became a closed joint-stock company. The major changes, however, were attended by the difficulties that all Russian R&D and design organizations experienced under the new economic conditions: the freezing of old orders and the lack of new orders, resulting in a sharp decline of volumes and unstable financing; the disruption of many time-honoured links; the loss of a number of highly qualified specialists and difficulties in attracting new employees; problems in making the rapid adaptation to new rules of the game.

Unlike some other less significant industrial design offices, GIPROBUM had the advantage of a virtual monopoly on the domestic market. This provided an opportunity to fulfil small-scale orders from old and trusted clients without major marketing efforts, drawing on previously accumulated potential, which in the end became the basis for survival. The management of the institute quickly realized the need for active measures, in order to sustain the company's level of competitiveness and to ensure its steady development.

Most efforts were aimed at reducing expenditures, equipment modernization, and diversification of the company's activities. The staff was reduced two-fold (from 700 in 1990 to 350 in 2001). Most of the remaining employees are engineers and technicians. The number of managerial staff and auxiliary employees is kept to a reasonable minimum. A comprehensive computer network that was introduced in the institute has allowed it to increase the effectiveness of its operations substantially. The management continues to invest most of the company's profits in keeping the equipment up-to-date, viewing it as a guarantee for the successful development of the company in the future. Diversification involved the expansion of the list of services provided by the institute. In addition to carrying out project designs and engineering for the pulp and paper industry, GIPROBUM is also carrying out environmental, architectural, and general engineering work, as well as consulting and research. Among the completed large-scale projects of the past few years are the Ice Palace for the 2000 World Ice Hockey Championship and the Atrium Business Centre in St. Petersburg.

All these measures undoubtedly facilitated not only the survival of GIPROBUM, but also its development over the course of the past decade. At the same time, it is unlikely that the continuing diversification will be equally productive. The main area of competency and the major competitive advantages of the institute are in the pulp and paper industry. The development of the industry in the Northwest, as well as in the rest of Russia, is the necessary condition for the steady functioning of GIPROBUM in the future. Thus, the development of the entire engineering potential for the pulp and paper industry, and active domestic marketing, as well as marketing in developing countries, are the most important directions for the institute.

The transformation of the Russian sector of scientific research and development during the transitional period was accompanied by the following changes:

- Substantial reduction of personnel and the volume of orders in large organizations specializing in the respective R&D sectors during the Soviet period.
- The reduction of activity and the lowering of salaries led to the flow of specialists out of these organizations and into private companies, which became more successful competitors on the domestic market.
- The competition between old Russian R&D organizations and new participants in the market, many of whom have a solid service record of successfully realized international projects, or are

affiliates of large international companies, has led to significant improvement in the quality of client services and the adoption of modern technologies.

The development of the sector of information technologies and telecommunications, certain segments of which (mobile telecommunications, Internet access, etc.) had never existed before, took a slightly different path. Companies that had already been in existence during the Soviet era inherited outdated approaches in their operations and activities. Many of these approaches were clearly negative from the perspective of business development, as little attention was paid to the interests and needs of customers. Some segments to this day maintain either artificially low or unjustifiably high prices for services, and in various ways limit access for competitors. The inertia of this environment gave new companies (Peterstar in St. Petersburg, and others) no choice but to search for new segments. This strategy proved to be successful, and combined with the high quality of customer service, has led to much better financial results.

Box 4.6 The Telecommunication Business in St. Petersburg: Inheritor of Monopoly Loses in Efficiency to Vigorous New Provider

The telecommunication business in Northwest Russia is represented by two groups of providers. One is formed by the companies that inherited the telephone lines and organizational structures from the Soviet era. The other is comprised of companies that emerged in the 1990s and offered their services as an alternative to the former monopolies.

Northwest Telecom is the heir to the St. Petersburg Telephone Network (PTS), International and Nation-wide Telephone (MMT), and St. Petersburg Telegraph, which provided telephone communications services in St. Petersburg. The company possesses a network that includes over 1.9 million lines and provides access to virtually all private customers in the city. Along with the network, however, the company also inherited the unwieldy organizational structure, outdated equipment and technologies, as well as the burden of social welfare - the obligation to provide services at low, government-regulated tariffs. Today, the government is the largest stockholder in Northwest Telecom - more than 40 per cent of the stock belongs to Svyazinvest - and is the actual manager of the company.

The largest alternative provider in the city is the privately-owned company Peterstar. Currently, more than 70 per cent of Peterstar's stock belongs to the American company Metromedia. The remaining part belongs to TelecomInvest, established by the former executives of PTS. Founded in 1992, Peterstar invested substantial amounts in the construction of an advanced telephone network and concentrated its efforts on providing high-quality telecommunications services to corporate clients. Later, Peterstar entered the market of telephony for private clients.

Main figures of Northwest Telecom and Peterstar in 2001

	Northwest Telecom	*Peterstar*
Turnover, USD mln	131.1	46.6
Profit, USD mln	12.5	6
Staff, persons	9,000	400
Lines, thousands	1,923	92

Source: Sotovik agency (www.sotovik.ru)

As is evident from a comparison of the main indices, the alternative provider has a much more efficient business than its competitor. With many times fewer personnel and a much smaller network, Peterstar has similar figures for turnover and profit. This can be explained primarily by the different development strategies and levels of flexibility in the companies. Developing rapidly, Peterstar is actively investing in introducing new technologies and increasing the quality and number of services. Along with traditional telephony, the company is providing calling-card services and IP telephony, and broadband access to the Internet. All telephone exchanges that belong to Peterstar are digital.

Northwest Telecom has outdated networks and provides only traditional services, which are of poor quality. It is undertaking the modernization of equipment and technologies at a very slow pace (only 30 per cent of its telephone exchanges are digital). The company is not striving to expand the number of its services, even though the existing network, which has access to virtually all private telephone users of the city, gives it an immense advantage over other providers. Due to its low efficiency, Northwest Telecom experiences difficulties in attracting investment, and the attempts of the government to restructure the business and to increase its attractiveness have not yet yielded palpable results.

St. Petersburg has traditionally been the largest Russian scientific and educational centre. It is also worth mentioning that St. Petersburg is still a scientific centre of global importance. In terms of numbers of

publications, Moscow is clearly one of the world leaders, and St. Petersburg is among the top 40, according to a study on the world's major hubs of research activity (Mathiesen et al., 2001). During the Soviet era, institutions of higher learning and scientific centres were established and developed in other cities of Northwest Russia (universities in Petrozavodsk, Arkhangelsk, Veliky Novgorod, and others). All this high educational and scientific potential accumulated in the region contracted considerably during the period of reform, but was not completely lost. The so-called brain drain, which was especially acute at the end of the 1980s and the first half of the 1990s, apart from its obviously negative effects (the loss of a significant number of highly trained specialists), also bore some positive consequences. Russian emigrants took their contacts and experience gained from working in Russia to western companies, and became mediators in the collaboration with Russian partners. Sometime later, some of them returned to Russia and began their own businesses, having found opportunities to apply in practice the knowledge and skills they gained in the West.

Box 4.7 Offshore Programming in St. Petersburg: The First Green Shoots in the Fertile Ground of Science

The Petersburg company XJ Technologies is one of the leaders in Russian offshore programming. It specializes in modeling discrete, continual and complex systems for solving various problems in electronics, telecommunications, transportation, as well as the chemical, aerospace, and other industries. Among its clients are such transnational corporations as Hewlett-Packard, IBM, Siemens, LG, Samsung, and many universities. At the same time, XJ Technologies is not a totally independent company. It can be viewed as one of the typical examples of business emerging within the dormant state of Russian science, when the success of an affiliated structure is completely dependent on the already accumulated potential of a large host R&D organization.

XJ Technologies was founded in 1991 by the faculty of the Department of Distributed Computations and Computer Networks in the School of Technical Cybernetics at St. Petersburg Technical University. This university is one of the leading technical institutions of higher learning in Russia. Education there has been traditionally linked with research and development. Due to the university's thoroughgoing experience in applied cybernetic research, the company quickly found its niche on the market of the development of hi-tech software. At present, the costs of its services are on average twice as high as services of other companies of St. Petersburg in the sphere of offshore programming.

Throughout its entire history, XJ Technologies has never left the halls of its alma mater, making use of the rooms, equipment, and, most important, the human capital of the university - highly qualified faculty members and the brightest students. The number of personnel in the company (with a permanent staff of about 30) expands when needed, in order to carry out large-scale projects, by hiring part-time, lower-paid employees. At the same time, XJ Technologies should not be viewed as a "parasitic" subsidiary. Its management does not intend to "go it alone" any time in the near future, and is maintaining close contacts with the university by sharing its profits (through paying rent, the implementation of joint projects, etc.), as well as its experience in international cooperation. Time will show the actual viability of this hybrid of academic sciences and business.

Thus, the transition of various sectors of the economy to the market was a difficult one in Russia and affected virtually every aspect of companies' activities. The changes that took place varied in character and scale (depending on the sphere of activity) and were subject to different kinds of patterns and regularities. We have devised the following classification of companies according to the kinds of transformations they underwent:

- Companies of the sector of raw materials, and companies involved in the manufacture of mass-market products with high added value.
- Industrial companies oriented toward manufacturing machinery, equipment, and other products with high added value.
- Manufacturers of high-technology products.
- Companies that are part of new and rapidly developing global industries: telecommunications, biotechnologies, and others.
- Companies in the sphere of services.

Newly created companies that were able to make use of the opportunities of the transitional period to grow and expand more successfully than older manufacturers came to occupy important or even leading positions in many sectors of the economy. The classification of new companies, in our view, must be based on the notion of stages of development (according to Porter), which was covered earlier in the chapter.

A prognosis for the further development of economic sectors and individual companies is undoubtedly one of the most important goals of the analysis. In making a prognosis for the development of the Russian

economy, however, the authors consider the task of calculating numerical indices to be very difficult to accomplish. There are approaches and methods, however, which allow us to reliably determine segments of growth and to predict directions of development. The authors chose the analysis of clusters of competitiveness, the basic principles of which were covered in Chapter 2, as the approach most appropriate to the stipulated goals of this study.

The experiences gained in the reform of the economy, as well as the transformation and development of individual companies described in this and subsequent chapters, may serve as effective guidelines for both company executives and government officials involved in the issues of forming economic policy at regional and federal levels.

5 Developing Clusters of Northwest Russia

5.1 Early Signals of Competitive Edge

Traditionally, the most important measure of competitiveness is considered to be a high share of the international market. In this book, we analyse the statistics of Russian foreign trade with the member countries of the Organization of Economic Cooperation and Development (OECD). This approach does have certain drawbacks, since it does not include the whole world market, but just a part of it. However, this approach also has a number of obvious advantages, including the following:

- The high volume (about 80% of the aggregate world trade volume) and the high quality of the OECD market, which comprises all the advanced economies of the world;
- Reliability of information: the data on the Russian foreign trade are presented on the basis of foreign statistics that are more reliable than the information provided by the Russian customs;
- Highly detailed information on more than six thousand product groups, which allows us to carry out a reliable analysis of competitiveness of various industries;
- The possibility for extrapolating of the results of the analysis to the whole world market without major distortions.

Unfortunately, it is quite difficult to identify the share of Northwest Russia in the aggregate Russian foreign trade data, since there is almost no reliable information on different regions of the country. That is why in this section we will review the figures for the whole of Russia, while emphasizing those product groups that are represented in Northwest Russia to the most extent.

In 2000, the average share of Russia in the imports of OECD countries was 1.34%, which is notably higher than the figures for the three previous years: 1.09% in 1999, 1.05% in 1998, and 1.19% in 1997. We regard as competitive those commodity groups which have a positive

balance in the Russian foreign trade, and whose share on the market of OECD countries exceeds the average figure quoted above. First, we present the most general breakdown of product groups (two-digit classification).

Table 5.1 Russian Competitive Products in OECD Market in 2000

HS №	*Article*	*Russian share in OECD imports*	*Total OECD imports, USD million*	*OECD imports from Russia, USD million*	*Russian trade balance, USD million*
75	Nickel and articles thereof	15.52%	9,632	1,495	1,486
31	Fertilizers	12.08%	10,592	1,280	1,279
76	Aluminium and articles thereof	10.94%	55,713	6,093	5,916
71	Natural or cultured pearls, precious stones and metals, coin etc	7.23%	101,025	7,307	7,221
03	Fish and crustacean, mollusc and other aquatic invertebrate	6.40%	42,518	2,720	2,570
81	Other base metals; cermets; articles thereof	6.29%	5,850	368	350
27	Mineral fuels, oils and product of their distillation; etc	6.20%	522,389	32,389	32,202
28	Inorganic chemicals; compounds of precious metals, radioactive elements etc	5.78%	33,648	1,946	1,693
72	Iron and steel	4.43%	103,065	4,565	4,411
44	Wood and articles of wood; wood charcoal	3.88%	65,092	2,525	2,362
74	Copper and articles thereof	3.83%	33,859	1,297	1,264
47	Pulp of wood/of other fibrous cellulosic mat; waste etc	3.38%	22,834	772	747
79	Zinc and articles thereof	2.35%	4,938	116	114
78	Lead and articles thereof	2.18%	1,194	26	25
53	Other vegetable textile fibres; paper yarn and woven fabric	1.61%	2,356	38	17
25	Salt; sulphur; earth and stone; plastering mat; limestone and cement	1.61%	14,229	229	177

Source: OECD, International Trade by Commodities Statistics (ITCS)

In this list of Russian competitive products only positions 78 and 79 (lead and zinc, respectively) are not produced in Northwest Russia. As is

clear from the table, the most competitive Russian products in OECD countries currently include fuels, metals, forest products, fertilizers and fish, that is, raw materials and products with low value added, while machinery and equipment are not represented in this list at all.

For a more detailed analysis we shall use a more precise four-digit classification, which allows not only for the review of specific two-digit product groups, but also for identifying some additional competitive products. In the table below, the commodities are grouped by industry, while the industries are listed in accordance with their respective volumes of Russian exports to OECD countries.

Table 5.2 Competitive Russian Fuels Produced in the Northwest

HS №	*Article*	*Russian exports to OECD*							
		1997		*1998*		*1999*		*2000*	
		Share %	*Mln. USD*	*Share %*	*Mln. USD*	*Share %*	*Mln. USD*	*Share %*	*Mln. USD*
2711	Petroleum gases and other gaseous hydrocarbons	7.92	4,011	9.01	3,699	7.54	3,212	7.58	5,467
2710	Petroleum oils and oils obtained from bituminous minerals other than crude etc	5.85	4,049	5.41	7,682	6.59	4,085	6.62	6,647
2709	Petroleum oils and oils obtained from bituminous minerals, crude	5.34	10,881	4.93	2,563	6.42	11,361	5.9	18,086
2701	Coal; briquettes, ovoids and similar solid fuels manufactured from coal	3.63	684	3.59	625	4.1	610	5.55	899
2704	Coke and semi-coke of coal, of lignite or of peat, wheter or not agglomerated; retort carbon	3.30	55	1.8	33	3.94	53	3.4	62

Source: OECD, International Trade by Commodities Statistics (ITCS)

The largest volume of Russian exports and the largest surplus in the trade balance are provided by fuels. Within this product group, both for Russia as a whole and for Northwest Russia, the most important commodities are oil and oil products. The next important Russian products are natural gas and coal, but their exports from Northwest Russia are not very large.

The Russian exports of metals to OECD countries are dominated by non-ferrous metals, but due to the steel giant Severstal metal exports of Northwest Russia are dominated by ferrous metal products. That is why in the table below this product group is represented first.

Table 5.3 Competitive Russian Ferrous Metals Produced in the Northwest

HS №	Article	Russian exports to OECD							
		1997		1998		1999		2000	
		Share %	Mln. USD	Share %	Mln. USD	Share %	Mln. USD	Share %	Mln. USD
7206	Iron and non-alloy steel in ingots or other primary forms, n.e.s.	18.1	22	14	21	14.5	11	24.2	24
7207	Semi-finished products of iron or non-alloy steel	10.5	543	8.88	454	16.3	706	18.2	1,136
7201	Pig iron and spiegeleisen in pigs, blocks or other primary forms	14.9	282	15.6	297	20.2	270	15.9	261
7204	Ferrous waste and scrap; remelting scrap ingots or iron or steel	10.8	799	13.5	874	14.9	804	11.3	827
7211	Flat-rolled products of iron or non-alloy steel, of a width of less than 600mm, not clad, plated or coated	4.77	100	4.64	104	3.42	69	6.74	148
7208	Flat-rolled products of iron or non-alloy steel, of a width of less than 600mm, hot-rolled, not clad, plated or coated	7.86	1,155	9.1	1,475	4.62	520	6.2	886
7209	Flat-rolled products of iron or non-alloy steel, of a width of less than 600mm, cold-rolled, not clad, plated or coated	6.42	485	5.54	414	5.73	361	5.15	408
7226	Flat-rolled products of other alloy steel, of a width of less than 600mm	1.29	14	1.1	13	1.1	12	4.86	62
7215	Bars and rods of iron or non-alloy steel, n.e.s.	3.4	29	3.88	37	4.19	37	3.83	36
7225	Flat-rolled products of other alloy steel, of a width of 600mm or more	3.78	111	2.8	100	2.23	69	3.35	123
7214	Bars and rods of iron or non-alloy steel, not further worked than forged, hot-rolled, hot-drawn or hot-extruded	8.01	270	6.99	248	4.22	130	2.37	72
2601	Iron ores and concentrates; including roasted iron pyrites	2.14	241	2.87	314	1.88	179	1.98	214
7228	Bars and rods of alloy-steel; angle etc. of alloy-steel; hollow drill bars and rod of alloy or non-alloy steel	1.44	35	1.83	51	2.18	51	1.82	46
7213	Bars and rods, hot-rolled, in irregulary wound coils, of iron or non-alloy steel	7.15	254	5.11	182	2.58	82	1.46	50

Source: OECD, International Trade by Commodities Statistics (ITCS)

The biggest share in the Russian exports of ferrous metals is held by rolled steel, semi-finished non-alloyed steel products and scrap metal, as well as, to a smaller extent, iron ore and pig iron. One of the most notable latest trends is the increase in the sales of semi-finished products, and the decrease of international trade in iron rods, as well as sharp fluctuations in the sales of hot-rolled steel. Only a small share of metals exports consists of products with high value added, such as alloyed steel, clad steel and products made of these types of steel.

Table 5.4 Competitive Russian Non-Ferrous Metals Produced in the Northwest

HS №	*Article*	*Russian exports to OECD*							
		1997		*1998*		*1999*		*2000*	
		Share %	*Mln. USD*	*Share %*	*Mln. USD*	*Share %*	*Mln. USD*	*Share %*	*Mln. USD*
7502	Unwrought nickel	27.6	964	26.1	763	23	752	24.8	1,302
7601	Unwrought alumimum	21.4	4,440	20	3,867	22.2	4,089	23.2	5,258
7503	Nickel waste and scrap	16.1	57	17.5	39	11.2	23	11.7	47
7403	Refined copper and copper alloys, unwrought	12.1	1,173	9.43	809	10.6	860	11.5	1,188
7602	Aluminum waste and scrap	12.1	405	15.3	467	15.6	457	10.3	364
7603	Aluminum powders and flakes	11.5	19	8.01	15	8.22	13	8.76	17
8105	Cobalt mattes and other products of cobalt metallurgy; cobalt and articles thereof, including waste and scrap	8.71	115	8.1	104	5.51	64	6.35	70
7501	Nickel mattes, nickel oxide sinters and other intermediate products of nickel metallurgy	4.90	93	5.65	78	5.47	68	6.14	124
7504	Nickel powders and flakes	1.11	4	2.80	9	3.25	11	3.94	18
7604	Aluminum bars, rods and profiles	1.16	39	1.88	70	1.65	59	3.40	137
7404	Copper waste and scrap	11.7	510	13.1	435	8.66	257	2.13	82

Source: OECD, International Trade by Commodities Statistics (ITCS)

The enterprises of Northwest Russia produce unprocessed aluminium, nickel and copper which represent the biggest share of Russian exports of non-ferrous metals. However, the regional volumes of aluminium and copper production and export are much inferior to those of the major enterprises located in Siberia and the Urals. Larger shares of exports are held by Northwest Russia in the cases of unprocessed nickel and non-ferrous metal scrap.

Table 5.5 Competitive Russian Precious and Rare-Earth Metals Produced in the Northwest

HS №	*Article*	*Russian exports to OECD*							
		1997		*1998*		*1999*		*2000*	
		Share %	*Mln. USD*	*Share %*	*Mln. USD*	*Share %*	*Mln. USD*	*Share %*	*Mln. USD*
7110	Platinum, unwrought or in semi-manufactured or powder forms	24.5	1,697	29.5	2,506	33.11	3,326	34.5	5,859
7112	Waste and scrap of precious metal or of metal clad with precious metal	0.46	13	0.22	10	1.32	40	2.75	104
2615	Niobium, tantalum, vanadium or zirconium ores and concentrates	5.18	23	4.75	22	2.73	10	1.69	9

Source: OECD, International Trade by Commodities Statistics (ITCS)

Table 5.6 Competitive Russian Forest Products Produced in the Northwest

HS №	*Article*	*Russian exports to OECD*							
		1997		*1998*		*1999*		*2000*	
		Share %	*Mln. USD*	*Share %*	*Mln. USD*	*Share %*	*Mln. USD*	*Share %*	*Mln. USD*
4403	Wood in the rough whether or not stripped of bark or sapwood, or roughly squared	13.5	1,260	14.6	1,101	17.9	1,542	17.2	1,544
4703	Chemical wood pulp, soda or sulphate, other than dissolving grades	2.72	327	2.71	313	3.6	438	4.35	729
4704	Chemical wood pulp, sulphite, other than dissolving grades	2.35	19	1.55	13	1.53	13	4.29	39
4412	Plywood, veneered panels and similar laminated wood	2.28	174	3.65	214	3.49	226	3.6	232
4801	Newsprint, in rolls or sheets	2.19	184	2.9	251	3.38	275	3.5	290
4804	Uncoated craft paper and paper-board, in rolls or sheets	0.91	50	1.61	90	2.2	115	3.24	186
4407	Wood sawn or chipped length-wise, sliced or peeled whether or not planed, sanded etc	2.32	547	2.16	448	2.47	556	2.86	644
4413	Densified wood, in blocks, plates, strips or profile shapes	0.38	1	1.53	2	1.56	2	1.55	2

Source: OECD, International Trade by Commodities Statistics (ITCS)

In in the case of precious and rare-earth metals, Russia specializes in the export of platinum and platinum metals, with volumes of trade stead-

ily growing over the last several years. The share of Northwest Russia in platinum, as well in the production and export of cobalt, should rise in the near future after Norilsk Nickel completes the restructuring of its Severonickel plant (located in Monchegorsk, Murmansk Region) for the production of these metals. The exports of rare-earth metals (niobium, tantalum, etc.) which are produced in Russia only in the Northwest, have declined radically due to the competition of cheaper products from China.

In forestry products Northwest Russia holds the leading position (up to 50% and more for various goods) in the Russian foreign trade.

The growing exports of Russian forestry products are at present dominated by roundwood, sawn timber and pulp. The companies of Northwest Russia also export significant volumes of plywood, newsprint, packaging paper and paperboard, with the sales of the latter two products to OECD countries having grown four fold from 1997 till 2000.

Table 5.7 Competitive Russian Sea Products Produced in the Northwest

HS №	*Article*	*Russian exports to OECD*							
		1997		*1998*		*1999*		*2000*	
		Share %	*Mln. USD*	*Share %*	*Mln. USD*	*Share %*	*Mln. USD*	*Share %*	*Mln. USD*
0303	Fish, frozen, excluding fish fillets and other fish meat of heading no 0304	12.3	859	15.4	1,041	16.5	1,267	15.9	1,267
0304	Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen	6.42	419	7.76	526	6.19	426	5.25	376
0302	Fish, fresh chilled, excluding fish fillets and other fish meat of heading no 0304	1.74	95	1.55	87	1.61	93	1.62	95

Source: OECD, International Trade by Commodities Statistics (ITCS)

Northwest Russia also provides a large share of Russian seafood exports, mostly fish (herring, cod, flounder, mackerel, etc.). The amount of fish caught in the region comprises a third of the national level in the last few years, and a large share of it is exported.

Among the competitive chemicals of Northwest Russia there are fertilizers (nitrogenous, phosphatic and complex), phosphates, ammonia, alcohol, carbon and some other products. After the financial crisis of 1998 the Russian exports of nitrogenous fertilizers and ammonia fell more than twofold.

Table 5.8 Competitive Russian Chemicals Produced in the Northwest

HS №	*Article*	*Russian exports to OECD*							
		1997		*1998*		*1999*		*2000*	
		Share %	*Mln. USD*	*Share %*	*Mln. USD*	*Share %*	*Mln. USD*	*Share %*	*Mln. USD*
2510	Calcium and aluminum calcium phosphates, natural and phosphatic chalk	12.9	138	14.8	161	16.4	161	18	150
3105	Mineral or chemical fertilizers, containing the two or three elements nitrogen, phosphatic, or potassium; fertilizers n. e. s., in packages not exceeding 10kg	11.5	530	12.1	586	11.7	511	14.5	543
2814	Ammonia, anhydrous or in aqueous solution	15.5	242	10.7	140	6.75	73	7.62	116
3102	Mineral or chemical fertilizers, nitrogenous	16	634	6.28	207	6.29	188	6.71	251
3103	Mineral or chemical fertilizers, phosphatic	3.68	15	3.55	16	3.38	12	3.97	11
2803	Carbon (carbon blacks and other forms of carbon, n. e. s.)	1.74	15	2.24	20	2.84	22	3.81	35
2905	Acyclic alcohols and their halogenated, sulphonated, nitrated or nitrosated derivatives	1.88	127	1.2	70	2.09	117	2.88	216
2910	Epoxides, epoxyalcohols, epoxyphenols and epoxyethers and their derivatives	0.71	9	1.46	18	2.08	27	2.62	34

Source: OECD, International Trade by Commodities Statistics (ITCS)

Among other competitive products of Northwest Russia especially important are diamonds: the production which has recently started in Arkhangelsk Region may sharply increase the share of the region in the Russian output and sales of diamonds in the near future. Northwest Russia also specializes in the export of flax fibre and some types of optical instruments and devices, but the volumes of sales of these products to OECD countries are not significant.

Apart from the market share, other important indicators of competitiveness are productivity and growth rates. The productivity in Russian industrial enterprises is extremely low compared to world leaders (by 10 times or more in certain sectors depending on the measurement tools), with the lowest figures typical for the traditional industries characterised by outdated technologies and scarce investment.

Table 5.9 Other Russian Competitive Products Produced in the Northwest

HS №	*Article*	*Russian exports to OECD*							
		1997		*1998*		*1999*		*2000*	
		Share %	*Mln. USD*	*Share %*	*Mln. USD*	*Share %*	*Mln. USD*	*Share %*	*Mln. USD*
5309	Woven fibres of flax	1.57	14	2.22	22	4.29	40	3.7	36
9005	Binoculars, monoculars; astronomical instruments and mountings thereof	2.84	19	1.74	13	2.23	17	3.19	24
7102	Diamonds whether or not worked, but not mounted or set	3.59	1,139	3.40	1,023	3.01	1,076	2.49	1,046
4301	Raw furskins and pieces suitable for furriers use	2.51	34	2.07	24	1.91	17	1.69	17
2523	Portland, aluminou (cement fondu), slag, supersulphate & sim hyd cement etc	0.57	15	0.41	12	1.22	35	1.41	39

Source: OECD, International Trade by Commodities Statistics (ITCS)

Only several enterprises operated by multi-national corporations have been able to achieve productivity approaching the average world level. These companies act as benchmarks of efficiency for other enterprises. However, the share of such enterprises in respective industries is not yet large enough to change the overall grim picture. In Northwest Russia only the tobacco industry is an exception, since it is almost totally controlled by the world leaders of this sector. Some IT projects, mostly in off-shore programming, are also characterized by a high level of efficiency.

Table 5.10 Productivity and Annual Output Growth in the Northwest Russia Industries

Industry	*Productivity, USD thousand per worker*		*Annual output growth, %*		*Number of companies in the Top-150*	
	2001	*2002*	*2001*	*2002*	*2001*	*2002*
Tobacco	239.9	327.7	40.9	45.2	5	4
Food	54.7	48.5	39.1	30.0	28	33
Oil and gas	40.7	45.7	17.8	13.8	14	10
Chemicals	34.1	38.4	5.8	19.0	8	8
Non-ferrous metallurgy	31.4	22.5	-6.3	4.9	6	7
Forest	23.8	22.1	7.4	14.9	25	29
Ferrous metallurgy	23.6	36.4	-4.2	17.1	11	6
Electric power	26.3	31.7	48.1	27.8	13	12
Mechanical engineering	14.0	13.5	-7.3	9.0	27	28

Source: Expert RA

The table above provides information on the productivity and the annual growth rates for the leading industries of Northwest Russia (companies included in the top 150 of Northwest Russia). This list is quite a representative one, since the 150 leading companies have provided over three fourths of the aggregate industrial output of Northwest Russia. As is clear from the data presented in the table, the growth in productivity closely correlates to the concentration of foreign investments in particular sectors: tobacco and food industries that display the highest figures.

The annual growth rates of manufacturing industries of Northwest Russia cannot at present be viewed as a reliable indicator of their competitiveness: the figures fluctuate significantly from highly positive to negative. There are several reasons for this instability:

- Adaptation of companies to the new economic environment has an evolutionary character: from the initial shrinking of the domestic market and the deep recession, which took place over the last decade (compared to the situation of the last decade of the Soviet period) is gradually replaced by slow growth based on the new economic factors.
- The cyclical character of production in raw materials industries due to the dynamics of the world market.
- A very high degree of concentration of economic activities, which leads to the high degree of dependence of a whole industry on the indicators of one or several of its leader companies and, as a consequence, to significant instability of these indicators (this is an especially important factor for metallurgy, tobacco and chemical industries).

Thus, among the manufacturing industries of Northwest Russia characterized by relatively stable growth we can single out only the oil sector, food and electric power production. However, in the latter case there has not been significant output growth in real terms, but constant increases of tariffs by the state.

As for the competitiveness of the industry of Northwest Russia as a whole, we have to state that it is as yet based mostly on the raw materials extraction, cheap labour force and on the generally low levels of tariffs for monopolies (energy, gas, etc.). The development of the new economic factors of competitiveness - efficient infrastructure, diversified production and supplies innovation, acquisition of the best available technologies, i.e., cooperation with foreign partners, etc. - is only in its initial stages and, hopefully, will actively continue in the coming decade.

5.2 What Are the Potential Clusters of Northwest Russia?

As was noted in Chapter 4, the foundations of the present industrial potential of Northwest Russia - the resource base, industrial assets, infrastructure, education and R&D systems - were created, to a large extent, during the Soviet period within the framework of the centralized planned economy. The industry developed in accordance with the planned specialization of the regions in the output of specific products. Industrial agglomerations were parts of the territorial-industrial complexes (TPK) that developed differently than industrial clusters of today, with certain features typical for planned economies: total state ownership, centralized planning and distribution of production, rationed consumption, artificial (not connected to actual cost of production) pricing, guarantee of 100% employment, etc.

The radical changes in the Russian economy which took place over the last decade demand a new look at the functioning of the existing industrial agglomerations. We have chosen the competitiveness cluster model (see Chapter 2) as the most relevant for this purpose.

In our previous research (see *G. Dudarev, H. Hernesniemi, P. Filippov: Emerging Clusters of the Northern Dimension, Helsinki 2002*), we have identified five industries of Northwest Russia in which new clusters emerge on the basis of the current industrial activities. These industries include:

- Forest industry, comprising harvesting, mechanical and chemical processing of timber;
- Metallurgy and metalworking (ferrous and non-ferrous);
- Energy sector;
- Food sector;
- Information and communication technologies (ICT).

In accordance with the typology proposed by M.J. Enright (2000) for regional clusters, each of these five industries should be viewed as a *potential cluster*. "Potential clusters are those that have some of the elements necessary for the development of successful clusters, but where these elements must be deepened and broadened in order to benefit from the impact of agglomeration. Often there are important gaps in the inputs, services, or information flows that support cluster development. Like latent clusters, they lack the interaction and self-awareness of working clusters." (M.J. Enright, 2000). This stage of cluster development is by no means the final one. On condition of a favourable investment climate and a targeted industrial policy of the government on the national and

regional levels, potential clusters may develop to their most effective and advanced stage - that of *working clusters*.

It should be noted that there are other industrial agglomerations functioning in Northwest Russia, which could also develop into competitiveness clusters, given the necessary conditions are created, including the machine-building industry (primarily, shipbuilding), chemicals, pharmaceuticals, and some other sectors of the economy.

Table 5.11 Dimensions of the Northwest Russia Clusters (1st part)

Clusters	*Geographic Scope*	*Sources of Inputs and Services*	*Breadth*	*Depth*	*Geographic Space of Sales*	*Share in Output of All-Russia Cluster*
Forest	Spread through multiple adjacent regions	Mostly local	Multiple horizontally related industries	All steps in a vertical production chain	Global	25-60% (dependent on the sector)
Metallurgy and metalworking	Spread through some regions	Nearly all local	Multiple horizontally related industries	All steps in a vertical production chain	Global	10-20%
Energy	Spread through all the Northwest Russia	Nearly all local	Multiple horizontally related industries	All steps in a vertical production chain	Supranational regional	Less than 10%
Food	Spread through all the Northwest Russia	Mix of local/ outside	Multiple horizontally related industries	Many steps in a vertical production chain	National	10-15%
ICT	The only agglomeration is in the City of St. Petersburg	Mix of local/ outside	A few horizontally related industries	Many steps in a vertical production chain	Supranational regional	10-15%

Each of the clusters of Northwest Russia possesses a number of dimensions. Here we present the classification of the most characteristic features composed on the basis of the typology suggested by M.J. Enright (2000).

The ICT cluster is distinguished by the highest degree of concentration: its only agglomeration is located within the city of St. Petersburg. Rather highly concentrated (both geographically and structurally) is the cluster of metallurgy and metalworking. The forest, energy and food clusters are, on the whole, scattered across all regions of Northwest Russia, but also have a number of specialized agglomerations, which serve as industrial nodes of economic structure.

The traditional clusters of Northwest Russia (forest, metallurgy and energy) are characterized by significant depth and breadth, while the new clusters of the region (food and ICT) are still in their development stage, both expanding and deepening their operations. The food cluster has not actually entered the international market, apart from the export of fish, most of which is, however, sold unprocessed.

Table 5.12 Dimensions of the Northwest Russia Clusters (2nd part)

Clusters	*Ownership Structure*	*Industrial organization*	*Competitive environment*	*Innovative Capacity*	*Stage of Development*	*Competitive Position*
Forest	More than 80% local ownership	Mix of firm sizes, with a limited number of firms having most of the links with the outside world	Limited competition/fair competition depending on segment	Moderately capable	Mature and growing	Leader within Russia
Metallurgy and metal-working	Nearly 100% local ownership	Dominated by large firms	Limited competition	Moderately capable	Mature and stagnating	Follower
Energy	More than 90% local ownership	Dominated by large firms	Monopolistic/ oligopolistic	Moderately capable	Mature and growing	Monopoly or oligopoly
Food	Near 50% local ownership	Mix of firm sizes, with a limited number of firms having most of the links with the outside world	Fair competition	Weak	Emerging and growing	Among leaders
ICT	Near 50% local ownership	IT dominated by small and medium-sized firms; telecom dominated by large firms	Limited competition/fair competition depending on segment	Strong	Emerging and growing	One of leaders within Russia

All the clusters of Northwest Russia, with the exclusion of ICT, are at present characterized by their insignificant innovation potential. Over the last decade, the overall technological lag of Russian industry behind the advanced economies of the world has only increased. Modernization of facilities and equipment is mostly carried out on the basis of imported Western technologies, while there are extremely few domestic developments in this sphere. This is not necessarily a bad tendency once the long-term development prospects are concerned. It could be possible to achieve lighly competitive positions basing on imported technology on the initial stage. Sustaining these positions will nevertheless require developed local R&D and specialized manufacturers. Creating the basis for such development is and will remain a major challenge for development in this region.

The new clusters are characterized by a high inflow of foreign capital, as well as imported materials and components. The traditional clusters are based on local resources. Only in the forest cluster have imported materials and foreign investments started to play a significant role.

On the whole, on the basis of the current potential and the prospects for their competitiveness development, the clusters of Northwest Russia may be described as follows:

- The most potentially competitive are the forest and ICT clusters;
- The energy cluster is characterized by a medium potential, which is held back by a number of obstacles, including low levels of competition, a poorly developed infrastructure, etc.;
- The least potential in the medium-term is exhibited by the metallurgy and metalworking cluster, and the food cluster. Both, but especially metal processing, have good possibilities for a rapid turnaround subject to more a focussed approach by the government and removal of bureaucratic barriers.

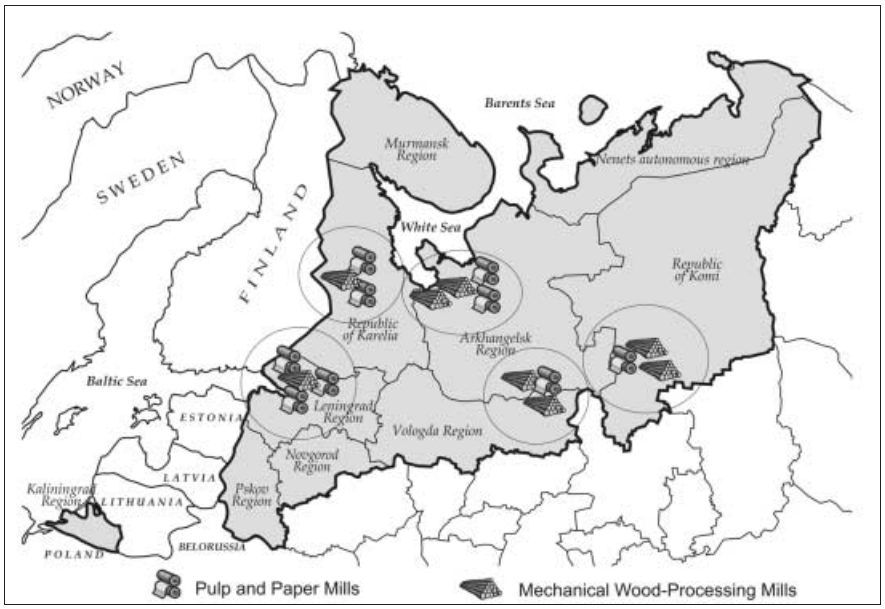
Next in this chapter we will briefly review the main characteristic features of the four clusters: forest, energy, metallurgy and metalworking, and information and communication technologies. Each of these clusters is described in detail in our previous studies of these series devoted to the economy of Northwest Russia.

5.3 The Forest Cluster – from Russian Forests to World Markets

The forest cluster, which comprises the harvesting, mechanical wood-processing, and pulp-and-paper industries, is one of the largest industrial sectors in the economy of Northwest Russia. In recent years, its share has been about 15%, which is just a little less than share of the energy cluster and metallurgy. In the Northwest, the forest cluster is more developed than in other Russian regions. Many large forest enterprises manufacturing a broad range of products that enjoy a high demand on both domestic and international markets are concentrated in the region. Annually, the region produces one-third of the entire roundwood in Russia, manufactures over 25% of the sawn timber, and around 60% of pulp, paper, and carton board.

The companies of the forest cluster of the Northwest are closer to European markets than, for example, the companies of the Volga Region or Siberia. The main advantage, therefore, is their proximity to the forest clusters of Finland and the Scandinavian countries, the world leaders in this industry. Cooperation with them already proved to be an efficient incentive for the development of many regional companies. Further expansion and deepening of over-the-boarder cooperation will undoubtedly

Figure 5.1 Main Agglomerations of the Northwest Russian Forest Cluster



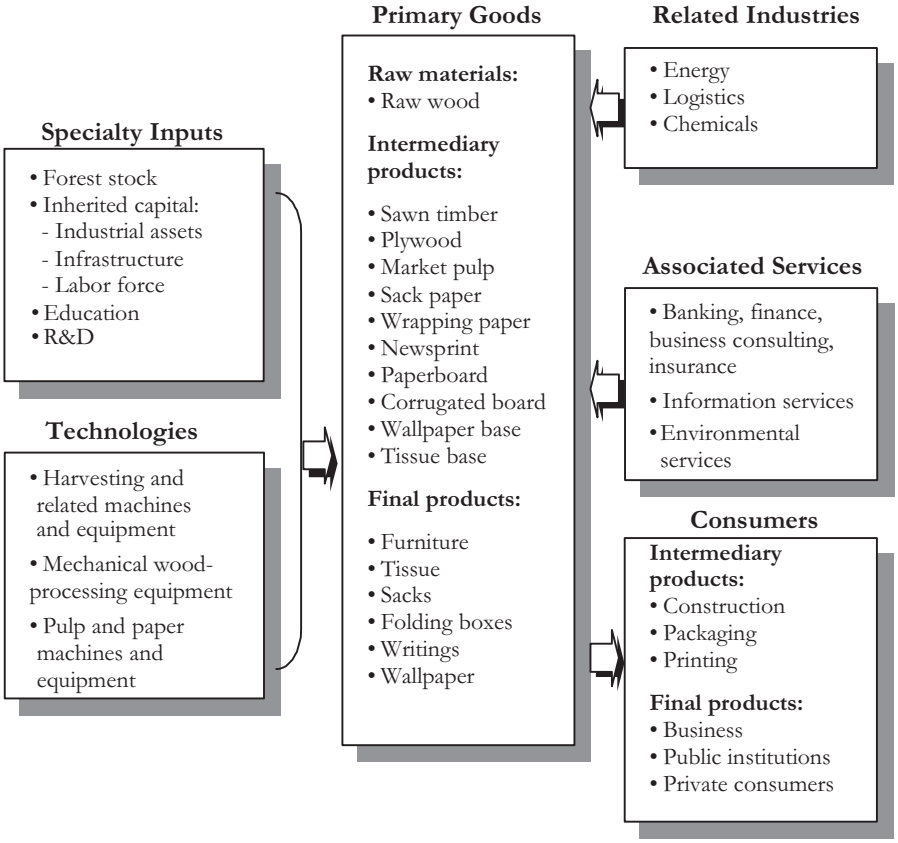
facilitate significant growth in the Northwest forest cluster. This may happen by means of foreign investments in new projects, the acquisition of experience, and the adoption of advanced technologies and best practises by local manufacturers. Access for Russian products to the global market using links of Western partners and investors could be made much easier.

There is plenty of development potential for this cluster also in industrial policy. There are yet synergies to be gained through ligher integration of the existing fibre resources into the local manufacturing. Most Northwest regions have rather diversely developed networks of harvesting companies and small and medium-sized mechanical wood-processing enterprises. Forest cluster agglomerations have formed around the largest mechanical wood-processing and pulp-and-paper mills. They are located in the Arkhangelsk and Leningrad regions, and in the Republics of Karelia and Komi. These agglomerations are the centres of activity and direct investment inflow in the forest cluster. They create natural centres for achieving higher integration (mentioned above) of resources into processing. This efficiently means creating or facilitating development of supplementary activities through regulation and tax policy.

The list of the main products manufactured by the companies of the forest cluster reflects the generally low level of applied technologies. Currently, the proportion of products with high added value is moderate in comparison with the world leaders. This situation was, for the most

part, a legacy of the Soviet era, when large-scale enterprises with limited specialization were oriented toward mass production of basic goods.

Figure 5.2 Structure of the Forest Cluster of Northwest Russia

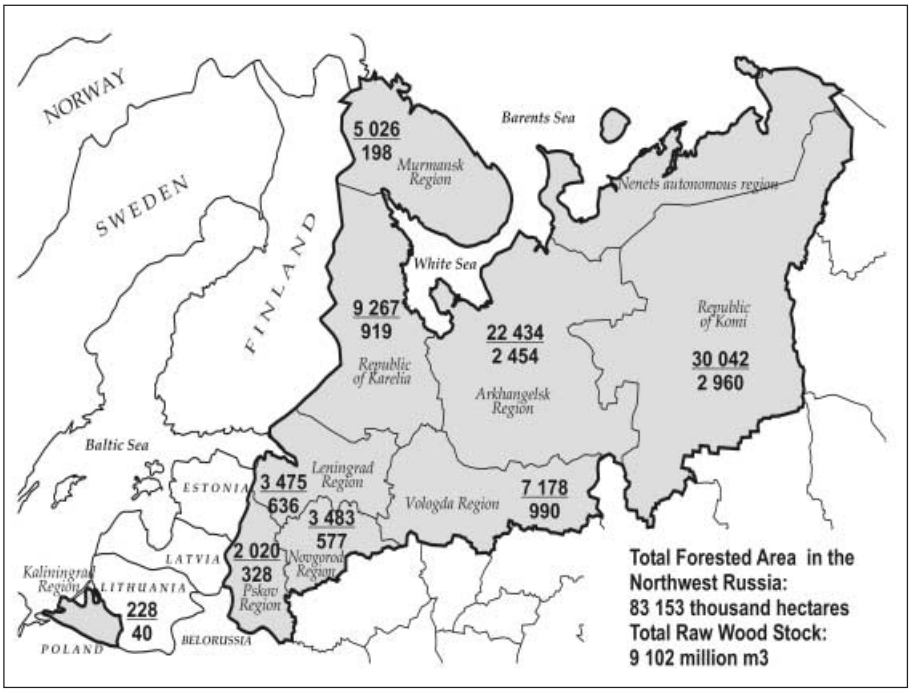


Diversification was considered harmful, and new enterprises were profiled to satisfy the planned and not the actual demand. Different mills were assigned their specific products, thus obviating any competition. This situation was the consequence of the planned economy, and it still hinders the development of the cluster to this day.

The Northwest Region is rich in timber, and its potential resources surpass those of any European country. More than a half of the forests of the European part of Russia are concentrated here; this accounts for about 11% of the forest stock of the entire country. More than a half of the forests are coniferous - spruce and pine. In addition, the region has large amounts of deciduous species - birch and aspen - which are widely used in the production of plywood. The underdeveloped transport infrastructure (including both main transportation routes and for-

est tracks), as well as the absence of planning and reforestation, impede the utilization of these extensive resources of timber, however very substantially.

Figure 5.3 Forested Area and Raw Wood Stock in Northwest Russia



Forested area in thousand hectares is presented in the *numerator*; raw wood stock in million m^3 is presented in the *denominator*.
Source: Goskomstat (1999)

The industrial capital, infrastructure, educational system and R&D of the forest cluster have been inherited almost entirely from the Soviet period. These major assets of the forest cluster in Northwest Russia are still characterised by a number of negative characteristics common to the whole country: outdated equipment in most enterprises (which leads to low productivity and high levels of environmental pollution); poor training of students; inability to introduce innovations; significant burdens of social welfare; etc. This legacy hinders considerably the efficient development of the cluster.

The Northwest of Russia can still offer access to numerous trained professionals. The quality of the personnel once the modern international standards in this field are applied, however, is modest in comparison with the world standards. The general level of training quality tends to decrease as the time goes by. The situation is exacerbated by a sharp

reduction of apprenticeship relations and generational continuity, and a slowdown in the influx of young professionals over the past decade. At the same time, the extensive network of specialized educational institutions, as well as R&D organizations concentrated in St. Petersburg and Arkhangelsk, encourage hope for a possible increase in the level of the regional workforce and for the development of the technological potential of the cluster. A great deal of effort on the part of both government and business will be required, however, in order to utilize these opportunities.

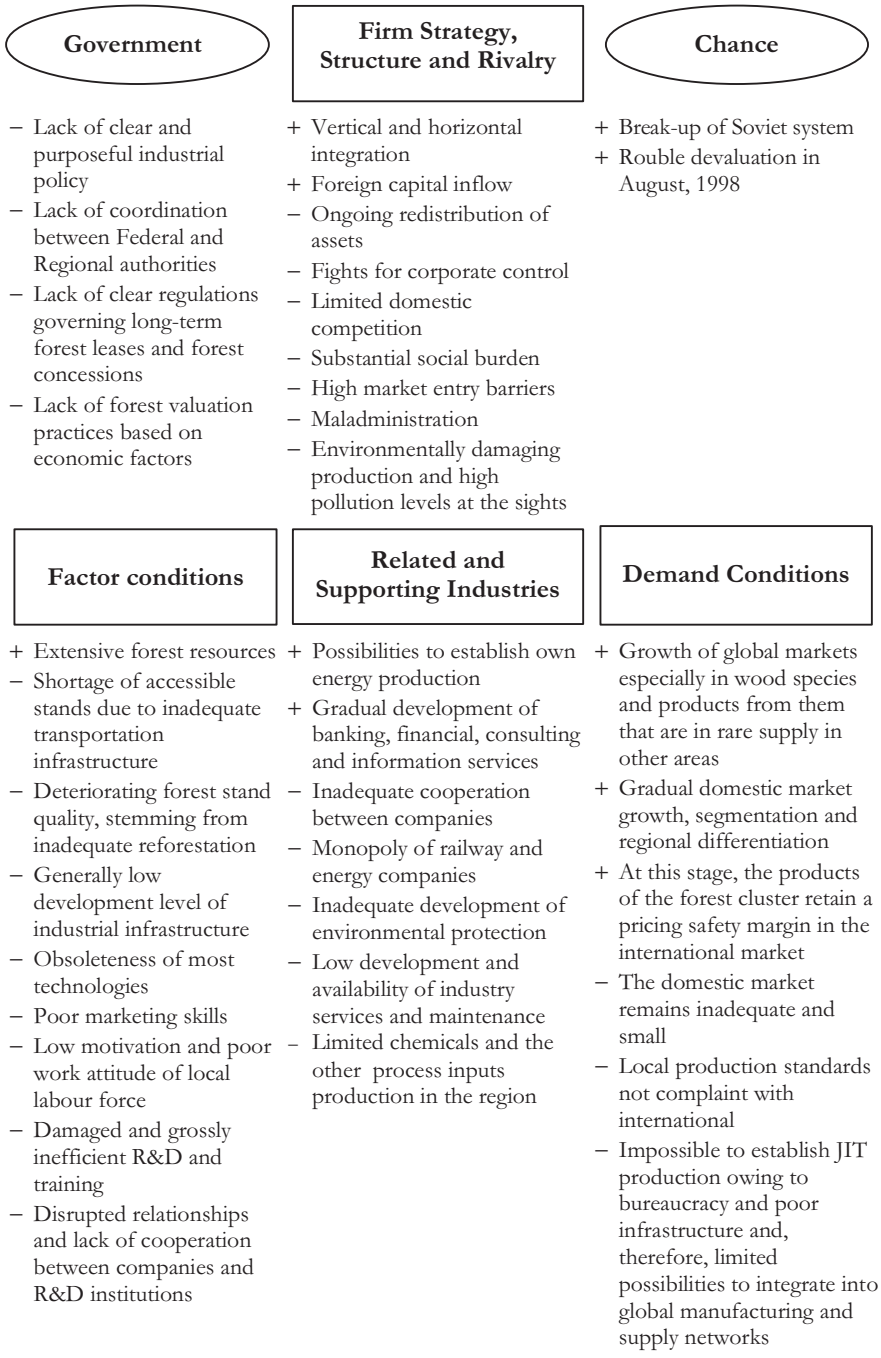
Equipment manufacturers located in the region specialize primarily in harvesting equipment and machinery for the pulp-and-paper industry. During the past decade, their sales have decreased severely, due to the low competitiveness of the equipment. All the successful companies of the forest cluster prefer purchasing the more expensive, yet more efficient and reliable foreign machinery. Only those for whom low prices are the most important factors purchase the domestic equipment. The lack of competitive training, R&D and the outdated production technologies limit appreciably development opportunities for local equipment manufacturers.

The companies of the forest cluster are less dependent on supplies of fuel and electric power than other industries of the region and, therefore, less prone to vulnerability associated with restructuring of these industries in Russia. Nevertheless they are dependent on yet another state monopoly, i.e. the transport system.

The low efficiency of domestic transport and logistics is still among the major negative factors related to the international competitiveness of the forest cluster. Long and difficult to predict shipping periods, the low availability and quality of warehousing, handling and shipping of freight are the major cost factors that lead to substantially less cash available to the Russian producers (as compared to their equally remote Finnish or Swedish counterparts), costs of capital (inventories of raw materials and finished products maintained by the Russian companies are by far higher than those of their neighbouring counterparts).

The role of financial institutions, insurance, business consulting, and information services, has grown noticeably in recent years. Currently, however, their influence is incomparable with that of the aforementioned supporting activities in the neighbouring countries. The important sector of environmental services, which is especially relevant for the pulp-and-paper industry is still almost completely absent. Even the largest companies of the cluster have yet to adopt the practice of outsourcing, which would have allowed them to concentrate their efforts on their core competence and to gain additional competitive advantages (access to more advanced technologies, savings on costs and investments).

Figure 5.4 Determinants of Competitiveness of Northwest Russian Forest Cluster



The volume of the domestic market of the forest cluster has decreased sharply in the past decade, which has had a negative impact on the sales of many companies. At the present time, it is possible to observe tentative growth and qualitative development of the market, i.e. the price and product differentiation, as well as segmentation, are developing. It should be stressed that these processes unfold at different paces in different regions of the Northwest, and most rapidly of all in St. Petersburg - the largest consumer market of final products. Among the consumers of forest products, the packaging industry and the construction industry have been developing most rapidly.

The companies of the forest cluster export primarily products with low added value: roundwood; sawn timber; plywood; paperboard; and newsprint. The forest export of the Northwest is more evenly balanced than that of other Russian regions. The export of the Far East, for example, almost completely consists of roundwood.

Detailed analysis of the competitiveness of the forest cluster of Northwest Russia (see *G. Dudarev, S. Boltramovich, D. Efremov: From Russian Forests to World Markets - Competitive Analysis of the Northwest Russian Forest Cluster, Helsinki 2002*) has shown that along with the positive factors, there are numerous negative factors that hinder the full utilization of the enormous potential of the industry. We do not intend to reconstruct the whole picture here, and we will only discuss a few general points.

Currently, the competitiveness of the forest cluster is founded for the most part on the basic factors of production: extensive forest resources and production facilities, infrastructure, and a qualified workforce inherited from the Soviet period. The previously accumulated potential of these factors has been virtually depleted, due to insufficient investment into their development during the past decade; i.e. more specifically into the equipment upgrading, construction of new roads, reforestation, training of new specialists in compliance with the growing requirements of today's production, etc.

The demand for the forest products made in Northwest Russia has a great potential for growth. It may be realized primarily through the expansion of the domestic market. A significant increase in its volume, however, is not possible without the general growth of the Russian economy, and subsequently a significant increase in GDP. Achieving good levels of per capita production and household income will take its time. For this reason, in the near future the export of products will continue to be important for many forest companies. The development of the forest industry will require that the Russian standards closely conform to the world standards, in order to become integrated into international networks.

The ownership of companies in the forest cluster of Northwest Russia is still quite unstable. The process of redistribution of assets that continually creates new players still persists. Property redistribution affects even

the largest players of the cluster, such as the Ilim Pulp enterprises, which owns large companies in other Russian regions, too, and has an annual turnover of around USD1 billion. Players from other sectors of the Russian industry (metallurgy, in particular, where the ownership of main assets have already been concentrated in the hands of a few owners) are trying to penetrate the forest cluster. This, to a large extent, leads to on-going struggle over assets and distracts the companies from concentrating on increasing the efficiency of production and forming long-term development strategies. Business transparency remains low, and the level of shadow operations high. On the other hand, the redistribution of property is accompanied by the processes of horizontal and vertical integration, which leads to the consolidation of assets, and therefore to strengthening of investment potential inside the cluster.

The most robust dynamics are registered in the pulp-and-paper industry, which has the highest degree of concentration of production and financial abilities. It is the pulp-and-paper mills that are the main targets of struggle between different players. A basic trend of recent years in mechanical wood processing is the advancing development of highly specialized manufactures, distinguished by their high efficiency. The most profitable is plywood manufacturing, the products of which are mostly exported. Low entrance barriers in mechanical wood processing are also favourable for the influx of foreign capital. In addition, the furniture industry of St. Petersburg is beginning to show signs of a competitive market, which are still not in evidence in other sectors.

Table 5.13 Largest Companies in the Forest Cluster of Northwest Russia

Company	*Region*	*Owner (at the beginning of 2003)*	*Sales in 2002, USD million*	*Products*
Neusiedler Syktyvkar	Komi Republic	Neusiedler (Austria)	302.8	Offset paper, newsprint, paperboard, wallpaper, tissue, writings
Titan Group	Arkhangelsk	Foreign and Russian investors	293.6	Corrugated board, fluting, pulp, labeling paper, writings
Kotlas PPM	Arkhangelsk	Ilim Pulp vs. Basic Element	235.2	Pulp, paper, sack kraft, fluting, fiber board
Svetogorsk PPM	Leningrad	International Paper (USA)	210.3	Offset paper, packaging board, pulp
Kondopoga PPM	Republic of Karelia	Company's management	172.1	Pulp, newsprint
Segezha PPM	Republic of Karelia	Company's management	106.6	Sack kraft, paper sacks, packaging board, kraft liner, pulp

St. Petersburg Paperboard & Printing Mill	Leningrad	Ilim Pulp	71.3	Coated board, packaging board, printing board
Solombala PPM	Arkhangelsk	Company's management	63.4	Pulp, wrapping paper
Syktyvkar Plywood Mill	Komi Republic	Neusiedler Syktyvkar	37.7	Plywood, particle board
Cepruss PPM	Kaliningrad	Company's management	31.8	Pulp, tissue, paperboard
St. Petersburg Goznak Paper Mill	St. Petersburg	The State	30.3	Special-purpose paper (banknotes, protection-layer papers), printing paper, offset paper, writings
Syas PPM	Leningrad	Sevzapprom	29.9	Wrapping paper, tissue, tissue base, pulp, fiber board
Solombala Wood-Handling & Processing Mill (Sawmill)	Arkhangelsk	Company's management	29.7	Sawn timber, furniture, wooden intermediates
Kappa St. Petersburg	St. Petersburg	Kappa Alpha Holding	28.6	Corrugated board
Sovetsk PPM	Kaliningrad	Company's management	28.1	Pulp, offset paper, wallpaper base, corrugated board
Sokol PPM	Vologda	FOX Group	28.0	Tissue base, wrapping paper, writings, corrugated board, wallpaper base, pulp
Neman PPM	Kaliningrad	Northwest Timber Company	27.7	Pulp, offset paper, corrugated paper, wallpaper base, wrapping paper, writings
Chudovo-RWS	Novgorod	Schauman Wood Oy (Finland), Novgorodskie Lesopromyshlenniki	27.3	Plywood
Zheshart Plywood Mill	Komi Republic	Komi Forest Company	25.6	Plywood, particle board
Onega Wood-Handling & Processing Mill (Sawmill)	Arkhangelsk	Orimi	24.5	Sawn timber
Cherepovets Plywood & Furniture Mill	Vologda	Roslesprom	24.0	Plywood, furniture, particle board
Vyborgskaya Tselluloza (PPM)	Leningrad	Owners of Syas PPM vs. Mr. Sabadash	23.4	Wallpaper base, coated paper, fluting, coated paperboard, packaging board, wallpaper, pulp
Sheksna Fiberboard Mill	Vologda	Togliatti-Azot	22.9	Fiberboard
Pitkäranta Pulp Mill	Republic of Karelia	Yucel Trading Limited, Fritzlar Trading Limited, Industrinvest	22.4	Pulp
Ust-Izhora Plywood Mill	St. Petersburg	Sveza	21.4	Plywood

Source: Expert Northwest, 20-26.10.2003

The harvesting industry is in the worst condition now. Harvesting companies, integrated into vertical holding companies, suffer from inadequate finances, which are primarily distributed among wood processing compa-

nies. Independent harvesting companies also experience financial shortages due to low productivity and the lack of highly qualified personnel (qualified specialists are not willing to live in poor conditions and operate outdated equipment). In addition, it is difficult for independent harvesting companies to coordinate their policies on the market, and it is not unusual for them to undergo heavy losses as a result of their dependency on large buyers.

The example of the forest cluster shows that the influx of foreign investment in the Russian economy is important not only from the point of view of the amount of money invested (the largest Russian players are already capable of acquiring foreign companies: Ilim Pulp acquired a paper factory in the Czech Republic), but also from the perspective of access to newer, more efficient methods and technologies used by the industry's world leaders. It is the companies controlled by capital from developed countries - Svetogorsk PPM, Neusiedler Syktyvkar, and others - that are the cluster's leaders in terms of production efficiency.

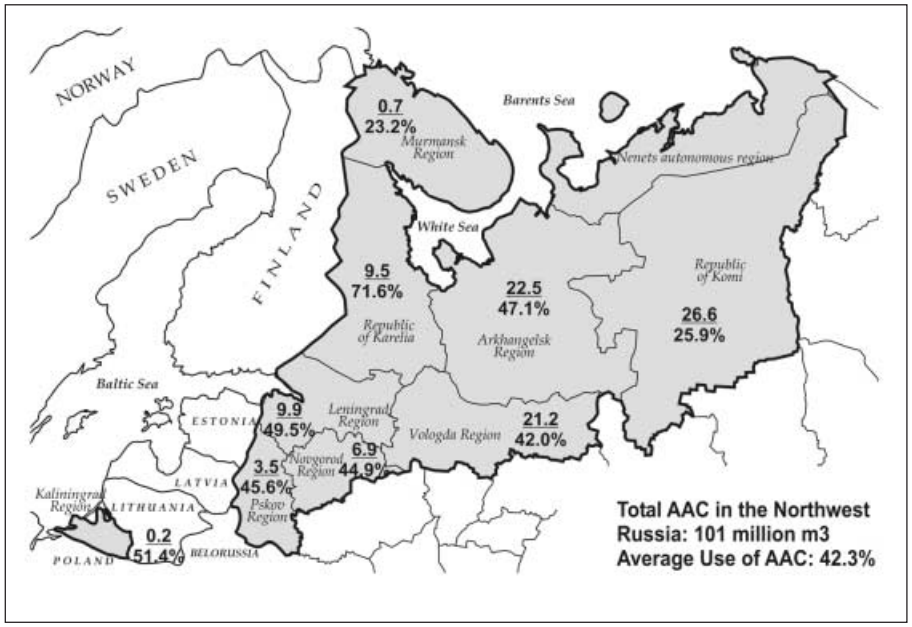
The Finnish forest cluster serves as a very good example to the companies of the Northwest by increasing the production efficiency through extensive use of information technologies. This significantly simplifies production and management processes, and especially interaction with consumers. The mechanism of interaction allows the Finnish companies to respond very quickly to changes in demand and to form a flexible policy. It is necessary to emphasize the fact that as regards the rapid implementation of information technologies, the forest cluster of the Northwest has a large potential deriving from the possible (and mutually profitable) cooperation with the information and telecommunications sector of St. Petersburg, which is one of Russia's leaders in this sphere.

At this stage, the influence of the government on the processes in the forest cluster is characterized by prevailing short-term, and often poorly connected, actions, while lacking a general and purposeful industrial policy. The absence of clear regulations for long-term leasing or forest concessions, which impedes the planning of new, large-scale investment projects (including the projects to develop transport infrastructure), has had an especially negative impact on the development of the cluster. A system of forest taxation that would take into account the remoteness of forests from the main transportation routes and markets is also lacking.

Frequent inconsistencies in the actions of the federal and regional authorities hardly improve the investment climate. A good example of this is the Republic of Karelia, where after a failure with the selling the Segezha PPM to the Swedish company Assi Domän, the authorities are suspicious of foreign companies, and potential foreign investors are suspicious of the Karelian government and the local businesses. The lack of an efficient mechanism for protecting the rights of investors is the biggest barrier to a more active influx of foreign investment in the industry.

The further development of the forest cluster of Northwest Russia depends on a number of conditions, many of which concern the country as a whole and are difficult to forecast. Nevertheless, the authors feel justified in describing some ideas and trends for the future development of the cluster.

Figure 5.5 Use of Annual Allowable Cut (AAC) in Northwest



AAC in million m^3 is presented in the *numerator*; use of AAC is presented in the *denominator*.
Source: Goskomstat (1999)

The private property in terms of forests and timber in Russia will most likely remain limited, and will be prevalent around large cities and within the most densely populated areas. The northern regions, with their sparse populations, on the contrary, will remain almost 100% in the possession of the government, as is the case in Canada, for example. At the same time, under pressure from large forest companies, the government will finally develop a mechanism for a long-term lease (or concession) of forests, which will spur investment in the forest cluster, in particular in reforestation.

The use of annual allowable cut in the region will increase (it is now less than 50% on average), primarily due to the fact that if companies have a long-term lease on forests, they will be able to invest into the development of the main transportation infrastructure of the industry, the network of forest ways. The construction of the new Belkomur railroad, which will create a direct connection between the seaport of Arkhangelsk and industrial regions in the Urals, as well as the development of an aux-

iliary infrastructure of highways and forest tracks connected with it, will give impetus to the exploitation of extensive and not yet exploited forest areas in the Arkhangelsk Region and the Republic of Komi.

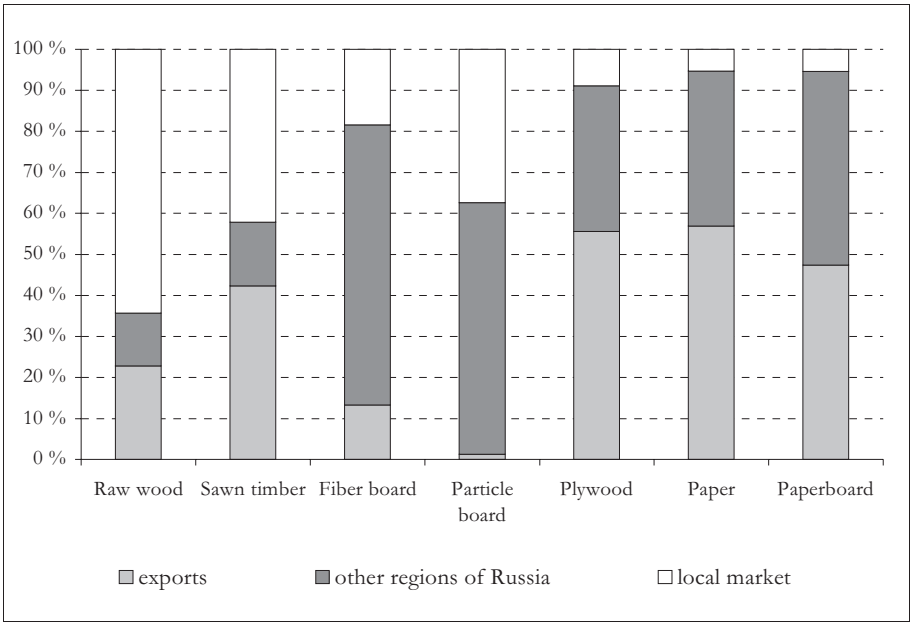
The forming of a new agglomeration of the forest cluster that would involve both chemical and mechanical wood processing is to be expected in the Republic of Komi. The emergence of another new forest agglomeration is also expected in the Vologda Region. The production facilities there are still unable to accommodate the vast forest resources; whereas the proximity of the largest consumers of final products in Moscow and St. Petersburg is a factor working in its favour.

Struggles over property and redistribution of assets in the forest cluster of the Northwest of Russia will gradually lead to the formation of a few large players, the activities of which will not be limited to the region itself. Business will become more transparent; the companies will practice open accounting and the publishing of their development strategies. Vertical integration will continue, and will concern primarily the pulp-and-paper and harvesting industries. Different mechanical wood-processing sub-industries - manufacture of sawn timber, plywood, wooden boards, and the furniture industry - will develop differently, depending on the conditions of their respective markets. The probable extended use of wooden materials in the construction industry may become an important impetus. The largest diversification and growth in competition between domestic manufacturers in the forest cluster may be expected in the furniture industry.

Some not very big enterprises that are a legacy of the system of production planning of the Soviet era, and that operate at a loss under the new economic conditions, will be closed down. New enterprises, primarily in mechanical wood processing, will emerge. They will be founded on long-term factors of competitiveness (proximity to the consumer, specific raw materials, etc.). Manufactures oriented toward the most comprehensive processing of raw materials using advanced western technologies (manufacture of various kinds of wooden board, wood-related chemicals, etc.) will be developing most actively.

The domestic market of the forest cluster will continue to develop, although its volumes will not reach the level of the last years of the Soviet era in the foreseeable future. The demand for products with high added value (high quality paper and cardboard, sanitary and hygiene products, various kinds of furniture, etc.) will grow steadily in St. Petersburg and other large cities. This demand will be satisfied by both importing and by a gradual diversification of goods from local manufacturers. The manufacture of products under international trademarks will begin in the region. Under pressure from European and Russian consumers and a gradual increase in the strictness of Russian ecological legislation, the companies will pay a great deal more attention to issues of environmental protection.

Figure 5.6 Northwest Forest Products Sales in 1999



Source: Goskomstat (Russian State Committee for Statistics), materials of the seminar "Competitiveness of the Russian Forest Sector", 2000

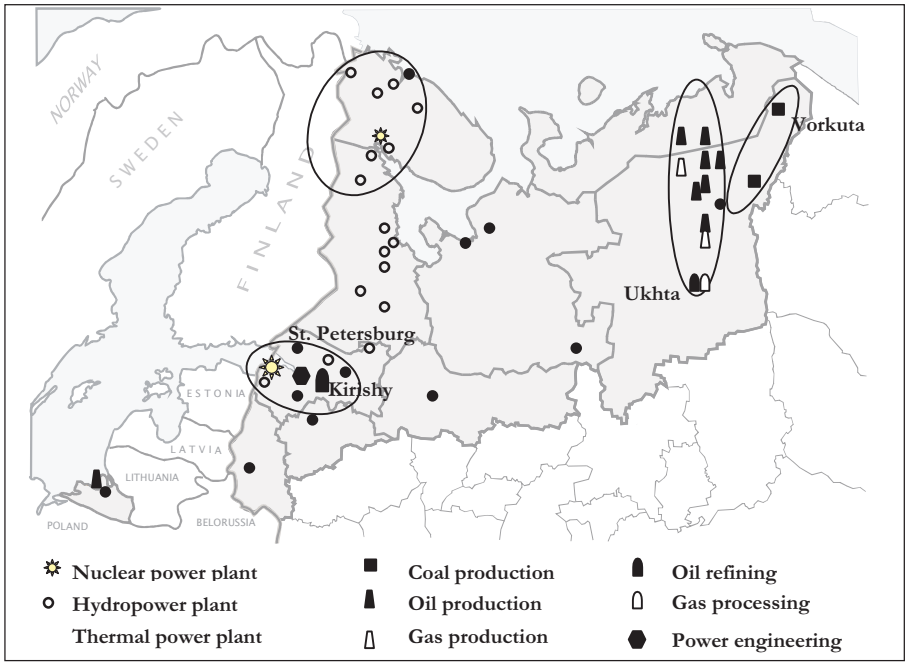
Russian federal and regional authorities have more than once expressed their great interest in the development of the forest cluster of the Northwest. This gives us hope that the government will eventually undertake serious measures to improve the investment climate, and that the industry will have the opportunity to develop robustly according to economic imperatives. Trans-border cooperation can be particularly beneficial for the companies of the Northwest in terms of the implementation of innovations and the efficient organization of production. This is especially true of the companies of the forest cluster of Finland, for which access to the Russian forest resources and market is clearly advantageous.

5.4 The Energy Cluster - Energy[3]: Raw Materials, Production, Technology

The energy cluster is the most important sector of the Russian economy. It now accounts for more than half of all the country's exports. It also occupies the leading position in the industry of the Northwest, with a share of more than 20% in recent years. The production of energy raw materials in the region is relatively low in comparison with Siberia and the Volga Region. The Northwest produces only about 4% of all Russia's oil, less

than 1% of the natural gas, and about 8% of the coal (including 18% of the coking coal). In the north of the Timan-Pechora oil and gas province and on the shelf of the Barents Sea there are large reserves of oil, and especially of gas condensate and natural gas, however. The production of these would significantly increase the portion of the Northwest in the total volume of Russia's production. At the moment, the region specializes more in the transit of Siberian gas and oil, in oil refining (around 15% of Russia's oil products), the electric power industry (over 10% of all Russia's electric power), and the power engineering.

Figure 5.7 Largest Agglomerations of the Energy Cluster in Northwest Russia

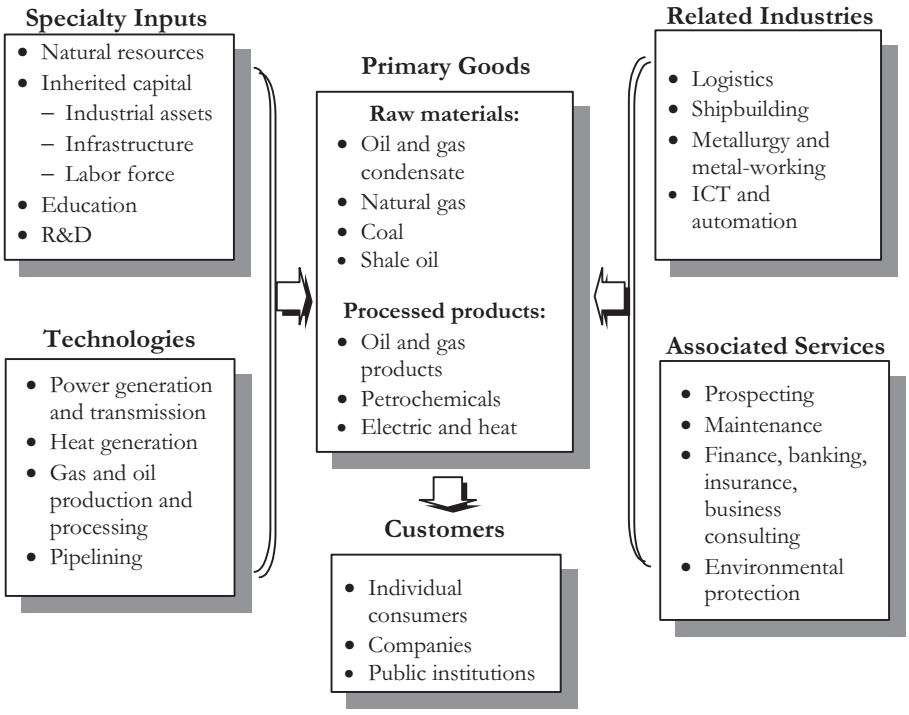


Despite the fact that the energy sector has been one of the most successful industries in Russia during the period of economic reforms, it has nevertheless shown very uneven development. The energy cluster is made up of the extremely profitable sector of oil production and refining, which has a high export potential; the gas industry and the electric power industry, which are still monopolies, but that have opportunities for development; the coal industry, which registers chronic losses; and, finally, the moribund shale and peat industries. Compared to Siberia and the Volga Region, the energy cluster of the Northwest has the significant advantage of proximity to European markets. In addition, the region is

fast becoming Russia's main sea gateway, through which an increasing portion of the fuel export of the country passes. Companies from the US, Finland, Norway, and several other developed countries also have interests in the energy resources of Northwest Russia.

The largest companies of the cluster are located within four agglomerations: the Timan-Pechora Oil and Gas Agglomeration; the Vorkuta Coal Agglomeration; the Kola Electric Power Agglomeration; the Leningrad Agglomeration, which specializes in electric power, power engineering, and oil refining. Among the sectors of the cluster, the electric power industry has the most developed structure, which includes numerous educational institutions, R&D organizations, and large machine-building enterprises. In recent years, education and a number of related and supporting industries of the oil sector that were formerly lacking in the region have been developing rapidly. The oil production and oil refining industries are generally the most attractive for investment in Northwest Russia and are thus characterized by the highest growth rates.

Figure 5.8 Structure of the Energy Cluster of Northwest Russia



Crude oil, coal, and electric power dominate among the main products manufactured by the companies of the cluster at the present time. The

portion of products with higher added value - oil products of deep processing and petrochemicals - is still low. Many investment projects aimed at the manufacturing of these products, however, are being implemented already. Thus, we may expect improvement in the production structure of the cluster in coming years.

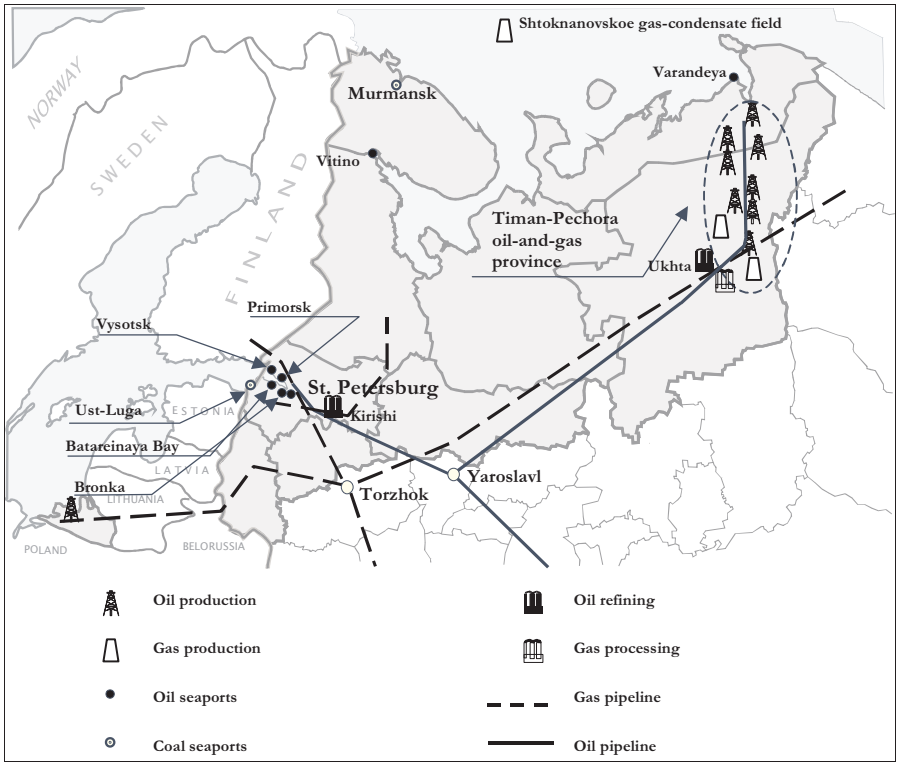
As for the energy resources of the Northwest at the present time, oil reserves are being exploited most intensively: new deposits are under exploitation, and new oil pipelines are being constructed. At the same time, the oil production of the Timan-Pechora Agglomeration are gradually shifting toward the north, from the Komi Republic to the Nenets Autonomous District, where more than 80% of the prospected reserves have yet to be exploited. Large natural gas deposits on land will soon be exhausted. A significant increase in the production of natural gas can be expected only after the beginning of exploitation of sea deposits. There, however, the costs will be several times higher, due to the difficult production conditions.

In addition to oil and natural gas, the Northwest of Russia contains large reserves of coal, including high-quality coking coal, which is used in metallurgy. Its production, however, is not very profitable, and during the past decade has been significantly reduced. The region is also rich in reserves of oil shale, and peat. Besides this forest industry wood wastes can be used as biofuels. The increased application of these types of fuels is possible only when accompanied by the development of dispersed energy production. The development of the small power production facilities would also allow for the greater utilization of the hydraulic potential of the region. It is rather large, in spite of the fact that numerous rivers have only small differences in water levels, due to the mostly lowland terrain. Up until now, the hydraulic potential has been put to limited use: less than one-fourth of all electric power of the Northwest is produced by hydraulic power plants.

The main production facilities of the cluster have been inherited from the Soviet period. The region has both old facilities, which were introduced before World War II (for instance, many power plants and boiler houses), and relatively modern facilities. These include the Kirishi refinery (KINEF), one of the largest in Russia; the Leningrad Nuclear Power Plant, the largest nuclear power plant in Russia (4,000 MW); the Vorkuta coal mines, which boast one of the highest levels of mechanization in the Russian coal industry; and others. The general wear and tear of the main facilities of energy companies is rather high; the modernization and introduction of new facilities is thus far being actively implemented only in the oil sector. The prevalence of outdated low-efficiency technologies is also reflected in the extremely high levels of environmental pollution caused by most companies of the cluster.

The transportation infrastructure plays an especially significant role in the energy cluster of the Northwest, due to its status as an important transit route for the country's fuel exports. The main oil and gas pipelines belonging to the government, through which hydrocarbons from Western Siberia reach the markets of Europe and the European part of Russia, have been greatly worn out during decades of utilization and are highly hazardous now. The system of old local oil pipelines is in even worse condition, since companies do not pay sufficient attention to their upkeep.

Figure 5.9 Oil and Gas Industries in Northwest Russia



As a consequence of the collapse of the Soviet Union, Russia lost the seaports of the Baltic counties, through which most of oil exports passed. This resulted in a shortage of Russian terminals and engendered projects for new seaports in the Northwest. The first stages of oil terminals were put into operation in Primorsk (the Leningrad Region) and the Varandeya Bay (on the coast of the Barents Sea). The coal terminal has already been put into operation in Ust-Luga seaport (the Leningrad Region). A large-scale investment project for a non-freezing oil port on the Kola Peninsula is also under consideration. This project requires a long oil pipeline to the Murmansk region. In addition, the facilities of existing seaports in

St. Petersburg, Arkhangelsk, Vysotsk, and other cities and towns, are either scheduled for, or have been partially modified for fuel cargos. Undeniably, the Northwest Region is experiencing a true pipeline and seaport boom, caused partially by inadequate terminal facilities, and partially by the lack of coordination between the government and various companies.

Table 5.14 Oil and Coal Seaports of Northwest Russia

Port	*Specialization*	*Capacity, million tons*	*Plans*
Primorsk Oil Port	Crude Oil	12	Increase of the present capacity up to 18 million tons and then to 30 - 50 million tons per year.
Murmansk Sea Trade Port	Coal	7	Construction of oil terminal with capacity of 60 million tons per year. The investor in the project is the consortium of Russian oil companies.
Saint-Petersburg Oil Port	Oil Products	6	Increase of port's capacity up 15 million tons per year. Construction of a new terminal for chemical products and crude oil export with capacity of 5 million tons per year.
Seaport Vitino	Crude Oil, Oil Products	2	Increase the capacity up to 6 million tons.
Vysotsk Port	Coal, Oil products	about 2	Construction of the oil products terminal with the capacity of 3 million tons per year.
Varandeya Bay Port	Crude Oil	1.5	Increase the capacity up to 7.5 million tons per year.
Bronka Port	Oil Products	0.55	Construction of the navigation canal.
Ust-Luga Port	Coal	1	The first stage is put into operation. The planned capacity amounts to 6 million tons per year.
Batareinaya Bay Port (designed)	Oil Products		Expected time to put to operation the first stage of the terminal is 2005 - 2006. The planned capacity is 8 million tons per year.

Source: data provided by companies

Unlike pipelines, the network of the main railroads in the region have long been in stagnation. The lack of direct transport routes to the Urals limits the markets for the coal-mining companies of the Northwest. The underdeveloped network of electric power transmission grids also limits the markets for the electric power companies of the region, and prevents them from fully utilizing the production facilities of the two nuclear power plants (which produce more than 40% of the electric power in the region), and hinder the export of electric power. In addition to this, the high rate of wear and tear of the grids takes the form of very large (over

11%) losses of electric power through transmission, which continue to grow annually.

The Northwest Region has traditionally been an educational centre for a large number of specialists in the energy sector. During the Soviet period, the training took place according to government decrees concerning regional specialization. The training in the Northwest was primarily aimed at the needs of the electric power industry and power engineering, and was concentrated in St. Petersburg. During the past decade, significant growth of a number of institutions oriented toward the oil and gas sector, which is the most promising sector, has been observed. Training centres for the oil and gas sector are appearing in the regions where hydrocarbons extraction is already underway (Ukhta in the Republic of Komi), or will be some time in the future (Arkhangelsk and Murmansk).

The educational and R&D organizations of the cluster are generally experiencing the same problems that other educational and R&D institutions in Russia are undergoing: unstable financing, draining away of a significant number of highly-qualified personnel, broken linkage with manufactures, and so on. The situation in the energy cluster is better, however, than in Russia as a whole, due to the financially stable leading industries of the cluster. In recent years, companies have increased investments in education. This tendency is likely to remain in force, and should lead to an increase in the quality of personnel. The prestige of jobs in companies of the energy cluster is also enhanced due to relatively high salaries.

The power engineering sector is represented for the most part by machine-building companies in St. Petersburg. During the Soviet era, the products of St. Petersburg factories were widely used in the USSR, Eastern Bloc countries, and in many developing countries. In the beginning of the 1990s, however, the power machinery and equipment market sharply decreased, and the volume of production fell sharply as a consequence. During the past decade, equipment manufacturers fulfilled orders for the most part for servicing, repairs, and partial modernization of already installed facilities. Due to insufficient investment in the main assets throughout the period of economic reforms, St. Petersburg power engineering companies are already experiencing severe problems as a consequence of the low competitiveness of their products. Another disadvantage of the St. Petersburg companies is their specialization in manufacturing only high-power machinery and equipment for which there is a limited demand, whereas for the development of the dispersed energy production only small and economical machinery is needed. The potential demand for this type of machinery is greater.

At the same time, this does not mean that the St. Petersburg power engineering is not viable. Companies attempt to accommodate themselves to

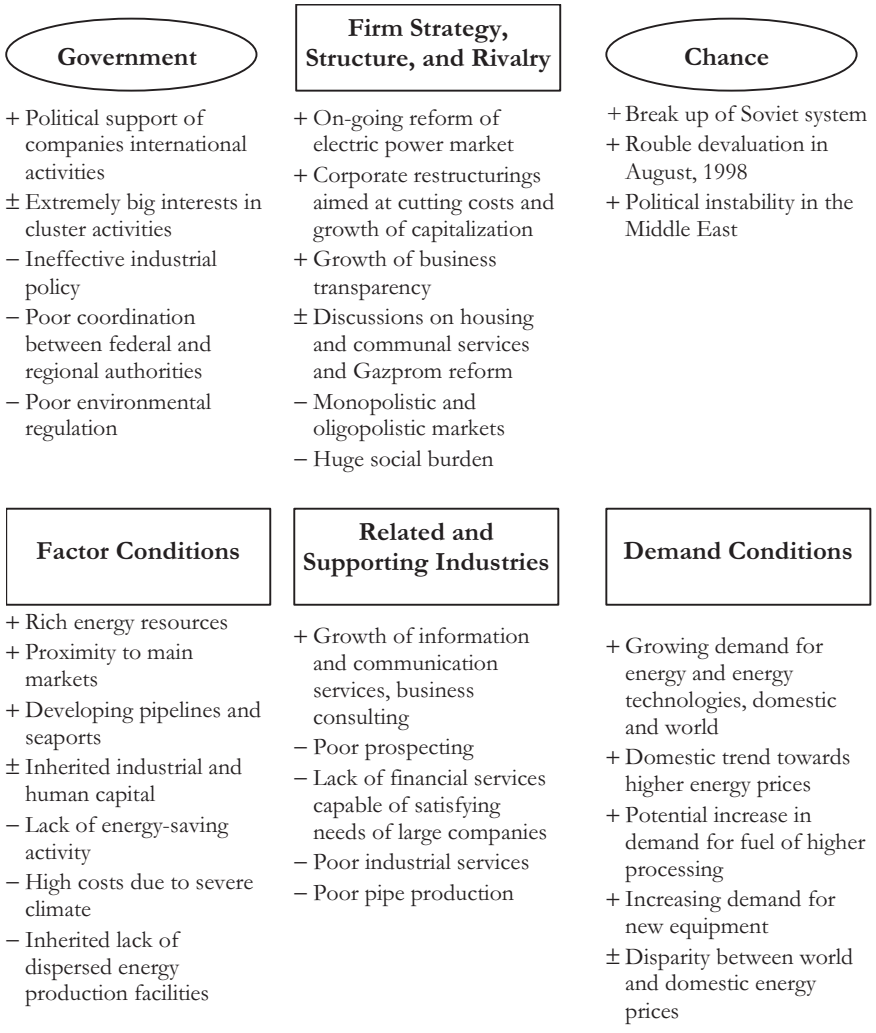
the new market conditions, and they are gradually modernizing their production facilities. Their experience in power engineering, and support on the part of the government, allow them to find clients abroad, primarily in developing countries: Iran, China, and others. Recently, St. Petersburg producers have got some orders from Finland and Sweden, too. On the domestic market, companies are more and more actively filling the niche of equipment for pipelines and gas and oil production, since this niche is the broadest and most attractive at the moment. In addition to St. Petersburg manufacturers, there are other smaller companies that participate in this business. They are located in the vicinity of the major regions of production in the Republic of Komi, as well as Transneftemash in Velikie Luki (the Pskov Region). In recent years, large transnational companies (Siemens, Ahlstom) have begun to penetrate the Russian power engineering sector. For the time being, they are proceeding at a moderate rate, but in the future the intensity of their activities may increase.

The great influence of the energy cluster on the operation of all industries determines its significance for the country's whole economy. The energy cluster, however, also depends on the state of affairs in certain industries. Oil and gas companies, for example, are large consumers of products of metallurgy, primarily pipes. The quality of pipes manufactured in Russia is generally lower than is required by world standards, and the lifetime of pipes in the severe climate of northern regions is shortened. Pipes with a large diameter (1,420 mm) intended for gas pipelines are not manufactured in Russia. Several plans for manufacturing them (in one of which Severstal participated) have still not been implemented, due to problems with the major consumer of these pipes, the Gazprom monopoly.

Currently, the companies of the energy cluster are the largest consumers of information, telecommunications, financial, and consulting services in Russia, thus facilitating the development of these new sectors of the country's economy. The sphere of services is developing at a rapid pace, but in order to solve their most pressing problems, energy companies turn to the world's leading companies in this business. To solve current financial problems, the giants of the energy cluster, including Gazprom, Lukoil, and Surgutneftegaz, which operate in the Northwest, have formed their own banks. These work as treasuries for their parent companies. This approach is an answer to the volatility of Russian financial system in the transitional period. As the competitiveness on the Russian financial market grows, and the monopolies undergo reform (RAO UES of Russia and Gazprom), this policy will most likely be subject to change. In regard to the information systems integration, the energy companies also prefer, for the time being, to rely on their own subdivisions, only to a very limited degree making use of the potential for interaction with the rapidly growing information sector of St. Petersburg.

The domestic market of the energy cluster, as in other industrial clusters, has decreased in comparison to the last decade of the Soviet period. This decrease took different forms in different sectors. The largest decline in consumption (more than twofold) concerned oil and oil products. The companies managed to compensate for this decline on the domestic market, however, by increasing their exports significantly. The consumption of coal in the region was reduced by about one-third, and the production of electric power, after a relatively minor decline (less than 25%) has already almost recovered the level of the beginning of the 1990s.

Figure 5.10 Determinants of Competitiveness of the Northwest Russian Energy Cluster



In recent years, almost all electric power and coal produced in the Northwest has been consumed within the region. At the same time, whereas for the producers of electric power there is an option for increasing exports, the export of coal (which accounted for only 1.5% of the total production volume in 2001) cannot be significantly increased because of the large transportation costs. Oil and oil products manufactured by the companies of the Northwest, in contrast, are being exported for the most part. Domestic consumption of these products comes to less than 40%. The production of natural gas in the region cannot yet cover the local demand for it. Natural gas is delivered to the Northwest via the the main gas pipelines from Western Siberia. Part of it is distributed among local consumers, and part of it is exported.

A detailed analysis of the competitiveness factors of the energy cluster of the Russian Northwest may be found in *P. Filippov, G. Dudarev, A. Osipov: Energy³: Raw Materials, Production and Technology/Competitive Analysis of the Northwest Russian Energy Cluster, Helsinki 2003*. We will touch upon only a few general points below.

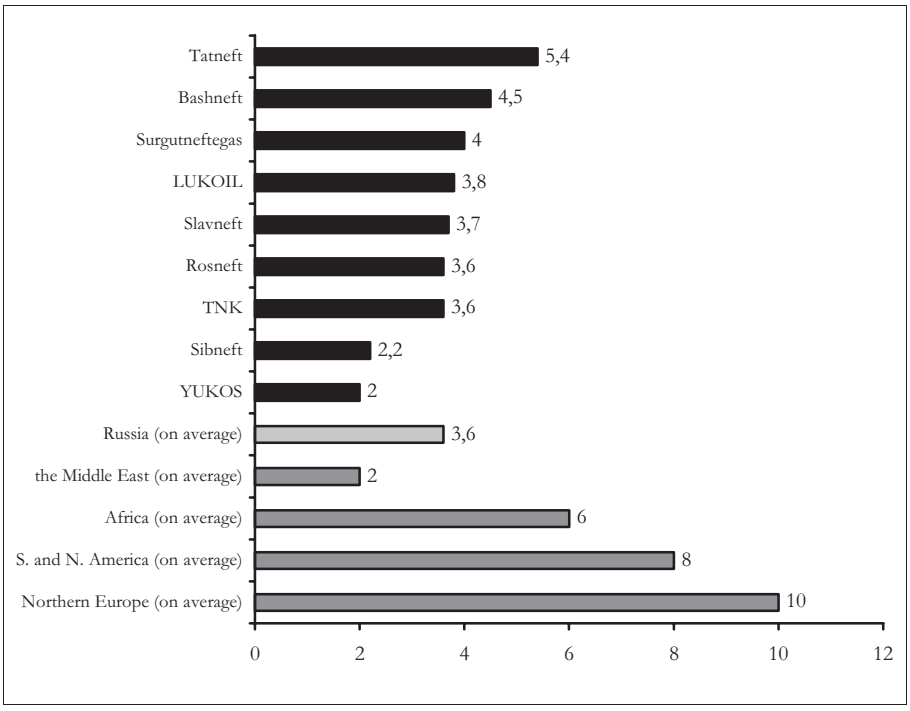
Investments in the basic factors of production - raw materials, production facilities, infrastructure, and human capital - have been sufficient in recent years to ensure a barely stable development only in the oil sector. Other sectors have experienced financial problems for a variety of reasons. The electric power industry, for example, had operated at a constant loss because of chronic arrears in payment by many consumers. It only became fully profitable in 2000, as a consequence of the stricter marketing policy introduced by the new management of RAO UES of Russia.

As a result, the potential of basic factors of production inherited from the Soviet period, has already been exhausted, and new large investments are required to revive it. Major investments are also required for structural changes needed to remedy poor location and technology. These decisions were made during the Soviet period and often did not take full account of economic factors.

The condition of the raw material base of the energy cluster in the Russian Northwest deserves special mention. The already prospected resources of energy raw materials are sufficient for many years to come. Nevertheless, there are some problems. During a thorough prospecting of deposits, and in the course of their exploitation, it is often the case that the expected volumes do not correspond to the actual volumes. The situation is complicated by the general decline of the Russian prospecting industry and consequent draining away of specialists, which creates obstacles for both high-quality, thorough prospecting of deposits (necessary for their accurate economic assessment), and the growth of the raw material base.

Costs of the hydrocarbons extraction in the region today are only slightly higher than the Russian average, and more than two times less than the costs in the North Sea. When the exploitation of the deposits in the Barents Sea begins, however, these figures will sharply increase and the profitability of the business will drop. The extremely weak development of energy saving technologies in all economic sectors must be considered as a negative and long-term factor affecting the whole country. This problem will not be resolved any time in the near future. The per unit of production consumption of electric and thermal power and various types of fuel in Russia will continue to exceed the European level for an extended period of time. This will require additional investments in the construction of generating facilities and in the reduction of energy consumption in manufacturing and the public utilities sector.

Figure 5.11 Cost of Oil Production at the Mouth of the Oil Well in 2001

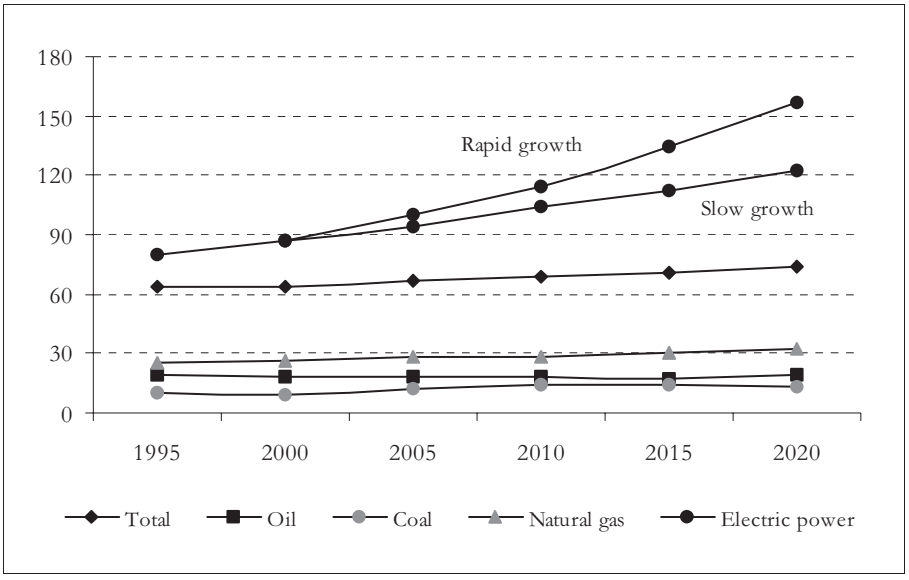


Source: RosBusinessConsulting (2002)

The high and persistent demand for basic products of the energy cluster on the domestic and world markets is a significant long-term factor in its development. The demand for fuel, electric power, technologies, equipment, and services grows steadily, especially during periods of economic expansion. Fluctuations of prices on the world market for hydrocarbon

fuel, caused in part by political factors, significantly influence the long-term competitiveness of energy companies. These fluctuations affect the profits of the companies and, consequently, their potential for investment, as well. In recent years, however, the price for a barrel of oil has not fallen below $15. Most experts claim that if prices plunge below this benchmark, Russian companies would be forced to curtail their investment programs. The extended period of favourable price conditions has allowed companies to implement many vitally important programs and has led to the development of domestic demand for technologies, equipment and services. At the same time, a foundation for stable development has been established. More effective participation of the government in the development of market infrastructure and competition in the gas and electric power industries is crucial for securing this foundation, however.

Figure 5.12 Demand for Primary Energy (million tons oil equivalent) and Electric Power (TWh) and Its Forecast in Northwest Russia



Source: Primary Goals of the Energy Strategy of Russia until 2020 (2000)

After a drop in the 1990s, domestic demand for the basic products of the energy cluster has been growing steadily. The demand for electric power is increasing especially rapidly in the Northwest. The demand for natural gas is also strong, though it is restrained by the underdevelopment of the network of gas pipelines in the Arkhangelsk and Murmansk Regions, and in the Republic of Karelia, and also by the insufficient production in the region. Despite this, already today the portion of natural

gas in the structure of the total fuel balance of the Northwest accounts for 40%. According to forecasts, the consumption of oil and oil products in the region will not experience noticeable fluctuation in the near future. The main tendency here is the growth in the consumption of hydrocarbon fuel of a deeper degree of refining. The consumption of coal (for the production of heat and electric power) has the potential for growth; this directly depends on the expanding use of "clean" technologies that reduce environmental pollution.

The specific feature of the Russian fuel and electric power market has been a significant lag in domestic prices behind world prices. Currently, in various groups of products this difference in prices reaches from three to more than eight times. This situation has a negative impact on companies' gains, since they are forced to sell most of their products inside the country, under pressure from the governmental system of quotas. On the other hand, however, a sharp rise in prices to the world level could cause a deep crisis in Russian industry, which is quite inert. This line of reasoning, however, is open to argument. Large-scale international consulting companies have disproved it, for example, in recent studies analyzing the consequences of Russia's potential membership in the World Trade Organization (WTO). For Russian politics, this thesis is still valid, however, which will obviously hinder the removal of regulating barriers in the near future. For this reason, the liberalization of the market is being delayed (even though it is one of the main conditions for Russia's membership in the WTO), and the price rise for energy products is being regulated and implemented gradually, so that consumers have time to accommodate themselves to new tariffs. In the future, naturally, domestic prices will near the world level; but this process, unfortunately, will be quite painful. The authors assume that occasional crises in power supply in the coming years are inevitable.

Unlike other industrial clusters, the corporate sector of the energy cluster of Northwest Russia is distinguished by a very high concentration of assets and market monopolization, as well as by large portions of State property and slow restructuring processes. Privatisation and the property redistribution that followed it have been carried out completely only in the oil production and oil refining industries. Lukoil, the largest participant in the Russian oil market, which also has assets in other regions and abroad, and which has been developing its own system of pipelines recently, has become a monopoly in oil production of the Northwest. Several small-scale companies, including those belonging to foreign proprietors, manage to stay afloat on the market largely due to the government monopoly (Transneftegaz Company) for main oil pipelines. In addition to Lukoil (Ukhtaneftepererabotka - refinery in the Republic of Komi), there is another large-scale Russia-wide player in the oil refining industry, Surgut-

neftegaz. It owns refinery in Kirishi, the Leningrad region (KINEF). The products of these two refineries are supplied to different consumers, and there is no competition involved.

Table 5.15 Contemporary Energy Markets in the Northwest Russia

Industry	Type of Market	Companies: approximate shares on markets of corresponding products in the region are shown in parentheses.
Electric power	Monopoly	RAO UES of Russia (≈100%)
Natural gas	Monopoly	Gazprom (≈100%)
Oil	Oligopoly	Lukoil (80%), Rosneft (19%)
Oil refining	Oligopoly	KINEF (82%) Lukoil-Ukhtaneftepererabotka (18%)
Coal	Oligopoly	Vorkutaugol (63%), Intaugol (37%)
Shale oil	Monopoly	Leningradslanets (100%)

Source: Expert RA, data provided by companies, 2002

A State monopoly still exists in the electric power industry (Russian RAO UES of Russia, which has subdivisions in every region, and Rosenergoatom, which has control over nuclear power plants) and the gas industry (Gazprom and its subdivisions in the Northwest Russia - Severgazprom and Lentransgaz). Reforms in the electric power industry have already begun. They imply privatisation of the generating facilities and the electric power marketing sector. The government, however, intends to preserve its control over power transmission grids, which will allow it to continue to determine its tariff policy. The government is also planning to preserve its control in the nuclear power industry. The reform of the public utilities sector also has a significant effect on the development of the electric power industry. Today, the public utilities sector consumes over 40% of thermal power and around 20 - 30% of electric power, and is distinguished by an extremely low efficiency, as well as high losses of energy. The reforming of Gazprom will probably not begin before the completion of the restructuring of the electric power industry. This is primarily due to concerns that a simultaneous restructuring of the market and the expected significant growth of tariffs for both electric power and natural gas will have a strong negative impact on the entire economy of the country.

The two coal companies that operate in the Republic of Komi - Vorkutaugol, which specializes in coking coal, and Intaugol, which specializes in the thermal coal - are also controlled by the government, which supports the industry that otherwise operates at a loss. The gov-

Table 5.16 Largest Energy and Power Engineering Companies in Northwest Russia in 2002

Players	*Controlled companies (at the beginning of 2003)*	*Turnover in 2002, USD million*	*Main products*
RAO UES of Russia	Lenenergo	717.9	Electric and heat power
	Vologdaenergo	222.3	Electric and heat power
	Komienergo	219.1	Electric and heat power
	Kolenergo	197.0	Electric and heat power
	Arkhenergo	150.4	Electric and heat power
	Karelenergo	114.8	Electric and heat power
	Yantarenergo	71.8	Electric and heat power
	Novgorodenergo	69.0	Electric and heat power
	Pskovenergo	40.6	Electric and heat power
	Pechora Thermal Power Plant	26.9	Electric and heat power
	Northwest Thermal Power Plant	21.3	Electric and heat power
	Pskov Thermal Power Plant	18.1	Electric and heat power
Gazprom	Severgazprom	624.8	Natural gas and gas products
Surgutnefte-gas	KINEF	510.3	Oil products, petrochemicals
Lukoil	Lukoil-Komi	275.7	Oil
	Lukoil-Kaliningradmorneft	133.9	Oil
	Tebukneft	99.5	Oil
	Baitek-Silur	59.1	Oil
	Lukoil-Ukhtaneftepererabotka	39.1	Oil products
	Pechoraneftegas	35.4	Oil
	Bitran	32.3	Oil
Rosneft	Polyarnoe Siyanie	119.6	Oil
	Severnaya neft	111.0	Oil
The State	Vorkutaugol	227.9	Coking coal
	Intaugol	32.8	Thermal coal

Silovye Mashiny	Leningrad Metal Plant (LMZ)	138.0	Hydraulic, steam and gas turbines
	Electrosila	86.8	Electrical machines
	Turbine Blades Plant (ZTL)	24.4	Turbine blades
United Machine-Building Plants (OMZ)	Izhora Plants*	142.0	Equipment for nuclear power plants
Rosenergoatom	Leningrad Nuclear Power Plant	210.4**	Electric power
	Kola Nuclear Power Plant	71.1**	Electric power

* Here mentioned total turnover of the company in 2001 and products for energy cluster
** data for 2001
Source: Expert Northwest, 20-26.10.2003; data provided by companies

ernment has not yet developed a strategy for its development. In particular, the federal authorities intend to sell their stocks in coal companies, whereas regional authorities try to prevent this from happening. Two new large players have been formed through privatisation and several mergers in the power engineering sector: Silovye Mashiny and the United Machine Building Plants. Their activities are not limited to the Northwest Russia. The government preserves control over the manufacture of equipment for pipelines; the Transneftemash Plant belongs to the State-owned company Transneft.

Most companies of the energy cluster have inherited from their Soviet past such negative features as a complicated structure, oriented toward providing self-sufficiency of companies; low productivity; high social costs; and low motivation to increase the efficiency of production because of low competition on the domestic market. The high degree of monopolization creates barriers for new players to enter the industry, which are difficult to overcome.

At the same time, the example of the privatised oil sector demonstrates a large potential for growth in efficiency of companies. Lukoil, for instance, carries out a policy of a decrease of costs through consolidating assets, outsourcing, upgrading production technologies, constructing its own oil pipelines, terminals and tanker fleet, improving skills of personnel while reducing the number of employees. The transparency of business in the oil sector grows faster than in other sectors. Signs of a competitive market are also appearing; for example, the market of gasoline in St. Petersburg. Such positive changes in the sphere of corporate activity are also to be expected after the reform of the gas industry and the electric power industry.

The influence of the government is also evident in the activity of companies in the energy cluster to a greater degree than in the activity of companies in other industries. This is because of the high profitability of the energy sector, which accounts for more than half of the revenues of the Russian budget, and its significance for the functioning of all other sectors of the economy. At the present time the government has numerous instruments at its disposal for influencing the cluster: holding of capital stock of the largest companies, including the possession of controlling interest in Gazprom, RAO UES of Russia, and others; regulation of tariffs for electric power and natural gas, railroad and pipeline transportation; tax policy; export taxes and quotas; protective measures for Russian exporters on international markets; licensing policy in the sphere of the distribution of raw material resources; participation in the development of infrastructure, etc. This abundance of mechanisms of regulation could quickly increase the efficiency of the energy cluster if pursued as a purposeful long-term industrial policy.

Unfortunately, the actual government policy lacks clearly understood tasks and coordination between different branches of power. The government often pursues short-term goals; moreover, it sometimes milks the energy cluster, to cover up the holes in the budget. Multiple federal programs that have been declared in the past decade, which were aimed at increasing the competitiveness of the energy cluster (programs for restructuring the coal industry, developing the dispersed energy production, preserving and developing of resources, etc.), were primarily rhetorical in nature, and never led to the substantive improvements they envisioned.

Generally speaking, the influence of the authorities in the sphere of regulation of processes in the energy cluster is primarily political, rather than economic, in nature. This is especially true for tariff and licensing policies. The federal and regional authorities often pursue different interests, and this sometimes leads to serious clashes (the conflict between the Administration of the Nenets Autonomous District and Lukoil, for example). The government also contributes to the high pollution of the environment caused by energy companies by postponing the adoption of efficient environmental legislation.

When evaluating prospects for the further development of the energy cluster of the Northwest Russia, the authors assume that there will be no radical changes in the political and economic life of Russia in the near future, and that the basic trends that exist in the sector today will have a logical development.

Oil production in the Northwest will grow through exploring resources in the north of the Timan-Pechora oil and gas province and the sea deposits. The ambitious project for construction of a large sea oil

terminal near Murmansk and the first Russian private main oil pipeline from Western Siberia to this terminal using only resources of Lukoil, Surgutneftegaz, Yukos, and other companies, will in the authors' opinion encounter many more complications than are thus far envisioned, however, and will require significant revisions of original plans, as well as a considerably greater amount of time for implementation. These complications will arise from the high risks that the companies will have to take and overcome. In addition, a competitive struggle is anticipated for the implementation of other similar projects: a main oil pipeline from deposits in Eastern Siberia to one of the seaports in the Russian Far East, in order to export oil to the large and rapidly expanding markets of Eastern Asia (a government project); and an oil pipeline running to the northern provinces of China (another private venture).

The monopolistic state of Lukoil in oil production in the Northwest Russia may be disrupted, for example, by the Rosneft government company, which is scheduled to merge with Gazprom, in order to create the largest oil and gas holding company, which will be totally subject to government control. Generally speaking, assets of the Russian oil sector are very attractive for investment. The latest evidence of this is the merger of one of the leading companies of the world oil industry, British Petroleum, with the large Russian company TNK (Tyumen Oil Company). The cost of this merger, the largest deal in the history of Russian business, was estimated at USD7 billion.

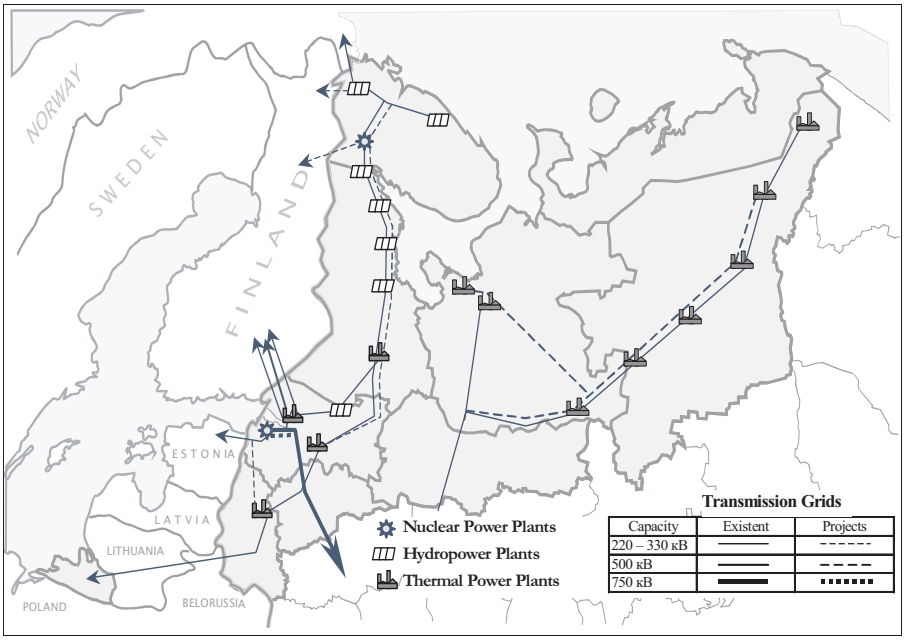
The oil refining sector will also continue its active development in the region. The growth of oil refining will be facilitated primarily by raw materials from Western Siberia. The introduction of new large facilities (around 5 million metric tons per year) for the production of high-octane gasoline at KINEF is expected in the near future. Other probable projects include the construction of a new refinery with a capacity of approximately 10 million metric tons per year near an oil seaport in Primorsk (the Leningrad Region) for the production of gasoline, primarily for export, and the construction of a black oil plant by Lukoil on the Kola Peninsula (around 3 million metric tons per year) for satisfying the domestic demand. It is also certain that oil companies will come to pay more attention to the processing of oil-well gas. The first of these facilities have already been put into operation by Lukoil in Usinsk (the Republic of Komi).

In the opinion of the authors, the restructuring of Gazprom should not be expected until al least 2008, due to the size of the problem and complications connected with its implementation. This company is distinguished, perhaps, by the worst transparency in the energy cluster, which causes difficulties in making prognoses for its development. Under certain circumstances, the exploitation of new deposits in the Barents

Sea, including one of the world's largest deposits of gas condensate, the Schtockman deposit, requires greater costs than those required for the continuation of exploitation deposits in Western Siberia. In addition to economic reasons, however, political issues, including the interests of European countries, are very relevant in this case. For this reason, the exploitation of sea deposits and the construction of new main gas pipelines will most likely begin in the future. This will allow for increasing the portion of natural gas in the fuel balance of those Northwest regions that thus far have not been gasified: the Murmansk and Arkhangelsk Regions, and the most part of the Republic of Karelia.

Another trend in the gas industry of the Northwest Russia is the increase of natural gas processing. Already at the gas processing plant in Sosnogorsk (the Republic of Komi), which produces, liquefied gas, gasoline, and technical carbon, modernization is taking place, with the goal of significantly increasing its capacity and depth of processing. A new plant for producing liquefied gas for domestic consumption and for export is also being built in the Leningrad Region.

Figure 5.13 Existing and Designed Power Networks in Northwest Russia



The prospects for significant expansion of the market for the regional coal industry are connected to a project for constructing a new Belkomur railroad, which will allow coal from the Republic of Komi to reach the Urals by a shorter route. Railroad tariffs are generally one of the main

factors of competitiveness of the Russian coal industry. For example, due to the extremely low tariff for shipping for which the regional authorities lobbied, it is cheaper now for exporters from Kuzbass to ship coal to Europe, than shipping it from the Komi Republic, although the latter is significantly closer to European markets. For the Vorkutaugol Company, which produces coking coal, the interests in this business of Severstal and some other companies are very important. In particular, the main consumer of Vorkuta coal, Severstal, is implementing a strategy of annexing all its sources of raw materials. In order to do so, it is planning to increase its share in Vorkuraugol's capital to a controlling interest (at the beginning of 2003 Severstal had 15% of the stock).

The results of the reform that is taking place now will have a great influence on the development of the electric power industry. It is expected that the main players in the new market will be the current regional subdivisions of RAO UES of Russia; the most powerful of these in the Northwest, Lenenergo, may possibly absorb several of its smaller neighbours. Oil companies that have already demonstrated their interest in the electric power market will also undoubtedly expand their participation. At the initial stage, the competitive market will be open primarily for the largest consumers, whereas the majority of the others will not have a chance to choose a supplier of electric power for a long time, because of the monopoly of the former subdivision of RAO UES of Russia in their region. In the virtually closed power networks of the Arkhangelsk Region and the Republic of Komi, a hierarchical structure will continue to exist in the electric power industry, and the reforms will be delayed.

The development of transmission grids, will be the key issue for the electric power industry. Today, many large power plants in the region are not operating at full capacity, due to the underdevelopment of power transmission grids. The prospects for increasing the generating capacities in the Northwest Russia also depends on the development of the infrastructure. In this regard, it is not only the density of the grid but the quality that plays a role. Today, the specifications and standards of Russian power transmission grids vary significantly from that of European countries (high losses, a complex control system caused by the lack of intellectual devices, etc.), which complicates considerably the export of electric power. The efforts of the government to keep control over the infrastructure sharply reduce the opportunities for companies to develop power transmission grids based on their own initiative and decisions.

Due to the inevitable increase in tariffs for electric power, companies of other industries and municipalities will be faced with the necessity to reduce energy losses caused by the utilization of inefficient technologies, and to develop their own small facilities for producing electric and heat

power with the maximum use of local hydraulic potential and biofuels - forest industry wood wastes and peat. This will result in the gradual regional redistribution and decentralization of the electric power production, a tendency that is characteristic of European countries.

The power engineering sector, in our view, will gradually lose its position on the market, as a consequence of the low competitiveness of its products in comparison with the products of the world's leaders. Only significant investments in modernization could radically change the situation for the better. These investments may be expected as a consequence of the acquisition of the major St. Petersburg power engineering plants by the large transnational companies.

In regard to the expected positive influence of foreign investment in the energy cluster of Northwest Russia, we would like to stress that it is not so much a matter of the absolute amounts of these investments, as of their innovative potential. In other words, it is a matter of the most advanced technologies that will accompany these investments and allow local companies to significantly increase their efficiency. The proximity of the Northwest Russia to European markets, in the authors' opinion, creates favourable conditions for the expansion of international energy cooperation in this region, in particular.

5.5 The Metal Cluster - the Melting Iron Curtain

The metallurgy and metalworking cluster is one of the largest industrial sectors in the Northwest Russia. In recent years, it has accounted for 15 to 20% of the total volume of industrial production in the region. Severstal is the leader in ferrous metallurgy in the Northwest Russia. It ranks as one of the three top Russian manufacturers in production volume, and in business transparency, quality of services, marketing activity, it is the national leader in the steel industry. In the world rating of steel manufacturers, Severstal is in the top twenty. The non-ferrous metallurgy of the Northwest Russia is in practice shared between Norilsk Nickel and Siberian-Urals Aluminium (SUAL). Norilsk Nickel is the world leader in nickel and platinum metals production, as well as Russia's largest producer of copper. In the Northwest Russia, the company possesses copper-and-nickel mines, as well as metallurgy plants on the Kola Peninsula. SUAL is the second largest aluminium holding company in Russia. It has many mines and all alumina and aluminium plants in the region in its possession.

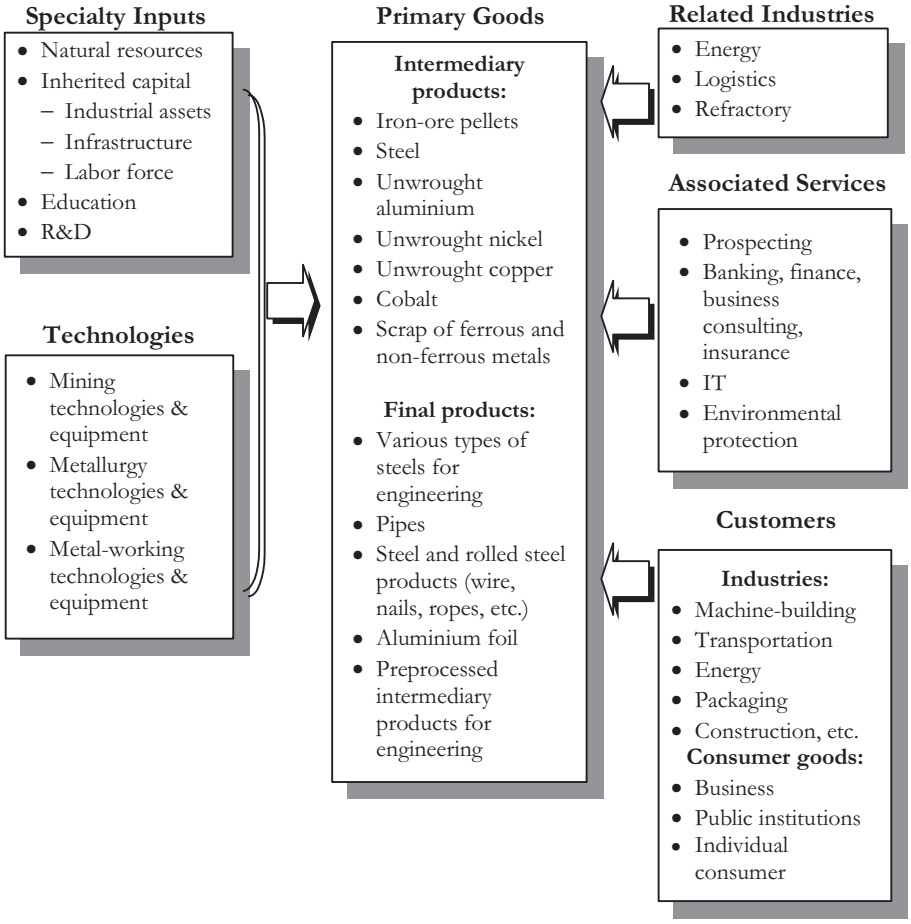
Figure 5.14 Metallurgy and Metalworking Agglomerations in Northwest Russia

Due to a sharp decline in the Russian machine-building industry, and a consequent reduction in domestic consumption of metals, the companies of the cluster have been marketing most of their products abroad in the past decade: over 50% of ferrous metals and over 80% of non-ferrous metals are being exported. This has led to a sharp increase in the dependence of Russian manufacturers on volatility of the world market, and has been a strong force in the development of the metal cluster in recent years. The metallurgy and metalworking companies of the Northwest Russia increasingly participate in over-the-border cooperation, and become familiar with the rules of the game on the world market.

The structure of the metallurgy and metalworking cluster of the Northwest Russia was created primarily during the Soviet era, and includes all necessary components: mines and ore enrichment plants; metallurgy plants; metalworking companies; specialized educational and R&D organizations; manufacturers of equipment for metallurgy and metalworking; and companies of related and supporting industries. The cluster is distinguished by a high degree of concentration and regional specialization. Currently, it is the leading industrial sector in the Vologda and Murmansk Regions, and plays an important role in the economy of St. Petersburg, the Leningrad Region, and the Republic of Karelia. As a traditional and inert sector of the economy, the metallurgy and metalworking cluster nevertheless possesses large potential for development. In recent years, it has been especially prominent in the aluminum indus-

try, where some ambitious projects are being realized or are in the preparatory stages.

Figure 5.15 Structure of the Metal Cluster of Northwest Russia



The current product range of companies, in which primary metals prevail over products with higher added value, reflects the shift of the core of the cluster from metalworking to metallurgy that has taken place during the past decade. This trend is opposite to that of the world leaders of the metal industry. Their product range becomes more diverse and the share of alloyed steel, alloys, pipes with special coating, pre-processed intermediary products for engineering, and other high-added-value products and services is growing.

The development of the cluster is currently determined mainly by the condition of its speciality inputs. The raw material base in the region is quite large: the deposits of iron ore, copper-and-nickel ore, bauxite,

nepheline (the Northwest is the leading Russian region in raw materials for the aluminium industry), and coking coal are exploiting. In addition, there are promising deposits of chromium, titanium, zinc and manganese ores. During the past decade, however, the existing raw material base has been utilized but not augmented, due to a sharp reduction of prospecting. This has led to the depletion of the best resources in most deposits. The exploitation of new deposits (explored but yet not put into operation) is hindered by the lack of investment opportunities and by the extremely low density of the transport infrastructure. The network of transportation routes in the northern regions that are richest in ores (the Republic of Komi and the Murmansk Region) is the most poorly developed.

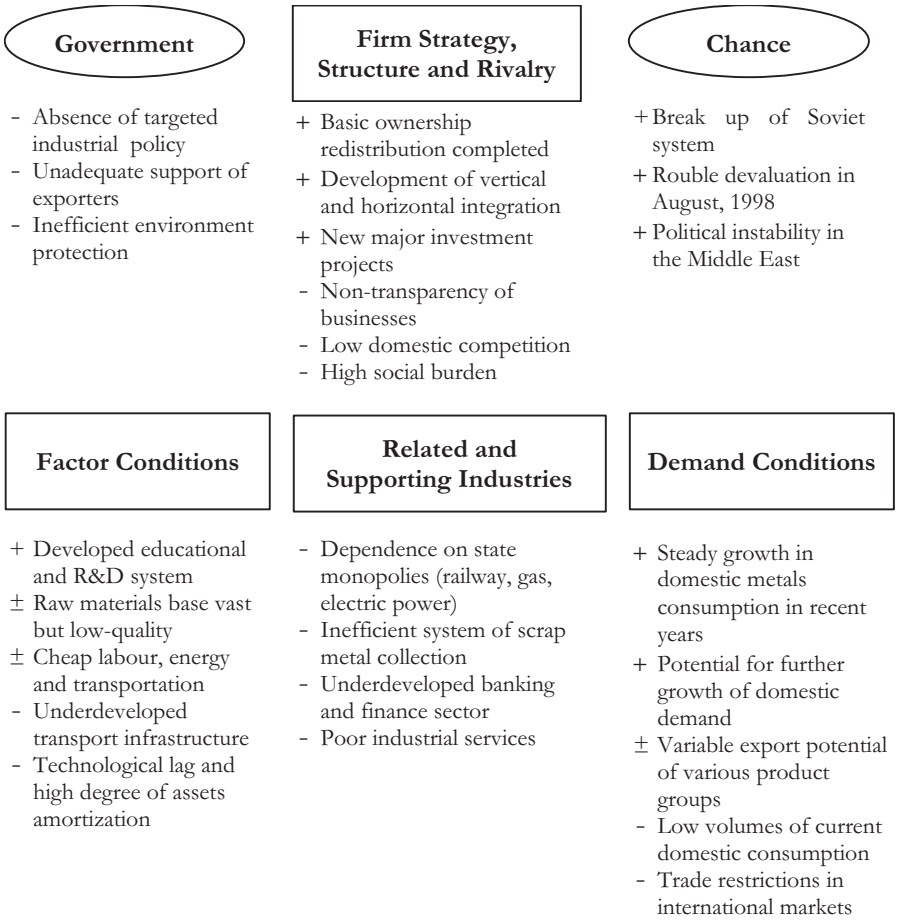
Another important raw material - scrap metal - has been obviously under-utilised in Russian metallurgy in the past decade. The sector for collecting and processing scrap metal is the least efficient and transparent sector in the cluster, and is known for its high criminal activity. Most of the scrap metal collected is exported, sometimes illegally or semi-legally, due to higher prices abroad.

The educational and R&D institutions of the metal cluster are concentrated in St. Petersburg. Some of them are the main training centres for staff for the entire country. In recent years, however, due to the increased importance of Severstal, Cherepovets has become another large centre for specialized education. Branches of the leading St. Petersburg technical universities are located there. Although the education and R&D sector has experienced numerous difficulties in the past decade - unstable financing, loss of a number of highly qualified personnel, outdated equipment, etc. - its potential is still significant, and will undoubtedly play an important role in the further development of the cluster.

The equipment of most metallurgy and metalworking companies is outdated - the degree of wear and tear is on average around 50%, reaching as high as 80 - 85% at some plants. Technologies that have long been out of use in developed countries are still often found in Russia. This is a cause contributing to low productivity and an extremely high level of environmental pollution. A low level of automation and computerization of production processes is still very characteristic of metallurgical plants.

In recent years, the leading companies have been increasing their investment in modernization. They are, however, primarily modernizing equipment for manufacturing products intended for export, products with low added value. This undoubtedly lowers the competitiveness of the cluster in the long run. The modernization is carried out using both domestic equipment (Izhora Plants located in St. Petersburg is the leading regional producer) and imported equipment. The share of import grows, which signifies the lowering competitiveness of Russian equipment manufacturers.

Figure 5.16 Determinants of Competitiveness of the Northwest Russian Metal Cluster



Among related and supporting industries, the power industries and logistics are especially important for the metallurgy and metalworking cluster. Metallurgy companies are greatly dependent on the state in supplies of electric power and fuel, as well as tariffs for railroad shipping. The existing tariff policy of the government is virtually non-transparent; large exporters often receive privileges. Generally, tariffs are significantly lower than European tariffs. This is one of the major components of the price competitiveness of Russian manufacturers.

In addition to the drop in domestic consumption of metals, its structure also changed radically after the collapse of the Soviet Union. There was a severe reduction in the consumption of non-ferrous metals (3 to 5 times, on average, whereas for steel it was approximately 2 times), alloyed steel, pre-processed intermediary products for engineering, and other products, which were previously manufactured in large amounts

for the needs of the military sector. The consumption of metals in other industries, for example, foil in the packaging industry, and metal-based construction materials in the construction industry, is still significantly lower in Russia than in developed countries. Russian metal products with high added value are also not in great demand on international markets. Primary metals - ingots, pigs, low-processed rolled stock, etc. - as well as scrap metal and iron ore, form the bulk of the exports.

A detailed analysis of the metallurgy and metalworking cluster of the Northwest Russia can be found in S. Boltramovich, G. Dudarev, V. Gorelov - The Melting Iron Curtain/Competitive Analysis of the Northwest Russian Metal Cluster - Helsinki, 2003. Here we will touch upon only a few of important points.

During the past decade, investment in the main production factors of the metallurgy and metalworking industry, as in many other Russian industries, has obviously been insufficient for their sustainable development. Only in recent years have companies begun to invest substantially in modernization. The implementation of large-scale projects, however, is greatly complicated by the underdevelopment of the Russian financial, banking, and insurance services. Without their participation, as well as government investment, companies are unable to develop main infrastructure. For example, when it was putting into operation the first bauxite mine in Timan, the SUAL company had to invest the most in the construction of a railway to the mine.

The relatively inexpensive workforce, fuel and electric power, and railroad transportation should not be viewed as long-term factors of competitiveness. Tariffs will probably grow and approach the average world level. Without significant investment in increasing the quality of the workforce, the companies will continue to lag behind world leaders in efficiency, and this discrepancy will grow. For the time being, the authorities are actively resisting the attempts to reduce the number of personnel at companies (as well as attempts to shift the burden of responsibility for social infrastructure to the municipalities), in order to avert serious social problems in small towns where these companies are the main employers and sources of tax revenues into local budgets.

For this reason, companies still follow the practice of developing countries - the low cost of the workforce compensating for its abundance. As a result, Russian companies fall behind the world leaders of manufacturing in productivity by many times. Changes in this policy are inevitable in the longer run. These changes will come due to the weak influx of new personnel as a result of the low birth rate, migration of the population to large cities, the deteriorating quality of training, and aging of existing personnel. All this will force the companies to invest in more productive and less labour-intensive technologies. This forced modernization

will have other positive consequences, such as a decrease of energy losses and costs, and environmental pollution.

Since 1999, the domestic market of metals has been experiencing gradual growth. The greatest prospects in the near future will be connected with the need to renew and develop transportation and infrastructure - railroad tracks and cars, ships, pipelines, and electric power transmission grids. A significant increase in the consumption of primary metals and metal products with high added value, however, can be expected only in the event of an upswing in the Russian machine-building industry. Only the growth of domestic machines and equipment production will be a serious incentive for the improvement of the product range of metallurgy and metalworking companies. There are numerous prerequisites for this development scenario in the mid-term: availability of experience and knowledge; inexpensive labour force; and relative proximity to European markets. The need to create a more favourable business environment is still the most important factor, however.

Manufacturers of non-ferrous metals are in a better position on international markets. They have not yet experienced import limitations. Unlike the non-ferrous metal companies, companies of ferrous metallurgy (Severstal in the Northwest Russia is a good example) have been confronted with import barriers and limitations on the markets of developed countries. This forces steel producers to seek other opportunities on the markets of developing countries, where the competition is also growing, and their competitors have competitive advantages that are generally similar to those of the Russian manufacturers. It is expected that Russian membership in the World Trade Organization will simplify exports of ferrous metals. Another possible consequence of Russia's membership in the WTO is the strengthening of competition in the domestic market, which can be estimated as a positive factor of competitiveness in the medium-term perspective.

The processes of privatisation and initial property redistribution in the metallurgy and metalworking cluster of the Northwest Russia have been largely completed. The highest degree of assets consolidation is evident in non-ferrous metallurgy. The acquisition by SUAL of Metallurg, a smaller holding company, was the last major event of this nature. This led to the virtual monopolization of the regional aluminium industry. In ferrous metallurgy, there are a greater number of players, but the share of Severstal is now extremely great and far outstrips the shares of other companies. Severstal has strong competitors only in other Russian regions and Ukraine. The struggle to conquer markets is forcing Severstal to modernize its equipment and technologies, to broaden its product range, and to increase the quality of its services. In particular, Severstal was the first Russian metallurgy company to create its service centres in large cities.

Table 5.17 Largest Metal Companies in Northwest Russia

Players	*Controlled companies (at the beginning of 2003)*	*Region*	*Turnover in 2002, USD million*	*Main products*
Severstal Group	Severstal	Vologda	1,923.6	Cast iron, steel, rolled steel
	Cherepovets Steel Rolling Mill	Vologda	171.0	Steel products: nails, wires, chains, etc.
	Karelsky Okatysh	Republic of Karelia	141.3	Iron-ore pellets
	Olenegorsk GOK (Olkon)	Murmansk	60.4	Iron-ore concentrate
United Machine-Building Plants (OMZ)	Izhora Plants*	St. Petersburg	142.0	Steel for engineering; steel pipes, and other steel products
MDM Group	Kovdor GOK	Murmansk	162.5	Iron-ore concentrate
Several companies	Borovichi Refractory Plant	Novgorod	64.9	Refractory
SUAL	Metallurg**	Leningrad	138.5	Alumina, Aluminium
	Kandalaksha Aluminium Plant	Murmansk	59***	Aluminium
	Boksitogorsk Glinozyom	Leningrad	53.9	Alumina
	Nadvoitsy Aluminium Plant	Republic of Karelia	24.3	Aluminium
	Timan Bauxite	Republic of Komi	4.7	Bauxite
Norilsk Nickel	Kola Mining and Metallurgy Company (KGMK)	Murmansk	424.2	Nickel, copper, cobalt, converter matte
Kuusakoski (Finland)	Petromax	St. Petersburg	38.7	Processed scrap metal
Several companies	Krasny Vyborzhets	St. Petersburg	32***	Rolled non-ferrous metals
Company's management	Foil Rolling Mill	St. Petersburg	19.3	Foil

* Figure presented here is total turnover of the company in 2001 and its metal products (other products of the company are machines and equipment)
** Metallurg comprises Volchov Aluminium (aluminium plant) and Pikalevo Glinozyom (alumina plant)
*** data for 2000
Source: Expert Northwest, 20-26.10.2003; data provided by companies

Table 5.18 Emissions (Carbon Oxides, Sulphur Oxides, Nitric Oxides, Metals Oxides and Others) by Enterprises of the Metal Cluster of Northwest Russia in 2000

	Region	*Emissions*	
		Into the atmosphere, thousand tons	*Into surface waters, million m³*
Severstal	Vologda	339	32.5
Pechenganickel	Murmansk	161	28.7
Severonickel	Murmansk	57.4	18.3
Karelsky Okatysh	Republic of Karelia	39.7	15.3
Apatit	Murmansk	18.4	18.2
Nadvoitsy Aluminium Plant	Republic of Karelia	9.1	n/a
Izhora Plants	St. Petersburg	3.1	n/a
Kovdor GOK	Murmansk	n/a	56.7
SevRedMet	Murmansk	n/a	16.5

Source: State report "On the Situation of the Environment in the Russian Federation", Ministry of Natural Resources of the Russian Federation (2001).

The completion of the main property redistribution should be viewed as a positive fact, since the companies will have the opportunity to pay more attention to issues of strategy and make their businesses more transparent. In the area of development strategies, however, there are numerous problems - the strategies that companies have announced at present are very divergent from one another and do not correspond always to the market conditions. Severstal strives to get maximum control over mines and pits, and it is also actively diversifying its business, acquiring assets in other industries, such as car manufacturing, mechanical wood processing, transportation, and others. SUAL intends to modernize its extremely outdated aluminium plants (all three companies in the Northwest Russia are outsiders in the Russian aluminium industry) and to build new, large alumina and aluminium plants. Norilsk Nickel is currently involved in reorganizing its plants on the Kola Peninsula, including changing the specialization of its nickel manufacturer, the Severonickel plant, to cobalt and platinum metals.

The processes of vertical integration and diversification into sectors that are loosely connected (or not connected) with its core competence is something completely different from the world trends in the industry - specialization, outsourcing, and concentration on the key advantages. Evidently, at the next stage of development the rapidly growing competition

and the need to invest in production will force Russian manufacturers to follow the path of specialization. Structural changes connected with such transition will to a great extent determine the character of processes in the metallurgy and metalworking cluster in the mid-term.

The share of foreign capital in metallurgy and metalworking is still minimal when compared to the food, forest, and even the energy cluster. This is connected with high entrance barriers, the long-term profitability of projects, their great dependence on the tariff policy of State monopolies, as well as with rough struggles for assets which distinguished the stage of privatisation and initial property redistribution. There is only one large-scale project, initiated by a foreign player. This is the probable construction by the American company Alutec of an aluminum plant in the vicinity of the Leningrad Nuclear Power Plant and a new seaport in Ust-Luga (the Leningrad region).

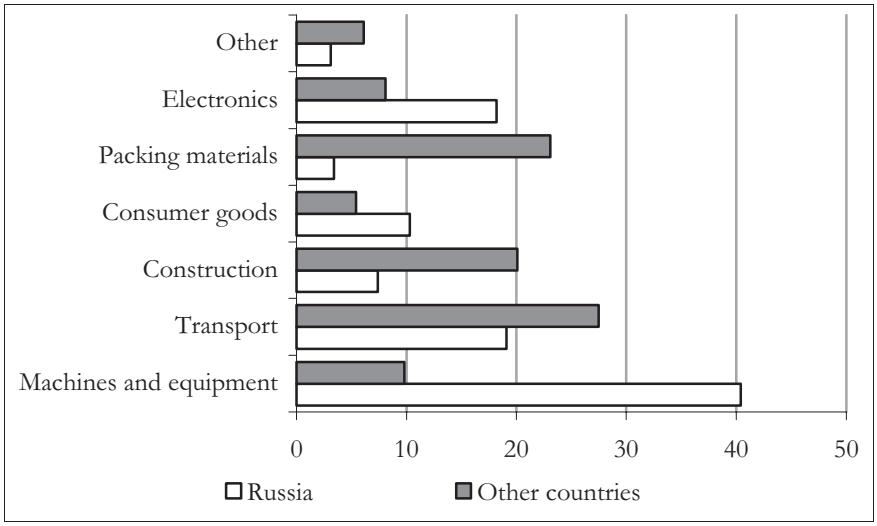
Along with the energy industries, metallurgy bears the largest responsibility for the total industrial pollution of the environment in Russia. This is an even more critical matter, since a number of environmentally hazardous metallurgy plants are located near the frontier. These are: mines and ore enrichment plants in Kostromuksha (the Republic of Karelia), Kovdor, and Pechenga (both - the Murmansk Region). Currently, all environmental protection measures there and at other plants are carried out primarily under pressure from international organizations. The companies themselves do not have incentives to introduce expensive "clean" technologies in the light of the weakness of the Russian ecological legislation.

Stringent control over the environmental situation may become an important form of government influence on the development of metal companies. Today, after the privatisation of all basic assets in the cluster, these main forms are tax, customs, and tariff policies. On the whole, the current influence of the government on the development of the metal cluster is ineffective. Among the negative effects of this influence are: the absence of a clearly defined and consistent industrial policy aimed at the development of economic activity and the creation of favourable conditions for operation; the absence of systematic support of Russian exporters (exports guarantees, information support, etc.) and protection of the domestic market from price dumping (for example, from Ukrainian metallurgy companies); the virtual disassociation of the government from the development of the infrastructure; and the weak protection of investments and property rights, which alienates potential investors, including foreign investors. All of this, and many other factors, creates the unfavourable investment climate in Russian industry as a whole, and in the metallurgy and metalworking cluster of the Northwest Russia in particular.

The further development of the metallurgy and metalworking cluster of the Northwest Russia depends greatly not only on economic conditions, but also on political conditions. It also depends on other factors connected with the forming of a new business environment in the country - with national culture, people's priorities, etc. Nevertheless, the authors would like to suggest some of the probable lines of development of the cluster, based on some of its current trends.

One might propose that in the medium term the companies will try to utilize new reserves of raw materials by additional exploring of deposits already under exploitation, by exploiting new deposits, and by increased use of secondary metal. It is expected that Severstal will gradually transfer to cheaper and better quality iron ore from the Kursk area. There are also preconditions for the appearance of a new metallurgy agglomeration in the Republic of Komi. Initially, it may specialize in aluminium production, based on the utilization of bauxite deposits. Later the range of products may be broadened by exploiting other ore resources of this region.

Figure 5.17 Consumption of Aluminium by Industry, %



Source: www.cfin.ru

The growth of the consumption of metals in the country will continue. In addition to the renewal of the transport and energy infrastructure, there are other posibilities in the development of the packaging industry (foil, aluminium cans), expansion of the metal-based construction materials production, and evidently, in inevitable growth of the military-oriented production, since already there is a great need for the technical reequipping of the Russian army and navy. The level of consumption in

many indices in the late 1980s, however, will not be recovered due to the increased efficiency of the utilization of metals, and the shift of the structure of metal consumption toward saturating the consumer market.

The globalisation of economic activity will result in the integration of Russian manufacturers with foreign companies. Russian companies will generally keep their specialization in raw materials within the chains of over-the-border cooperation with metallurgy and metalworking companies of developed countries. Russian metal exporters in the medium term will primarily supply raw materials and products with low added value abroad. To increase the portion of products with high added value, significant improvement of the investment climate and governmental policy to develop training system, infrastructure, and markets, are needed.

Russian companies will gradually implement western manufacturing standards. Increasing automation and computerization will result in gradual staff reduction. Business will become more transparent; the number of shadow operations will decrease. Companies will begin active marketing of metals through the network of service centres in Russia and abroad, and will seek to engage in outsourcing. More attention will be paid to the issues of training and environmental protection. Companies will more actively finance purposeful educational programs in universities and secondary technical schools which provide an influx of young professional workers. The appearance the first private secondary technical schools also seems likely in the mid-term.

Stage by stage restructuring of State monopolies in the electric power industry, gas industry, and the railroad will not be painless, but over time it will lead to the formation of a competitive market in these sectors. If the government, however, still controls the tariffs, the general course of development will be hindered and long-term competitiveness of companies will therefore decrease.

The changes in the corporate sector are most difficult to predict, since it is distinguished by highly dynamic development. In the authors' view, two trends concerning the largest players are probable in the near future. The Severstal holding company will curtail diversification other sectors, and will concentrate on its core competence: metallurgy. The monopoly of SUAL in the aluminium industry of the Northwest Russia will be broken by the leader in the Russian aluminium industry (currently known as Basic Element, or BasEl), by the construction of a new plant, or the purchase of existing facilities.

On the whole, the industrial investment climate will gradually improve. The lagging behind of the Russian machine-building industry and the traditionally high inertness of the metallurgy and metalworking industry, however, will not foster great strides in development in the foreseeable future.

5.6 The ICT Cluster – Busy Lines, Hectic Programming

Unlike other clusters described in the previous section, the cluster of information and telecommunication technologies (ICT) is founded primarily not on the industrial activity, but rather on the services sphere. This is a relatively new economic formation, which is rapidly developing in the world. During most of the 20th century, the companies of the cluster specialized in providing services of wired telecommunications. In the end of the 1980s—beginning of the 1990s, however, a technological breakthrough in the spheres of wireless telecommunications and information technologies occurred. This led to the prompt development of the entire industry. According to experts' estimates, the development of the ICT cluster in Russia today is lagging 3 to 5 years behind the world leaders. It is still in a stage of rapid saturation of new segments of the market: average rates of growth in recent years have reached 40%; in single sectors 100% and more.

During the Soviet period, in the Northwest Russia, primarily in St. Petersburg (Leningrad, at that time), a large production of equipment was created. Specialized educational and R&D institutions were also established. After the collapse of the Soviet Union, many of these companies, especially equipment manufacturers, experienced serious difficulties. Due to the development of new sectors, however, St. Petersburg was able to maintain its leading positions in the ICT cluster of Russia. Today, only the Moscow area, which includes Moscow and the Moscow Region, exceeds St. Petersburg in ICT terms. An interesting fact is that the first call from a mobile phone in Russia was made in St. Petersburg in 1991. The first fiber-optic network for data transmission and the first third-generation network in Russia were also laid here.

At present, the ICT cluster of the Northwest Russia is in a stage of active expansion and formation of a new structure. The basis for this process is the high and continually growing demand for information and telecommunications services, as well as the presence of a well-developed educational system in St. Petersburg, which provides for the high quality of specialists' training. New businesses continually emerge on the market, existing players change their strategies, monopolies are faced with the necessity of restructuring, the circle of related and supporting industries is widening, and international partnership is growing. The latter has great significance for the ICT cluster of the Northwest Russia, since it has an important advantage of proximity to one of the highest developed ICT clusters of the World: the Finnish ICT cluster. The main fiber-optic cable passes through the region that connects Russia and Finland, and through Finland the rest of the world. This allows for viewing the Northwest Russia as a "digital window on Europe."

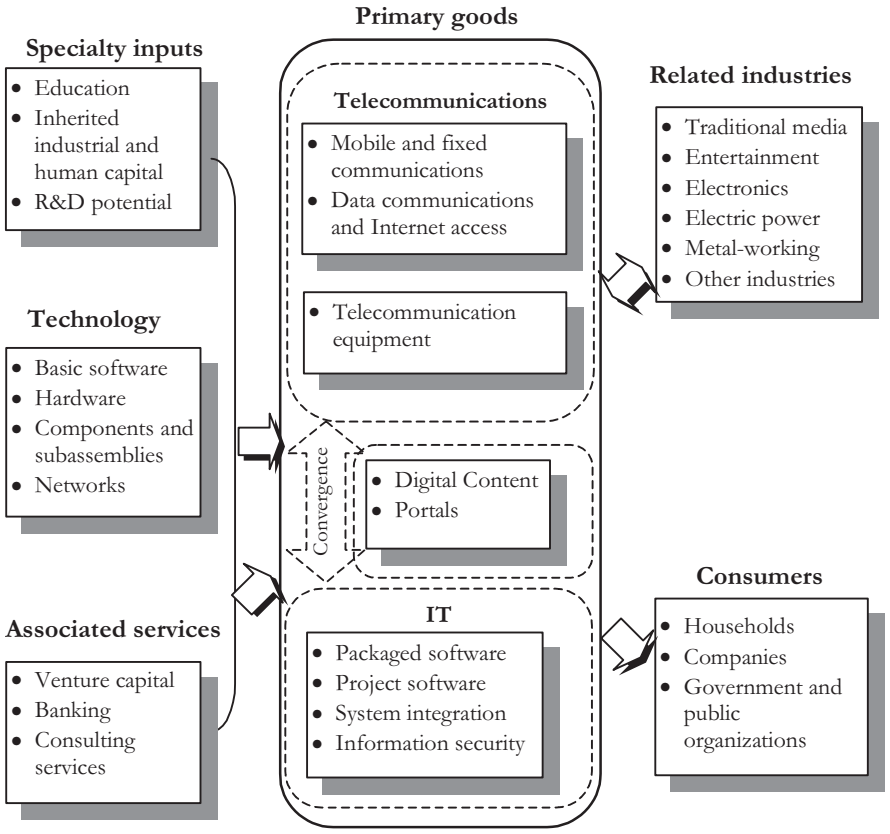
Figure 5.18 Data Transmission Networks in Northwest Russia

The ICT cluster of Northwest Russia is distinguished by a high density - its only agglomeration is virtually limited to the territory of St. Petersburg. St. Petersburg has recently accounted for over 60 per cent of all information and telecommunications services in the region. The specific weight of the cluster in the city economy is nearing the level of 10 per cent, whereas in Russia as a whole it accounts for only 2 per cent. At the same time, the prospects for further growth are closely related to the development of the other regions of the Northwest Russia. Their large areas and low population density necessitate their rapid integration into a single information zone, which would facilitate their steady development in all spheres.

The ICT cluster consists of two main parts - the sector of telecommunications and the sector of information technologies - the development of which is accompanied by their growing convergence. Currently, the specific weight of the sector of telecommunications in the ICT cluster of Russia is approximately twice as high as that of the sector of information technologies; the portion of the latter, however, is continually growing and is most likely to maintain this trend in the future.

The mobile telephone network, data transmission services, and Internet access service enjoy the highest rates of development among various kinds of telecommunications services. Already by the end of 2002, the number of mobile phones in St. Petersburg exceeded the number of regular fixed phones. The rate of penetration of cellular telecommunications

Figure 5.19 Structure of The ICT Cluster of Northwest Russia



in the Northwest Russia generally exceeded the Russia-wide rate - 15 per cent to 12 per cent, as of the end of 2002. The rate of penetration of Internet access in the Northwest Russia is currently also higher than in Russia on average. These figures are, however, much lower in comparison with most European countries: by several times in the penetration of cellular telecommunications; and in the number of personal computers and users of the Internet, calculated per 1,000 persons, by more than 10 times. Corporate Internet access rates in Russia (and in the Northwest Russia) are higher than private Internet access.

The sector of wired telephony is developing very slowly, which places serious limitations on the development of Internet access, since the dial-up Internet connection will continue to prevail in Russia in the near future. The number of digital telephone exchanges in the Northwest Russia, as well as in Russia on average, is still only about one-third of the total number of exchanges. In developed countries, digital equipment replaced all outdated analog systems, which is imperative for utilizing new technologies.

In the rate of growth and volume of sales, manufacturers of telecommunications equipment are currently inferior to the companies that provide telecommunications services. Large companies that are concentrated in St. Petersburg were created during the Soviet era and specialized in manufacturing complex equipment. They found themselves unviable in the new open market economy and sharply reduced their production. Smaller companies that formerly were parts of these larger companies, as well as subdivisions of international companies, are primarily involved in production of components or assembly. Their products are in demand, but their production volumes are still rather low. The disorganized and contradictory government policy on regulating customs tariffs, privatisation, forming government orders, etc., for a long time was a damper in this area. The situation began to improve, however, and in 2003 rapid growth in assembly of computers, computer monitors, television sets, and other mass-market equipment was registered.

Software developers play the leading role in the cluster of information technologies. The basic products are general-purpose software packages, software packages customized for companies' needs (these include integrated systems that cover the complete production and management cycle in individual companies), and providing information security. In addition to companies created by a number of St. Petersburg's leading technical universities, research centres of international firms located in St. Petersburg such as Siemens, LG, Alcatel, Motorola, and others are also involved in these activities.

The training of specialists for the ICT cluster of Northwest Russia is carried out primarily in the educational institutions of St. Petersburg. In recent years, six thousand of them have graduated annually in telecommunications and information sciences. The number of students being accepted each year into these programs continues to grow. In addition, the number of experts in other fields who also receive training in information sciences increases yearly. Many universities and technical training schools graduate specialists who enter the ranks of the companies of the cluster; however, there are six universities in particular in St. Petersburg that have already developed outstanding traditions in these disciplines. The fact that students from these institutions consistently win prizes in international competitions in programming and computer science attests to the superior level of education in these universities. More evidence of the competitiveness of St. Petersburg's leading educational institutions is the fact that a large percentage of the graduates are able to find jobs in their areas of specialization in North American and European companies.

Table 5.19 Number of ICT-related Students in Major Universities in Northwest Russia, 2000

High School	*Number of ICT-related students, 2000*		
	1st year	*Graduates*	*Total*
St. Petersburg State Electro Technical University	813	580	3,981
Bonch-Bruevich St. Petersburg University of Telecommunications	755	464	3,393
State University of Aerospace Instrumentation	810	481	3,314
St. Petersburg State Institute of Fine Mechanics and Optics	703	289	2,74
St. Petersburg State Polytechnic University	439	178	1,895
St. Petersburg State University	489	245	1,822
Total	4,009	2,237	17,145

Source: State Institute of Information Technologies and Telecommunications, Russian Higher Schools Database, http://db.informika.ru/vuz/index.htm

Unfortunately, in the R&D sector of the ICT cluster there has been a decline. Most of the organizations, which are also concentrated in St. Petersburg, have been experiencing substantial difficulties during the last decade due to a sharp reduction in orders. Many highly qualified specialists, primarily the young and mobile, have left the larger institutions. There is almost no influx of new specialists, since the best graduates shun low-paying jobs in the scientific sector. Nevertheless, some of the specialists who left the large organizations moved to small and reputable research subdivisions of the leading international companies, which have opened in St. Petersburg in recent years. Thus, the scientific potential of the cluster has been partially preserved.

The development of the ICT cluster is closely connected to the spread of mass media and the entertainment industry throughout the world. The traditional media take on new forms quite rapidly. This process is also underway in Russia, albeit with some delay. Here it is fostered to a certain degree by the large distances between populated areas and the immensely outdated infrastructure of the traditional mass media. The audience of the main Russian information portals in St. Petersburg already exceeds that of daily newspapers, and will most probably continue to grow. Even in a highly computerized post-industrial society, as international experience demonstrates (Silicon Valley, for example), the ICT sector will not be able to achieve complete independence from traditional industries, in particular the electric power industry. The reform of

this industry, which is underway in Russia, may influence the development of the ICT cluster.

Table 5.20 Daily Audience of St. Petersburg Newspapers, TV News Programs, and Russian News Portals (August 2002)

	Audience, thousands	
	Min	*Max*
Daily circulation of the main newspapers in St. Petersburg	20	71
Daily audience of the main TV news programs in St. Petersburg	150	520
Daily number of visitors to the main Russian news and information portals	30	90

Source: www.spylog.ru, www.top100.rambler.ru, TV ratings. Itogi magazine, No. 33(323), 2002

Since new information and telecommunications projects often go hand in hand with high risks, the ability of companies to attract venture capital plays an important role in the development of the industry. Neither an efficient market for venture capital, nor an efficient stock market has been created yet in Russia, however. For this reason, when implementing projects companies are forced to rely above all on their own resources, which severely limits their capabilities. Only the largest mobile communications operators have access to the services of the world's leading stock markets.

The products and services of the ICT cluster of the Northwest Russia are oriented primarily toward the domestic market. Unlike domestic markets of other clusters, it has not experienced any reduction in the past decade, and its steady, and in some sectors rapid, growth is the main prerequisite for its development. The sector of telecommunications equipment is the only exception here. The competitiveness of the Russian manufacturers of telecommunications equipment proved to be very low in the open market. The demand for such equipment and mass-market goods as TV sets, telephones, etc. is satisfied today primarily through imports. The development of local assembly line production is expected in the near future.

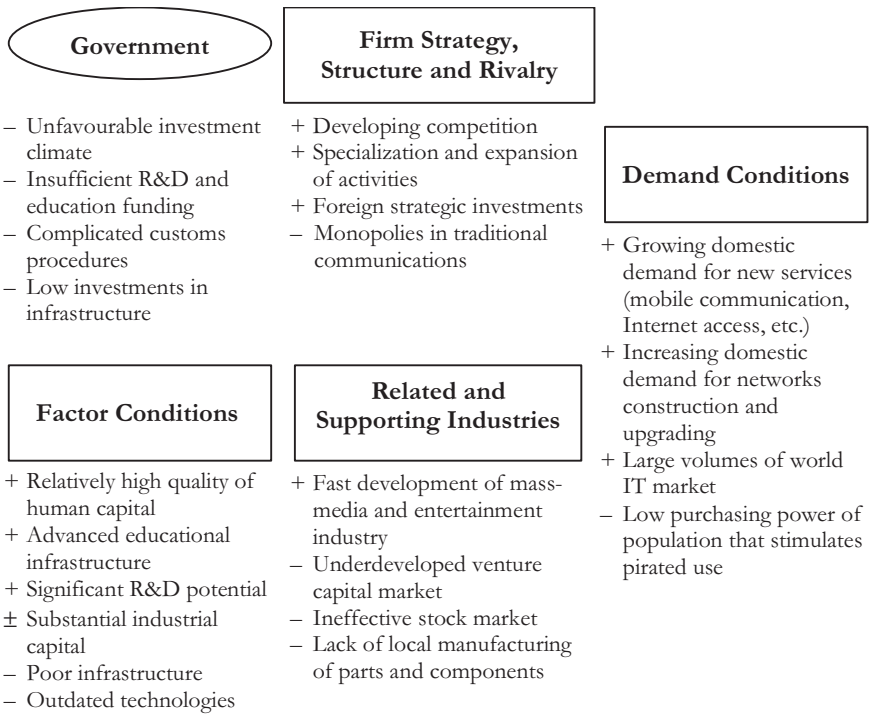
Only a small portion of the products of the cluster is currently exported. Software is the main export article. In 2001 Russia exported software to the tune of USD154 million; St. Petersburg companies accounted for around 40 per cent of this. There is no comparison between these figures and the export figures of, for example, the offshore programmers of India - which equaled USD6.8 billion in 2001. In addition

to software, the ICT cluster of Northwest Russia exports parts for electronic equipment, manufactured primarily by subcontracting (for example, by the St. Petersburg subdivision of the Finnish company Elcoteq). The volumes of these supplies, however, are low.

For a detailed analysis of the factors of competitiveness of the ICT cluster of Northwest Russia, see *A. Averin, G. Dudarev*: *Busy Lines, Hectic Programming - Competitive Analysis of the Northwest Russian ICT Cluster*, Helsinki 2003. Here we will pause on just a few basic points.

At present, the competitiveness of the ICT cluster of Northwest Russia is founded on production factors inherited from the Soviet era: the system of education, human and, to a lesser degree, industrial capital. The potential of these factors is still relatively great, but insufficient investment during the past decade has lowered it in the cluster. In particular, educational institutions, and even leading universities, are experiencing a more and more acute shortage of young, innovative experts. Low salaries are a reason for the premature departure of the best specialists from educational institutions, which accounts for the gradual decline in quality that is occurring, despite quantitive growth.

Figure 5.20 Determinants of Competitiveness of Northwest Russian ICT Cluster



The inherited industrial capital is now being used only to a limited extent; however the very fact of its existence within the only agglomeration of the ICT cluster with a high degree of concentration points to the possible emergence of new competitive manufacturers.

The possibility of more active cross-border cooperation with the Finnish ICT cluster should also be viewed as an unequivocally positive potential factor of competitiveness. This cooperation has been held back until now by customs barriers, bureaucratic delays, and other characteristics of an unfavourable investment climate. The expansion and strengthening of cooperation will be mutually beneficial. For the companies of the Northwest Russia, it means access to a well-developed system of related and supporting industries, new technologies, and effective marketing channels on the global market. For Finnish companies, it provides access to a nearby labour force that is qualified and relatively cheap, an industrial and scientific infrastructure, and a potentially large market. This combination represents a truly unique, potential competitive advantage for the ICT clusters of both countries.

The fast-growing domestic demand for new telecommunications and information services is the main impetus for the development of the ICT cluster. In spite of the fact that in individual sectors - mobile telecommunications, Internet access, IP-telephony, and others - the annual rates of growth often exceed 100 per cent, market saturation is still a long way off. Even in St. Petersburg, the market is not yet saturated; and in the other regions, the introduction of new technologies is essentially just beginning. Added to this is the fact that the level of modern information and telecommunications services that has already been achieved in Western Europe is unavailable to Russia, due to the continued low purchasing power of the population.

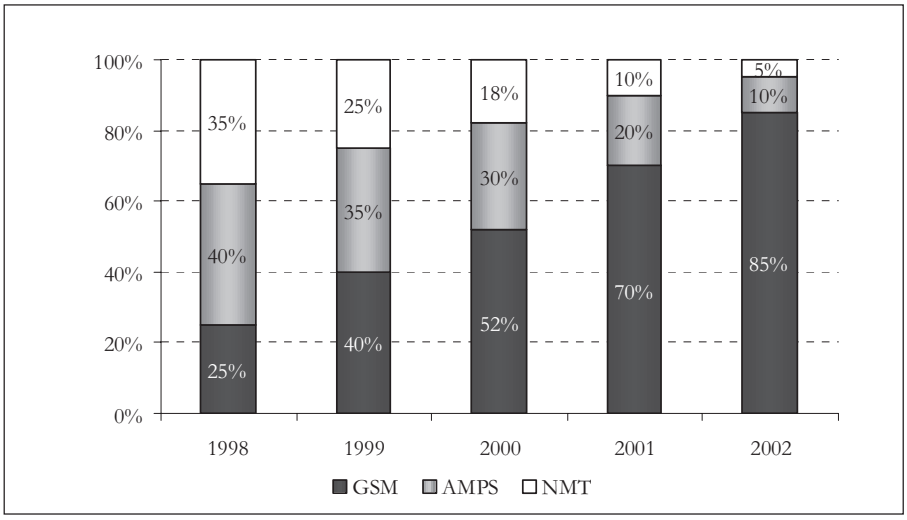
In addition, demand for the new services is for the time being limited largely to the basic functions: for example, mobile telephony is used almost exclusively for voice communication and sending SMS texts. In the future, however, we may expect to see an increase in demand in this sector, due to other possibilities such as data transmission, access to the Internet, etc. This is especially relevant in view of the long distances in Russia and the insufficient state of development of wired communications.

Software has a potentially very large domestic demand. The comprehensive computerization of traditional industries and other sectors of the economy has only just begun in Russia. Consumers often express a preference for domestic software products, not only because of their more moderate prices, but because of their superior applicability (as compared with their western counterparts) within the structure of manufacturing and management in the specific circumstances of Russian companies. The development of the software market in Russia, however, is severely

hampered by the absence of effective observance of copyright and the extremely widespread use of pirated software. According to international experts, up to 90 per cent of all software products are pirated.

The potential for growth of domestic demand is present in other sectors, as well. In wired communications, this is related to the replacement of the outdated analog devices of most telephone exchanges for modern digital devices, which creates the possibility of delivering new services (IP telephony, simultaneous Internet access, etc.). In the sector of equipment manufacture, this potential is connected with the rapid growth of demand for ICT services. There is also an undeniable potential for the increase of exports. This is related above all to the large volume of the world market for information products and the presence of certain essentials for significant growth in the volume of offshore programming in St. Petersburg: a high concentration of qualified personnel, universities, and scientific research organizations, the gradual spread of marketing skills and vital international contacts among software developers.

Figure 5.21 Relative Portions of Different Standards on the Russian Cellular Market (figures correspond to the beginning of the year)



Source: Sotovik.ru, Goskomstat
Abbreviations: Cellular standards: GSM - Global System for Mobile Communications; AMPS - Advanced Mobile Phone Services; NMT - Nordic Mobile Telephone.

The structure of the ICT cluster in Northwest Russia differs significantly according to the sector. The most highly developed competitive environment may be observed in the mobile telecommunications sector. All three of the largest Russian players are present here: Megafon, MTS,

and Vympelkom. The first two of these occupy the leading position on the regional market. In addition to the leaders, there are also several smaller companies, including Delta Telecom, the pioneer in mobile telecommunications in Russia.

The effort to expand the number of services offered through the introduction of new technologies is characteristic of all the companies. The first generation of mobile communications has almost universally been replaced by the second. In addition, the companies are proceeding very cautiously in implementing the transition to the third generation (3G), as they are aware of the negative experiences of many of the global leaders, who overestimated the prospects of the market on the new level and have encountered many difficulties because of this.

Table 5.21 Selected Companies of the Northwest Russian ICT Cluster

Company	*Turnover in 2001, million USD*	*Personnel*
Wire communications		
Northwest Telecom	134.9	9,000
PeterStar	47.9	400
Sonera Rus	20	70
Metrocom	18	150
Ruscom	15	100
Cellular communications		
MegaFon (Northwest Region)	199.5	300
MTS (Northwest Region)	80**	n/a
Delta Telecom	30	240
Equipment Manufacturing		
Neva Cable	7	60
Sevkabel-Optic	7	50
Bercut	n/a	150
Sveltana	2.8*	600
Supertel	2.5	110
Software Development		
Lanit-Tercom	3	200
Digital Design	2.5	120
Reksoft	2.5	150
Astrosoft	2.5	170

* - Data for 2000

** - Estimation for the first nine months of 2002

Source: data provided by companies

A virtual monopoly, controlled by the government-held Svyazinvest, reigns in the sector of wired communications. It possesses more than 90 per cent of all the telephone exchanges. The regional subdivisions of Svyazinvest are distinguished by a very low level of efficiency, which may be explained by the severely worn out equipment and networks of the unwieldy structures the companies inherited from the Soviet era, and by the obligation to offer services at low government rates. In order to increase its investment attractiveness, the management of Svyazinvest united all its regional subdivisions in the Northwest Russia into a company called Northwest Telecom at the end of 2002. Another move intended to attract investors will be the introduction of time-based charges for services of wired communications in the near future.

Other operators of wired communications in the region are dependent on the infrastructure of Northwest Telecom. In addition, many of them have close ties to it through personal contacts within the highest ranks of management, participation in capital stock, etc. Alternative operators specialize in new services: providing Internet access, IP telephony, card telephony, the creation of local networks for serving corporate clients and individual condominiums. They primarily embrace the more affluent segment of the market, and the efficiency of these private companies is significantly higher than that of Northwest Telecom.

Foreign investment in Russian telecommunications has played a strategic role in the course of the last decade. It was in fact foreign companies who created the new market virtually from scratch. Today, due to the global crisis in the ICT industry, the specific weight of foreign capital in the Russian telecommunications sector has declined. Foreign companies, however, continue to have a great influence on the development of the cluster through the import of new technologies and the experience of effective work. In the Northwest Russia, the role of international investors is especially strong. Companies from Finland, Sweden, Germany, and other countries have a share in almost all the large telecommunications companies doing business in the region. The specific weight of capital from developed countries is also high in other sectors of the ICT cluster of Northwest Russia.

In the sectors of software developing and telecommunications equipment manufacturing, the regional market still finds itself in the stage of initial development in the first case, and of prolonged restructuring in the second. It is currently made up of a rather large number of small and medium-sized companies that occupy small niches. They compete primarily with international manufacturers, both on the domestic, and on the international markets. Most successful are the smaller companies with flexible structures, which grew out of large organizations and inherited basic competitive advantages from them, and the St. Petersburg di-

visions of the transnational ICT corporations. In some projects for the development of software products intended for export, a high level of labour productivity is being achieved, as compared with the level of global leaders.

The experience of such countries as Finland and South Korea demonstrates that government support by indirect means (the creation of an infrastructure, training of personnel, venture capital financing, etc.) may exercise a positive influence on the development of the national ICT cluster. The Russian authorities have also repeatedly stressed the need for the rapid development of high-tech industries in the country; however, truly effective measures to this end have not been adopted up until now. On the government level, a clear conception of a purposeful industrial policy that could substantially improve the investment climate of the industry is lacking.

Expenditures on science and education over the entire course of the last decade have amounted to only 1 per cent of the Russian GNP; and the volume of this GNP has shrunk significantly in comparison with the 1990s. In addition to its low level, government financing has been extremely ineffectual up to now. The funds are targeted at a system inherited from the Soviet era that has remained virtually unchanged. As a result, even the scanty resources that are available are channeled into many obviously irrelevant projects.

The authorities have not yet learned to utilize effectively the multiple kinds of leverage they have traditionally had at their disposal or which have appeared under the new economic conditions. Government investment in a national system of innovation and in the development of an infrastructure and financial sector, as well as the streamlining of customs procedures, the lowering of tariffs for imported components, the reduction of bureaucratic obstacles to international cooperation, and the stimulation of competitive environment, etc., would all have an unequivocally positive influence in the development of the ICT cluster.

The prospects for the development of the ICT cluster of the Northwest Russia are closely tied both to global trends in the area of the introduction and implementation of new technologies, and to the general state of the country's economy. Without substantial growth of the GNP, it is not possible to expect serious government influence on the development of the cluster and an increase in the volume of the domestic market, and consequently, the growth of the corresponding needs of the population.

At the regional level, the leading positions of the ICT agglomeration of St. Petersburg will undoubtedly be maintained and strengthened. It will be within the agglomeration of St. Petersburg that innovations take hold in the future, and then expand into the other parts of the North-

west Russia. St. Petersburg will remain the most important market for products and services of the cluster due to the high concentration here of various kinds of business activity.

The most important trend at the corporate level in the coming years will most likely be the strengthening of competition in all sectors and the development of markets, both quantitatively and qualitatively. All of this will occur against the background of a convergence of telecommunications, information technologies, media, and the entertainment industry emerging in Russia. We may expect to see significant growth in investment in the companies of the cluster on the part of the leaders of the Russian economy - above all by the oil and gas sector, which is the largest industrial consumer of information and telecommunications services in the country, as well as the largest source of capital. The planned entry of many companies into the stock market will also doubtless facilitate the attraction of investment.

The successful development of the ICT cluster also depends strongly on the continuing process of Russia's integration into the global information and economic space, and into the global production and distribution network. The sphere of telecommunications and information technologies is obviously becoming more and more internationalised, and favourable opportunities are opening up in the Northwest Russia for increased participation in the international division of labour through active cross-border cooperation with the highly developed ICT clusters of the countries of Northern Europe and Germany

6 Analysis of Competitiveness of Northwest Russia

6.1 Factors of Competitiveness - General Points

When discussing the competitiveness of Northwest Russia's economy, it should be noted that up to the present time it has been heavily influenced by the factors which had shaped development back in the Soviet period, when the national interests inevitably prevailed over those of the region, and the political issues often dominated economic reasons. At that time the use of the region's resources and the division of functions among separate enterprises were aimed not at the economic effectiveness of production facilities, but at the maximum possible specialization accompanied with huge production volumes of narrow product ranges, as well as at providing 100% employment for the population. Thus, many factors determining the competitiveness of the region up to now are national but not local.

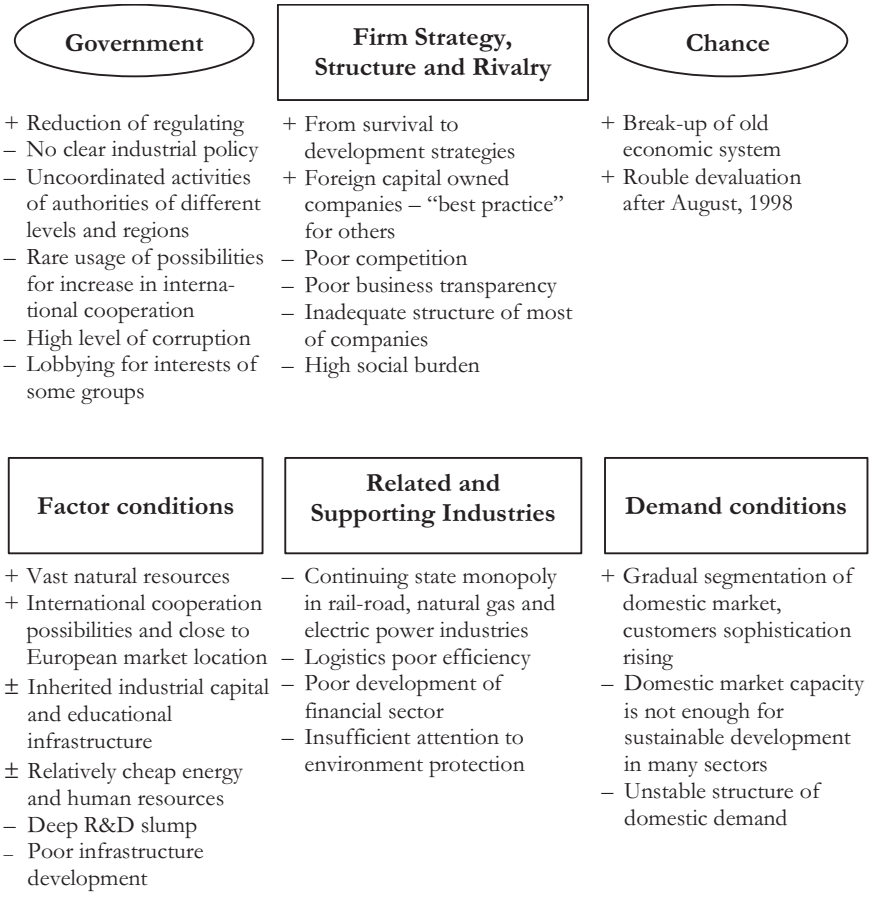
Over the last decade, the potentially very significant territorial differentiation of the Russian economic space just started to take shape, and at pre-sent the local factors are not yet so important for the country's economy as they should be due to the large Russian territory.

In order to carry out an analysis of competitiveness of Northwest Russia's economy, the authors think it reasonable to use the widely accepted cluster competitiveness model, which allows for an easy access to the goals of the review, that is, the description of the potential and the competitiveness factors of the region. The analysis and classification of the main factors contributing to the competitiveness of Northwest Russia were prepared by the authors on the basis of empirical studies (a series of interviews with top managers of companies representing various sectors of the economy), as well as on the basis of expert analysis.

It has to be stated that, despite the changes that took place during the period of reforms in the Russian economy, the main and the still paramount role in the development of the region and the whole country belongs to the basic production factors. Their previously acquired large potential has, over the last decade, been generally exhausted, and in order to provide for its renovation and effective development substantial in-

vestments are required, while the relatively cheap natural resources, labour and transportation should definitely be considered temporary and cannot be viewed as a long-term competitiveness factors.

Figure 6.1 Determinants of Competitiveness of Northwest Russia



Compared to other regions of Russia, the Northwest possesses an obvious geographical advantage: it is the only part of the country directly bordering with the developed European countries, which provides excellent possibilities for over-the-border cooperation and other types of international partnerships.

The capacity of the domestic market decreased drastically following the collapse of the Soviet Union, the break-up of many links, and the general decline in the standard of living of the population. This is perhaps the most important negative factor preventing the effective development of the Russian economy. Besides, due to the downfall in the military sector, the demand for hi-tech products decreased most signifi-

cantly. At present, many large enterprises survive only by exporting their products, while abroad only Russian raw materials and semi-finished goods find a ready market. This results from the low quality of final products produced by the Russian processing industries due to outdated equipment, poor infrastructure, as well as due to the lack of qualified technical, marketing, sales and management personnel.

The companies are offered no incentives to diversify their product ranges and to improve their assortment by including products with higher value added, and the market niches for such products are occupied by imported goods produced by powerful international companies. At the same time, the domestic market has been clearly developing over the last few years: not only because of the steady growth in the overall demand, but also due to further differentiation and segmentation, as well as the increase in the requirements of Russian consumers. This should definitely be viewed as a positive trend creating the basis for the development of competitive domestic products

Unlike the advanced economies, company's strategies and structure, as well as competitive environment, do not yet play an important role in the development of the Russian economy. However, the leaders of national business have started to shift the focus of their interests from the strategies of day-to-day survival to the long-term development strategies: significant investments are made into modernization, building new production facilities, while in a number of sectors integration processes have started to gain momentum.

All the above became possible only when the risk of losing control over assets had been decreased significantly, after the primary process of property redistribution had been completed. Still, the transparency of business is as yet very low compared to the Western standards, while the level of criminal activities remains rather high. Some of the local companies owned by the world leaders (International Paper in the pulp-and-paper industry; Coca Cola, Carlsberg, and Wrigley's in food and beverages; Philip Morris in the tobacco sector, Gillette in personal care products; Caterpillar and Ford in machine building, etc.) serve as excellent examples of a higher level of efficiency and rational organization of production processes.

Related and supporting industries in all sectors of the Russian economy are still too underdeveloped to provide a significant contribution to the strengthening of competitive potential of the basic industries. Poorly developed supply chains diminish the possible cumulative effects of agglomerations. The state monopoly in the railroad transportation and in the gas industry does not allow the local companies to obtain the respective products and services in the competitive suppliers' market and make them vulnerable to the non-transparent tariffs policy. This dependence

still exists in the electric power market, although the process of restructuring in this sector has been recently initiated.

The poorly developed banking, finance and insurance sectors do not provide the companies with significant outside investment resources when planning the implementation of large-scale projects. Another negative legacy of the Soviet period is the generally negligent attitude to the environmental aspects of the economy: the companies are not ready to cover the costs of introducing environmentally-friendly production technologies, since they have no stimuli from the system of environmental legislation and enforcement.

The role of the State in the development of the Russian economy should, at present, be characterized as ineffective. State agencies at every level of power have not yet learned to use the regulatory instruments they have at their disposal in an effective manner. None of the sectors has clear industrial policies formulated by the State, as well as the mechanisms for the implementation of such policies. Among other things, the rules for effective international cooperation, which should have a special importance for the economy of Northwest Russia, have not yet been fully worked out.

These and other important issues influencing the present competitiveness of the region and the prospects for its development will be discussed in the following sections of this chapter.

6.2 Factor Conditions – Still the Basis of Competitiveness

Traditionally, the basic factors of production include: natural resources, industrial capital, the infrastructure, and human capital. Currently the level of the development of each of these corresponds to the prevailing raw material orientation of Russian industry.

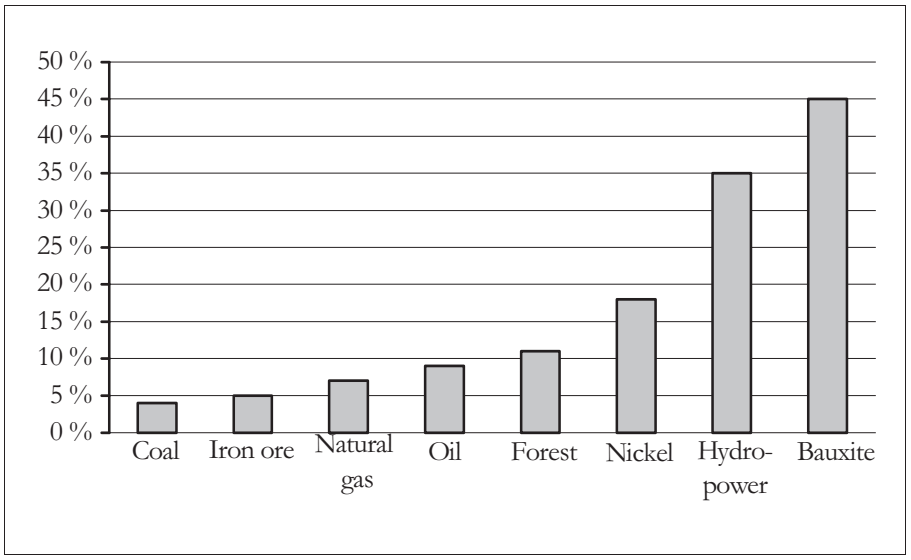
Natural resources

Due to its vast territories, which exceed any European country by several times, the Northwest Russia possesses various and rich natural resources. The most important of them are:

- Boreal forests consisting of conifer and deciduous species;
- Hydroresources (freshwater reserves and hydropower potential);
- Various types of natural fuel (oil, natural gas, coal, oil shale);
- Ore mineral resources (ores of ferrous and non-ferrous metals);

- Natural chemical resources (apatite, phospharite, etc.);
- Mineral resources that can be utilized in the production of construction materials (rock, sand, clay, etc.).

Figure 6.2 Northwest Russia's Share of Selected Natural Resources in Russia



Source: Goskomstat, 2002

This figure reflects the portion of the Northwest Russia within the huge total Russian reserves. It should be kept in mind, however, that despite the fact that the transport infrastructure in the region has a low density, it is much better developed than infrastructures in Siberia or the Far East. For this reason, the share of the Northwest Russia in easy to access natural resources, primarily forest, is much higher.

The mineral wealth of Northwest Russia also contains resources of some precious and semiprecious stones (diamonds, amethyst, amber, etc.). The seas and many lakes and rivers are rich in fish, and the soils of the south and southwest of the region are appropriate for agriculture.

The extensive natural resources themselves, however, are merely a potential advantage. Capital-intensive preliminary work on deposit prospecting, evaluation of resources, etc., as well as a well-developed infrastructure, workforce, and industrial capacities are necessary for their effective utilization.

During the entire past decade, the economy of the Northwest Russia, like the economy of the whole country, has been primarily utilizing the potential of natural resources accumulated during the Soviet period: deposits that have been explored and prepared for exploitation, trans-

port infrastructure, ore enrichment facilities, power plants, etc. Investments necessary for maintaining the existing resource base and for its development were severely inadequate. This was a consequence of a sharp decline in demand and purchasing power, due to dramatic reforms and the transition to a new economic system. Privatisation and property redistribution during that period consumed most of the monetary resources of the emerging private sector, and the government lacked money due to the burden of the enormous expenditures inherited from the Soviet era.

Large-scale geologic work aimed at prospecting new deposits, as well as regular dredging of navigable rivers, almost completely ceased. The volume of reforestation dropped. The number of newly constructed forest tracks decreased. In 1998, for example, in the Vologda Region, only 150 km of forest tracks were laid, whereas in the 1980s, around 500 km were laid annually.

The absence or inadequacy of investment gradually led to the outdating and falling out of operation of many production and transportation facilities. It is especially disturbing to realize that this is just the beginning of a chain reaction. At the same time, this rapid degeneration of old facilities makes room for the formation of new and significantly more efficient enterprises that will undoubtedly be created by robust business activity, provided there is demand for their products. Thus, we are facing an example of the creative destruction described by J. Schumpeter (1942) as the process of the evolution of an economic system.

During the past decade, substantial investment in the development of natural resources has been carried out only in the oil industry, primarily in the construction of new oil pipelines and the prospecting of new areas of previously explored deposits. In other industries, large-scale investment projects are rare exceptions, for example the beginning of exploitation of the Timan bauxite deposits by the SUAL aluminium holding company (along with the construction of a railway from the main railroad to the mines). The largest project, which has great significance for many industries, the construction of the new Belkomur railroad from Arkhangelsk to the Perm Region (Urals) via the Republic of Komi, is being implemented at a very slow pace.

As a result, the natural resource potential of the Northwest Russia today is characterized by many negative factors, the primary examples of which are as follows:

1) *Deterioration of the forest stock*. It is primarily the forest along the major transportation routes that is being felled, where the resources of mature forest are greatly depleted, as well as near the country's frontier. In areas remote from major routes, stands of overmature forest are growing, due to the cessation of sanitary felling. The re-

duction of reforestation has already led to the deterioration of the quality of exploited areas: stands of less valuable species (aspen, alder, birch) are growing, and productivity of forests is declining.

2) *Deterioration of the quality of reserves in exploited deposits*. Due to gradual depletion of the richest and most easily accessible resources, companies are forced to exploit less productive and less easily accessible geological strata. This is often coupled with irrational exploitation of still-rich deposits - companies prefer to "pick the plums" at oil and gas deposits, which sharply reduces the possibility of extracting the rest of the resources. The outdated technologies used in enrichment at ore deposits prevent the extraction of all the useful components from the ore.

It is also imperative to mention that despite the vastness of the raw material base, not all industries of the Northwest Russia are supplied sufficiently with local resources. The local raw material base of the nonferrous metal industry is limited, for example. The light industry, the food, and especially the tobacco industry, depend even more on raw materials supplied from outside the Northwest Russia, although this is not yet a vital factor for them.

Summarizing the state of the industrial raw material base of the region, the authors make the claim that already now much more investment is needed for its development than has been invested in it over the past ten years. It is beyond any doubt that both the government (especially when it comes to capital-intensive, long-term projects for the development of the infrastructure of main transportation routes and the renewal of large-scale prospecting work) and companies must participate in the investment process. In order to interest companies, a substantial improvement in the investment climate, in particular clearly defined rules of long-term leasing or concession of land, as well as stable regulations for utilizing natural resources, are obviously necessary.

Industrial capital

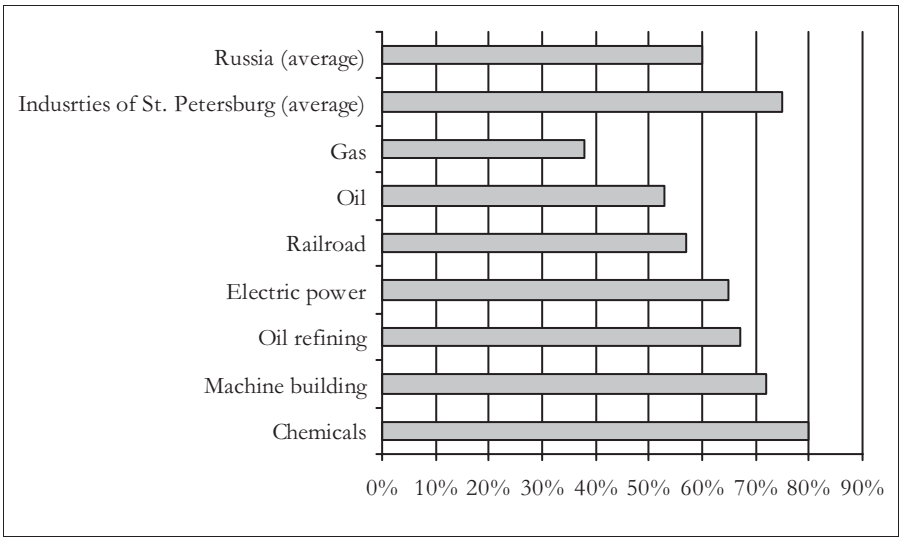
Most manufacturing facilities that provide the current potential of the industry of the Russian Northwest Russia were created in the Soviet period. In accordance with the government industrial policy that was carried out at that time, primarily large-scale enterprises that specialized in manufacturing a narrow product range intended for satisfying the demand of the entire USSR, as well as the countries of the Socialist bloc, were constructed. Such unification inevitably resulted in the very limited ability of the manufacturer to adapt to rapid changes in demand, and in a likewise fashion limited potential for implementing innovations.

Due to the very low competitiveness of the main processing manufactures, during the period of reforms a thoroughgoing re-orientation of the Russian industries from final products to the raw materials production took place. The technological lag behind Western economies increased. This occurred due to insufficient investment in the creation of new manufacturing facilities and modernization. As a result of the rapid change in the structure of demand and the rise of the market, companies encountered uncertainty of their further development and simply did not know what to do. In addition, large amounts of money were spent on struggles over property control. For this reason, the wear and tear of equipment at most industrial enterprises of Northwest Russia today exceeds the acceptable level.

It is very likely that most of the equipment will run until the end of its lifespan, and that proprietors will build new and significantly more efficient facilities, replacing the obsolete equipment. This would seem to be the most logical pattern of development. Our analysis of the dynamics of development of the corporate sector has shown, however, that many proprietors overestimate the possibilities of reorganizing and maintaining the manufactures that they won as a result of long, hard struggles for assets. In the future, this overestimation might lead to financial difficulties, and even to the bankruptcy of some of the currently large local companies.

During the past ten years, new (built from scratch) large facilities in the Northwest Russia have been introduced only in the oil sector, which

Figure 6.3 Rate of Equipment Wear in Selected Industries of Russia in 2000



Source: Goskomstat, 2001, www.oilcapital.ru

is oriented toward exports, as well as in the food and tobacco industries, the rapid development of which is facilitated primarily by the large domestic demand. Generally, the number of new facilities was far lower than those built in the previous ten-year periods of the Soviet era.

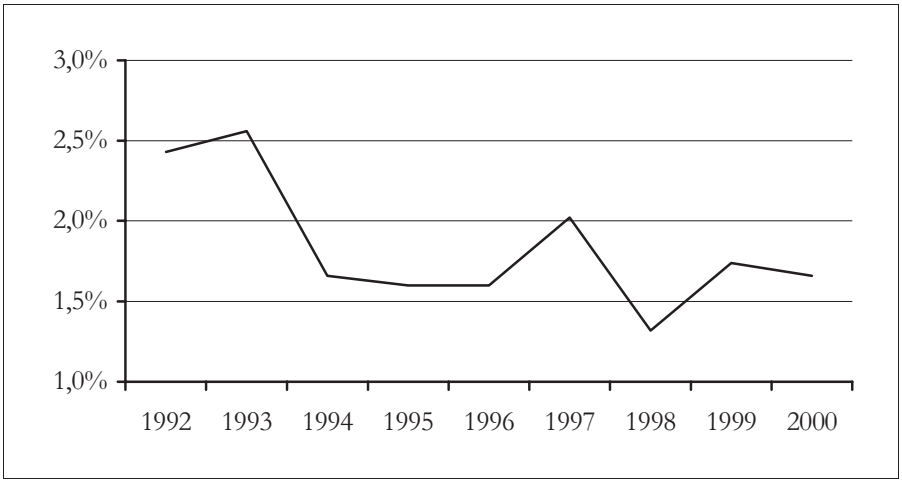
Modernization of companies during the last decade has been carried out in three major ways:

1) Modernization utilizing new domestic equipment. This method is used less and less, and primarily in large-scale companies (especially in the metal cluster, and the energy cluster) which have had insignificant changes in their product ranges.
2) Adaptation to existing conditions (established equipment and organization of production) of imported equipment, which covers only a few stages of the technological cycle. This method is widely used at successful companies belonging to domestic proprietors, allowing the achievement of a small increase in efficiency, without changing radically the entire structure of production. It is, however, obvious that this method of modernization has a very limited set of possibilities for increasing the productivity and cannot be viewed as a driving force in the long-term run.
3) The use of grounds and buildings of old facilities for organizing an entirely new manufacturing plant utilizing imported equipment (sometimes making use of the elements of old equipment). This method is used almost exclusively at companies that belong to foreign proprietors - in machine building, mechanical wood-processing, and the food industry.

Large-scale modernization of conditions in a rapidly changing market, coupled with a lack of information, comes with substantial risk: the overestimation of the rate of growth of consumption of particular products can lead to the establishment of surplus facilities. Finally, it must be said that many industrial companies of Northwest Russia have undergone no modernization of basic production facilities in the past ten years. Thus, there are preconditions for substantial changes in the structure of industrial production in the coming ten years.

As we see, prospects for industrial modernization in the Northwest Russia and in Russia as a whole are primarily connected with imported equipment and technology. Along with the decline of the Russian machine-building industry, the sphere of R&D also finds itself deep in crisis. It has suffered immensely from the lack of investment in the past ten years - probably more than all other sectors of the economy. As a result, R&D organizations were not able to adjust to the new market conditions, and the previously high R&D potential dropped significantly in all industries.

Figure 6.4 R&D Expenditures of Russia's Federal Budget



Source: Goskomstat, 2001

At present, some R&D organizations have ceased to exist, and those that have remained (mostly large organizations, primarily the country's leaders in their sectors) have undergone significant changes: multiple staff reductions and the lowering of its quality due to the draining away of highly qualified specialists, obsolescence of most of the equipment, etc. The sharp reduction in the number of orders for research and development, as well as the need regularly to carry out no specialized orders which allow these organizations to stay afloat are gradually leading to the lowering of the professional level of employees.

One of the additional problems that contributes to the deteriorating situation in the sphere of R&D is the irrational distribution of financing from the federal budget. Amounts that are in themselves inadequate are being spent not for targeted support of promising trends and projects, but for maintaining the old organizations created in the Soviet period.

The reform of the R&D sphere would entail above all the formation of new relations with producers, orientation of new developments toward the ever-changing demands of the market, increasing the flexibility and acceleration of the process of introducing innovations, and development of the ability to present customers with a complete set of technological solutions and services. These processes will undoubtedly evolve, since already at present successful Russian manufacturers show an active interest in reviving contacts with R&D organizations. It is also quite possible that at least some elements of the extensive system of research and development concentrated in St. Petersburg will attract foreign companies.

In the opinion of the authors, investment in the main assets should increase substantially in the coming years; without this, the competitiveness of the industry would drop steadily and rapidly. In Northwest Russia, both domestic and foreign companies have appeared that are willing to invest substantial amounts in the long-term development of their manufactures and in the construction of new facilities. Currently, large-scale projects in the oil, aluminium, mechanical wood-processing, pulp and paper, and a number of other industries have begun, or are at least being considered.

Infrastructure

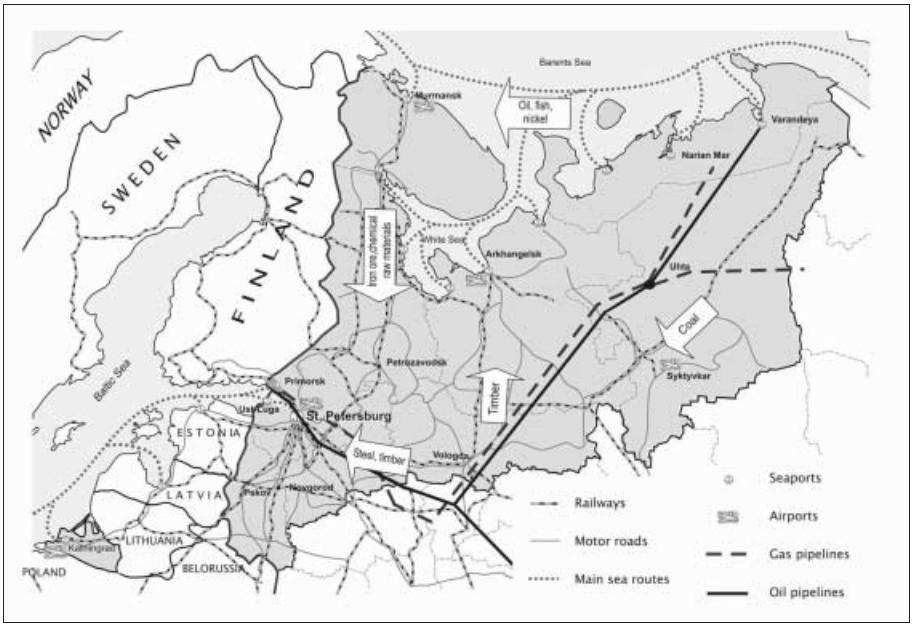
Characteristic of the Soviet period was a discrepancy between the slow development of the infrastructure and the more rapid rate of general industrial growth. This was especially true of the transportation infrastructure. Many of the main railroads and canals were constructed in the end of the 19th - beginning of the 20th centuries, i.e. before the October Revolution. In the Soviet period, the total length and density of transportation routes grew, albeit not sufficiently to ensure the sustainable development of the economy of Northwest Russia. Some projects remained incomplete or were not implemented at all. As a result, the existing transportation infrastructure is distinguished by fragmentation and insufficient development, even near some large cities - Arkhangelsk, Murmansk, Syktyvkar - and it complies poorly with current economic needs.

The collapse of the Soviet Union at the beginning of the 1990s led to a situation in which many Baltic seaports - the ports of Tallinn, Riga, Ventspils, Liepaja, Klaipeda - which formerly functioned in a single transportation system of the Northwest of the country, were no longer Russian seaports. This led to increased shipping costs, and, as a result, to a partial reorientation of local and transit cargo traffic. This increased the pressure upon the transportation system of the Northwest Russia, which in this new situation became the main sea gateway of the country. Around one-third of the total Russian imports and one-fourth of exports are realized annually through St. Petersburg alone.

All of this required more rapid development and reorganization of the transportation infrastructure of the region. Both the government and companies actively participated in these processes. The course of development of the transport infrastructure in the Northwest Russia, however, has been rather unstable in the past ten years. In fact, only new oil pipelines and seaports have been built. Moreover, some terminals and lines were built, and are still being built, primarily with political interests in mind (the unstable relationship of Russia with the Baltic countries, the desire to restore complete control over exports, etc.), and not with the interests of long-term economic benefit for the region and the entire country.

Many Russian and international experts have doubts about the potential competitiveness of most of the new seaports that are popping up along the Russian coast of the Gulf of Finland, all the more so since such a high concentration of terminals might have a negative impact on the fragile ecological balance in the eastern part of the Baltic Sea. Similar fears are expressed in connection with the "oil boom" in the north of the Republic of Komi, and in the Nenets Autonomous District, where the activities of oil companies pollute the environment, meeting no resistance.

Figure 6.5 Transport Infrastructure of Northwest Russia

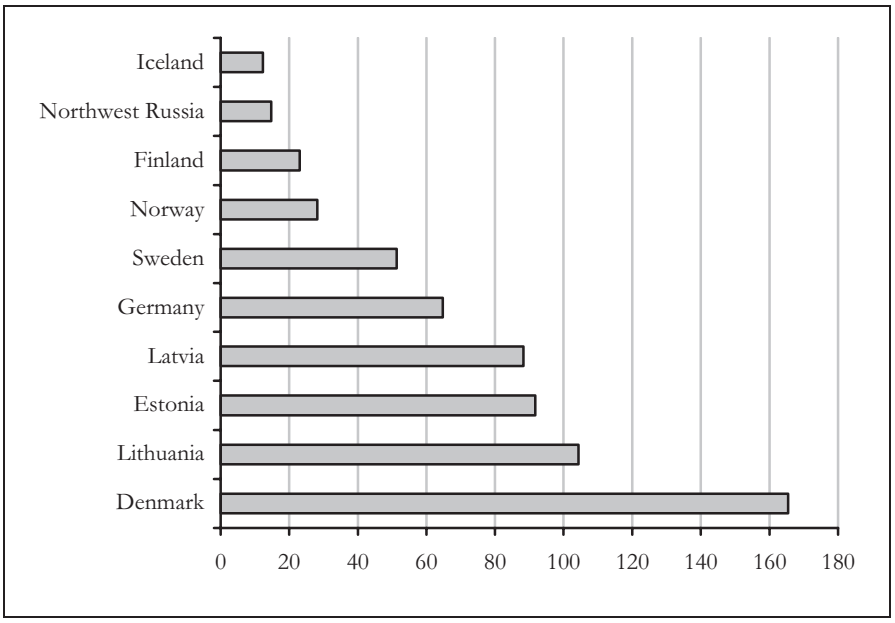


Railroads and highways have not experienced any significant development in the past decade, and the total length of inland water routes (due to sharp reductions in the work to maintain their navigability), and domestic airlines (due to losses or the low profitability of this type of transportation in the new economy) has been sharply reduced.

At present, the density of transportation routes in the Northwest Russia is several times lower than that in Europe, and domestic shipping differs radically in its structure - most freight is shipped by railroad or pipeline, whereas in most European countries, truck shipping prevails. This is directly connected to the fact that the climate in Northwest Russia is much more severe than the climate even in Northern Europe (which enormously complicates the construction and maintenance of paved highways), and to the very large distances between terminals. Most high-

ways in the region are radii from cities and cover relatively short distances, usually without intersecting with systems of highways from neighbouring cities.

Figure 6.6 Density of Road Network in Northwest Russia and Northern Dimension Countries, km/100km^2

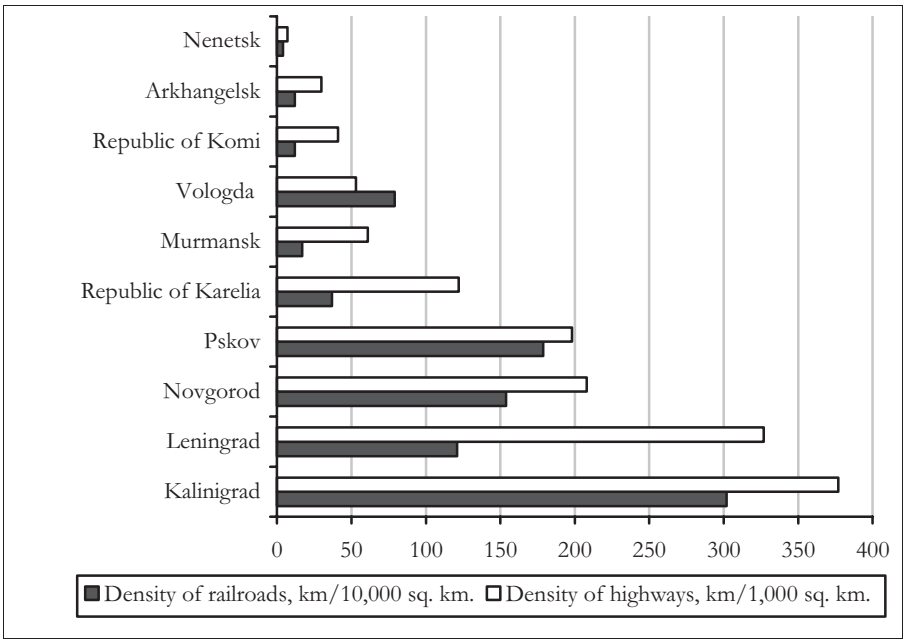


Source: Goskomstat, 1999

One more inadequacy of the transportation infrastructure of the Russian Northwest is the highly uneven density in different regions. The lowest density of transportation routes is observed in regions with the most extensive natural resources: the Republic of Komi, the Murmansk and Arkhangelsk Regions, and the Nenets Autonomous District. Coupled with the very low population density there, this is the biggest obstacle to further economic development. This problem cannot be resolved without coordinating the activities of the federal and local authorities in targeted development of the territories rich in natural resources. The attraction of large businesses, both domestic and international, is also required for strengthening the effectiveness of such programs of targeted development.

Thus, the preconditions for the substantial development and changes in the transportation infrastructure of the Northwest Russia in the coming years are already present. Along with the need to construct new transportation routes in the region, it is also necessary to use widely more

Figure 6.7 Density of Highways and Railroads by Region of Northwest Russia



Source: Goskomstat, 1999

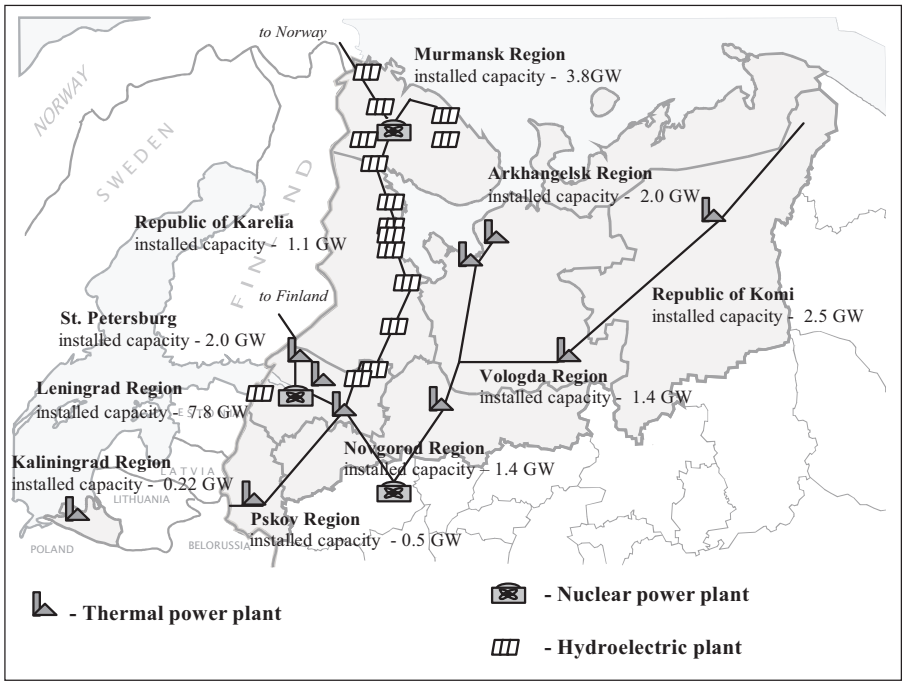
flexible forms of freight shipping, such as combined schemes: river - sea, highway - railroad - ferry, etc. In many cases, this would allow for the reduction of the total length of the routes and costs. The increase of the portion of water shipping appears most promising, since the Northwest Russia has an abundance of navigable routes on rivers, lakes and canals, as well as seas. It is also important to develop various methods of packaging and reloading of cargoes - in specialized railroad cars, containers, cargo pallets, etc. It is also especially important to introduce information systems of freight transportation control over the entire route, from the manufacturer to the consumer.

The development of new elements of transportation infrastructure in the region will most likely occur in a radial fashion, i.e. from centres of economic activity, toward the periphery. New terminals will be constructed primarily in areas with a high concentration of consumers. The absence of resources for the development of some nodes (for example, the areas of production of coal and oil shale) will lead to gradual diminishing of activity, as well as the reduction of freight turnover. New industrial centres, on the contrary, will become sources of robust formation of new transport networks.

The level of the development of the energy infrastructure in the Northwest Russia is also not sufficient to ensure the competitiveness of the region and to maintain its sustainable development. The installed capacities at electric power plants do satisfy the current needs of the industries of the Northwest Russia. The system of electric power transmission grids is insufficiently developed, however, and does not allow the complete utilization of the potential of power plants, thus limiting options for exports. In addition, most of the generating facilities and transmission grids are in urgent need of replacement, since investments in their maintenance and development have been minimal over the past ten years.

Many technologies, and even individual power plants, are economically unviable under present conditions, which will inevitably lead to fundamental changes in the structure of generation and supply of electric power in the future. The absence of modern accounting systems is reflected in the fact that a great amount of the electric power that is consumed is unaccounted for, and there are unnecessary costs for carrying out monitoring functions.

Figure 6.8 Power Infrastructure of Northwest Russia



Source: Goskomstat, 2000

The two nuclear power plants in the Leningrad and Murmansk Regions account for the largest portion of the production of electric power in the Northwest Russia (more than 40%). They are in the final stage of their exploitation cycle - most of their power units must be stopped in the coming ten to fifteen years. Since no alternatives have been found yet to replace these units, in the near future the consumers may encounter unreliability in the supply of electric power from the nuclear power plants and significant changes in the structure of the production of electric power.

About one-third of the electric power in the region is produced by thermal power plants that utilize natural gas, black oil, and coal. Hydroelectric power plants prevail in number in the Northwest Russia, but there are no large power plants among them - the hydroelectric potential of the rivers of the region is relatively small.

The underdevelopment of the dispersed energy production is the bottleneck of the power infrastructure in the Northwest Russia, as well as in Russia as a whole. As a result, companies are strongly dependent on large power plants, state-owned transmission grids, and on tariffs for electric power that are currently determined by the government. The privatisation of the electric power industry, which has already begun, as well as the acute need to replace most transmission grids and power units, will inevitably lead to a significant increase (by several times) in the price of electric power. For this reason, in the near future the development of dispersed energy production may become an imperative for the survival and the competitiveness of many industrial enterprises. The reduction of consumption of electric power is a matter of no less importance. This can be achieved through the modernization of technologies and the reduction of unnecessary losses.

In many cases, local resources such as peat, the energy of rivers or even high tides (for example, in the fjords of the Kola Peninsula) can be used in dispersed energy production. The expansion of the use of natural gas and coal is also quite promising - provided that "clean" technologies, i.e. those that cause less pollution in the environment, are used. Large territories of the Northwest Russia have still not yet been gasified (the Arkhangelsk and Murmansk Regions, and the northern areas of the Republic of Karelia), and in the regions where the gas infrastructure has been created a severe shortage of gas may be observed; there are difficulties in drawing up new contracts for guaranteed supplies of gas. This problem can be resolved by exploiting new deposits of natural gas and gas condensate in the Barents Sea, scheduled for the end of the current decade.

Logistics, other issues connected with supplies of fuel and electric power, as well as information, financing services, and other components of the developed economic infrastructure, will be discussed later in the chapter, in the Related and Supporting Industries section.

Human capital

During the Soviet period, a qualified and abundant workforce was created. This was possible due to a well-developed system of education, from high schools, to technical schools, to universities. All students were required to do practical work in a company or organization, and after graduating were assigned by the government to workplaces according to their specialities. This system of workforce training determined the general high level of education among the population. According to U.N. estimates, in the 1960s and 70s, the Soviet Union was among the top ten countries, ranked by quality of education.

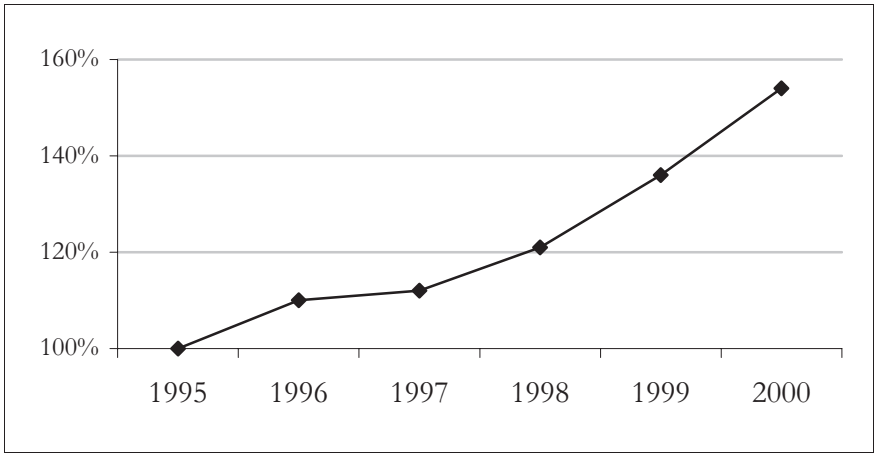
The egalitarian practices of the socialist system, however, had some significant flaws. The most critical of these was the low level of motivation of employees, which was connected with the totally centralized organization of manufacturing. The salaries (much lower than those in developed countries) did not depend on zeal and skills, and employees had very limited opportunities for changing the sphere of their activities by switching jobs. This resulted in the formation of the rigid mentality of a low-paid hired worker who was not interested in the results of his work. Another critical issue was the lack of training in the areas of management, marketing, public relations, etc. These specializations were not in demand in the planned economy of the Soviet Union.

During the past decade, government financing of the educational system decreased sharply, which inevitably resulted in the deterioration of its quality. The extremely low salaries of professors and teachers in state educational institutions led to a significant draining away of highly qualified staff and the lack of incentives for young people to enter this sphere. An especially palpable deficiency of highly qualified teachers may be observed now in economic specializations, the need for which increased sharply under the new market conditions, as well as in information disciplines and foreign languages - the long international isolation of the countries of the socialist bloc has resulted in the fact that the average level of knowledge of the most widespread foreign languages is clearly very low.

A sharp differentiation in educational institutions has occurred over the last ten years. A great number of private educational institutions (primarily institutions of higher learning), the quality of education of which is lower as a rule than in public schools, have appeared. Due to the increased number of specializations in public schools, they have experienced an increase in the number of students. At the same time, specialized technical education both secondary and higher has been in a deep crisis. The ties between companies and educational institutions were broken, due to the altered priorities of companies, brought about

by active property redistribution. Thus, students were not able to become familiar with contemporary equipment and production. The severing of ties with the manufacturers has also led to a situation in which the number of specializations and the number of graduates in most educational institutions did not correspond to the actual needs of the economy.

Figure 6.9 Number of University Graduates in St. Petersburg Compared to 1995



Source: Peterburgcomstat, 2001

In recent years, Russia has fallen so low in the U.N. rating of the quality of education that it now occupies a position among the top fifty or sixty countries (rather than the top ten). This confirms the authors' view of the quality of the workforce as generally low, and in need of significant improvement in order to achieve the competitiveness of high-tech production. Yet another critical issue that has had a negative impact on the quality of the workforce is the substantial drop in the quality of life of the majority of the population in the last ten years. Under conditions of low productivity, salaries remain low almost everywhere. As a result, the purchasing power and mobility of the population are also low.

The change in forms of property (from state to private) has not yet affected the generally low productivity and culture of production. Only at companies that belong to foreigners has a relatively high level of productivity been reached. In domestic companies, high productivity is only observed in small, private firms, in which highly intensive manufacturing is the prerequisite for survival in an environment of harsh domestic or international competition.

In the Northwest Russia, the most highly qualified workforce is concentrated in St. Petersburg, and in other major industrial cities (Cherepovets, Arkhangelsk, Syktyvkar, Novgorod, Murmansk, etc.). The most highly educated and ambitious people from other Northwest Russia regions tend to move to St. Petersburg, where the living standards are higher. At the same time, a draining away of highly qualified personnel (primarily top managers) from St. Petersburg to Moscow is evident.

In the authors' view, the quality of the workforce of the region will continue to be marked by the following trends:

- Increase of differentiation in general educational level of employees, their skills, and motivations;
- Gradual introduction of western standards of organizing production at the leading companies in every industry;
- Renewal of previously severed ties between education and production;
- Close relations between the quality of the workforce in a given populated area and the average living standards there;
- Generally low productivity in most sectors, especially at the largest enterprises;
- Continuing low cost of the workforce in all sectors of the economy in comparison with the developed European countries.

In summarizing our review of the basic factors of production in the economy of Northwest Russia, we must emphasize the fact that the potential previously accumulated during the years of property redistribution and the restructuring of the Russian economy has been for the most part exhausted. In order to develop production and increase competitiveness in the new market conditions, significant investment, both domestic and international, is needed in all sectors. The influx of this investment cannot be expected unless radical improvements in the investment climate at all levels - government, local, and industrial - are carried out.

6.3 Demand Conditions - Large Exports to Survive

It is common to consider demand to be the primary motivating factor in economic development. A steady growth in demand guarantees the strength of the position of any given sector of the economy. The domestic demand is especially important for forming competitive manufacturers. This allows companies more effective links with consumers. Satisfy-

ing the growing domestic demand, which is characterized by increasingly sophisticated consumers, inspires the forming of skills, knowledge, and organization of production, all of which allows companies to become viable even beyond the country's borders. In this study, we will also examine the demand on the world market, so far as in the absence of sufficient domestic demand, it was and for the time being will remain the most important factor of development of many industrial sectors of the Northwest Russia.

During the Soviet period, domestic demand, like other factors of economic development, was subject to centralized government regulation. The volumes of domestic demand, its structure by region, and the range of products were determined by the State. Along with the economic goals, priority was often given to resolving political issues - maintaining political stability in some national regions, preserving the distance between residents of the largest cities and the rest of the population, and so on.

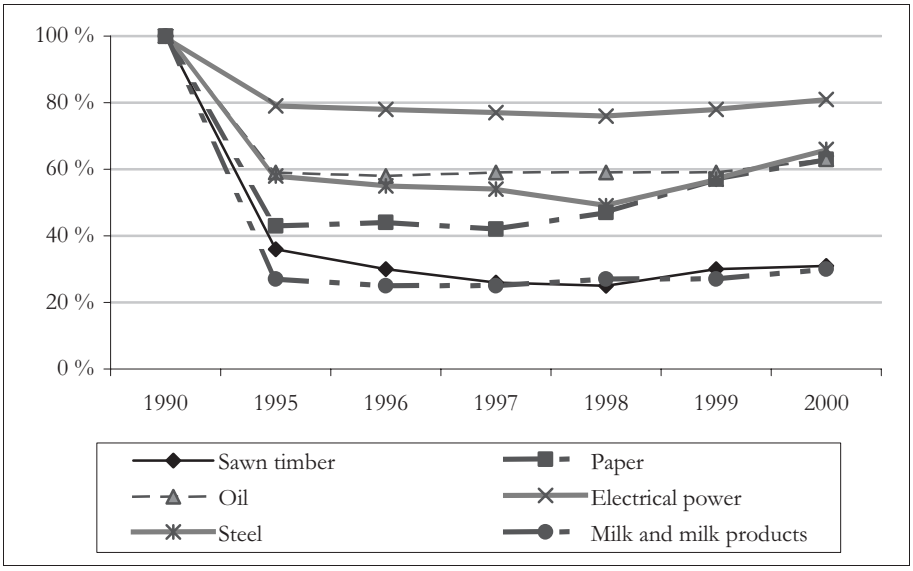
This unwieldy mechanism of regulation often faltered, not seldom leading to shortages in supplies of certain products in various regions of the country. The rigidity of this kind of system, evident in the weak and indirect links between consumers and producers, was one of the main reasons for the low and steadily deteriorating competitiveness on the markets of developed countries for products with a higher value added manufactured in the Soviet Union. Since almost no attention was paid to the changing demands of consumers, this was compensated for by a high degree of standardization of products in all industries, and a narrow range of goods produced in large quantities. This feature was built into the production plans of all large companies, and continues to exert a negative influence on the development of the country's economy to this day.

Demand on international markets had two constituent parts in the Soviet period: the demand on the market of the Socialist bloc countries (which closely resembled the demand on the domestic market of the USSR, and in spite of its significant volume was unable to stimulate the more efficient development of the economy); and the demand on markets of countries outside the Socialist bloc. The latter was important for the government as a source of hard currency, and provided it with the opportunity to influence political processes in the rest of the world, for example by aiding developing countries that chose the path of socialist development. The main products of the Soviet Union that enjoyed stable sales on the markets of developed countries were raw fuels, primarily oil and natural gas. The exports of other products were much lower, and the total exports to developed countries were also much lower than those that entered the domestic market of the USSR and the markets of the Socialist bloc countries.

After the collapse of the Soviet Union and the beginning of economic reforms, the demand for products of the Russian economy changed radically. First of all, the domestic demand fell drastically. This occurred for the following reasons:

1) An almost twofold reduction of the size of the domestic economic space, as a result of the break-up of the Soviet Union;
2) Opening of the markets, privatisation and other reforms, which led to a drop in all Russian industries;
3) Significant drop in the standard of living of most of the population, resulting in the lowering of purchasing power.

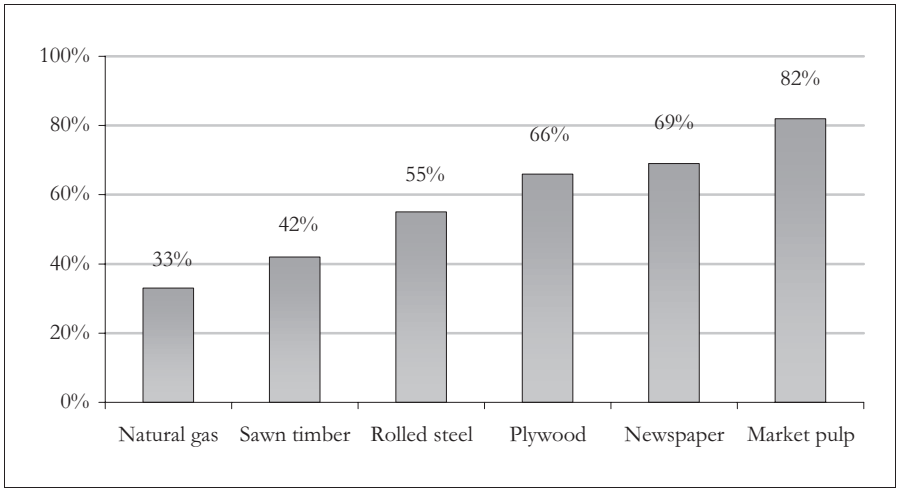
Figure 6.10 Production of Selected Russian Industries Compared to 1990,%



Source: Goskomstat 2001

Another negative factor was the loss of the markets of the Socialist bloc countries and developing countries with a Socialist orientation, where Russian products were deprived of state protectionism and, in this situation, found themselves being unable to compete with the products from developed countries. This was especially true for the products of the machine-building industry and the military sector, which accounted for most of the export in the Soviet period. The portion of raw materials and semi-finished products in the structure of Russian exports has significantly grown in comparison with the exports of the USSR.

Figure 6.11 Export Share in Total Production of Selected Industries in 2000



Source: Goskomstat, 2001

It is also necessary to mention the fact that, while the total exports dropped significantly, the portion of exports in the total industrial production grew, and in certain product groups exceeded 50%.

It is undeniable that in the past decade international markets have played a truly redeeming role for many Russian industries, under the circumstances of catastrophic reduction of their domestic market. In addition, only on international markets were the companies able to receive money for their products in due time and in full, whereas within the country, barter and long delays in payment became very widespread. This is attested to by the fact that companies often exported products even at a loss. For example, in 1997 and the first half of 1998, domestic prices for metal products exceeded the world level because of the introduction of the currency band, which temporarily rendered its exports unviable. Nevertheless, Russian metal companies did not cease exporting at that period.

The strategy of survival due primarily to exports, however, has no long-term prospects. Manufacturing semi-finished and other kinds of products with low added value, which are still competitive on the world market because of the relative inexpensiveness of Russian raw materials, electric power and fuel, the workforce, as well as low transportation tariffs, industrial companies are often unable to form investment resources for the creation of competitive manufactures of products with higher added value. At the same time, the companies are gradually losing the capital of knowledge and skills that they had earlier accumulated.

The large portion of exports facilitates the conservation of companies at the lower stages of the chain of added value. Moreover, Russian semi-finished products (this is especially evident in ferrous metallurgy) already encounter substantially higher competition with products from developing countries on the world market, and with antidumping barriers on the markets of developed countries. The price advantage of Russian products cannot be viewed as stable in the long run, because of the steady growth of domestic prices and tariffs and their gradual nearing of the world average level. All this is not the case with the food, tobacco, light, construction materials, and porcelain industries, and some other sectors that operate almost exclusively on the domestic market. With the exception of the first two, however, these industries have a very low share in the economy of Northwest Russia.

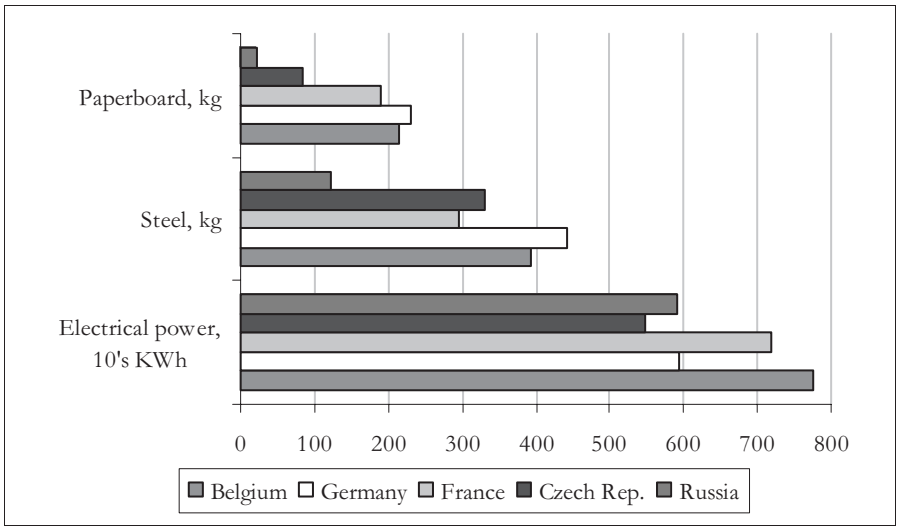
For this reason, the expansion of the domestic market due to the growth of its volume and import substitution is a matter of prime importance for the sustainable development of the majority of Russian industries. Only the raising of the sophistication of domestic consumers and the significant increase of their purchasing power may force industrial companies to modernize and diversify. On the condition that the development of the domestic market is accompanied by economic feasibility, this may in its turn serve as the foundation for the growth of competitiveness on the international markets.

Although the domestic demand for products of the leading Russian industries has experienced stable growth in recent years, it remains insufficient for the effective development of domestic companies. The consumption of almost all basic goods remains at a very low level in comparison with the countries of Western Europe; this hinders the achievement of economies of scale for the majority of local manufacturers.

It is impossible to overcome this lag without substantial growth of the economy and a corresponding increase of the GDP. Significant growth of the economy is in turn impossible under the present conditions of an unfavourable overall investment climate. In other words, the cornerstone of development is the need for a swift and radical improvement of the investment climate on all levels.

The increase in volume, however, is not the only change that has occurred in the Russian domestic market over the course of the last decade. The structural changes that have already made themselves felt and that continue to unfold are no less important. They are expressed in the adaptation of production to demand through market mechanisms that are taking shape, which is reflected in the process of market segmentation.

Figure 6.12 Selected Products' Consumption per Capita in European Countries and Russia in 2000



Source: ECE/FAO, Swedish Institute of Steel Consumption, UCTE, Goskomstat, 2001

The increase in the number of market segments and the growth of several of them is founded on the growth in demand and the rise in purchasing power. This has been prompted by the gradual diversification of domestic companies and greater access by new manufactures to foreign markets as well as imports, especially imports of consumer goods. On the other hand, several segments that enjoyed a large volume during the Soviet period (this is especially true of investment goods) underwent severe reductions in the new circumstances.

The differentiation of demand and supply becomes especially apparent when we compare the regions of Northwest Russia. A real abyss between megalopolises and other populated areas characterises Russia. Markets of large cities, where the population has the highest per capita income, have the largest capacities. Peripheral and backward regions, on the contrary, are smaller and poorly developed markets. They are distinguished by low rates of growth and low consumer sophistication. Several types of local markets can be distinguished in the Northwest Russia:

- St. Petersburg is the only regional megalopolis, with over one-third of the total population of the Northwest Russia living in it. It is the most diversified and structured market, especially in terms of consumer goods;
- The administrative centres of the regions of the Northwest Russia and some other successful industrial towns (Cherepovets in the

Vologda Region, Kirishi in the Leningrad Region, and others). Their population varies from 50,000 to 400,000. The volume of the market is several times lower than in St. Petersburg, the market is less diversified, and characterized by narrow specialization in investment goods;

- Other towns and settlements are very small local markets (this type covers a few towns with a population of around 100,000; for example Velikie Luki in the Pskov Region) with a poorly developed distribution system and low growth rates.

Finally, it must be noted that the sophistication of Russian consumers in most segments is growing rapidly. As the standard of living increases, demand becomes more diversified. This is obviously a positive trend, which can and must become an important incentive for increasing the efficiency for domestic manufacturers. Below, we will examine in more detail the specifics of demand for products of the leading industries of the Northwest Russia.

Forest cluster

The domestic market of the forest cluster has grown visibly in recent years. As a result of this, investments in manufactures oriented toward the Russian consumer - packaging materials, office paper, various types of wooden boards for the furniture and construction industries, sawn timber, plywood, and furniture - are also growing. The structure of demand and supply that was inherited from the Soviet period is gradually changing. The existing volumes in all segments of the domestic market, however, are insufficient for the full-capacity operation and efficient development of the production facilities that exist in Northwest Russia. For this reason, large-scale companies export most products. On other hand, forest products with high value added (many kinds of paper, paperboard, tissues, etc.) are now mostly imported.

The export of local forest companies is characterized by low efficiency. Raw materials and semi-finished products - roundwood, pulp, and plywood - prevail in sales abroad. Besides these, the Northwest Russia forest companies export large volumes of newspaper and packaging board. Most Russian forest products with a higher added value do not comply with quality standards accepted in developed countries. In addition, launching products on markets of Western countries requires a well-developed system of creating new products, marketing and sales, and just-in-time deliveries which cannot be formed in a short period of time. Integration of Russian semi-finished products into the manufacture of the world leaders is quite promising for local manufacturers, but the poorly developed domestic infrastructure constitutes a sizeable barrier.

Table 6.1 Exports and Domestic Sales of Russian Forest Products in 2001

Products	*Share in exports*	*Share in domestic sales*
Roundwood	38%	20%
Sawn timber, plywood and wood-based panels	22%	11%
Pulp and paper products	33%	47%
Other forest products	7%	22%
Total	100%	100%

Source: Research and Design Institute on Economics, Production Management and Information for the Forest, Pulp-and-Paper and Mechanical Wood-processing Industries (NIPIEIlesprom of Russia), 2002

In the view of the authors, the following trends will prevail in the dynamics of demand for the products of the forest cluster in the near future:

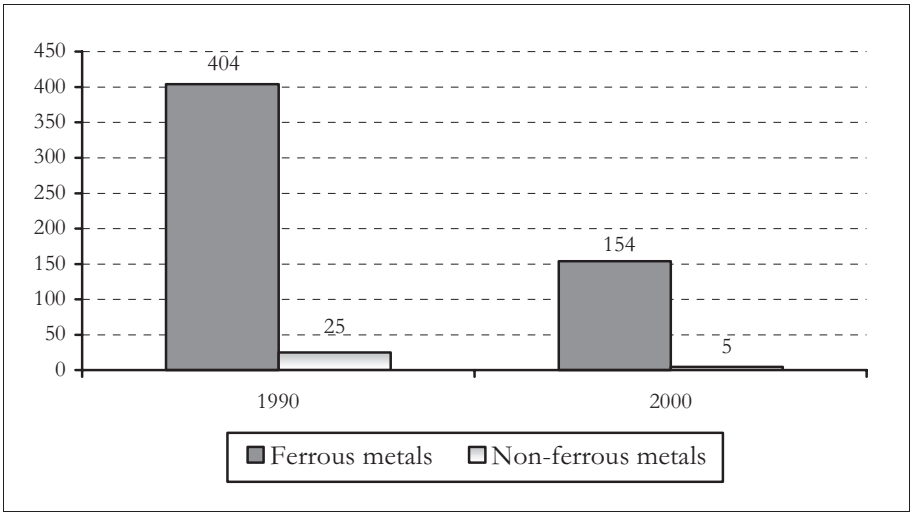
- Growth of demand for pulp;
- Growth of demand for packaging paper and board, due to the growth of the local food industry and other segments of production for the consumer market;
- The expanding of the high-price segment of the final product market (supreme quality paper, tissues, and furniture) primarily in St. Petersburg;
- The broadening of the range of products of mechanical wood processing - sawn timber, wood-based panels, plywood, and furniture - caused by the development of new small-scale companies, including those established with the participation of foreign capital;
- The beginning of the creation of service centres for forest products in the region;
- Continuing abundance of roundwood in the region, especially birch and aspen, caused by low rates of growth of the volume of processing these types of wood;
- The ongoing drop in demand for domestic machines and equipment for the forest companies;
- Continuing stable demand on international markets for raw wood and semi-finished products manufactured in Russia.

Metal cluster

The metal cluster currently exports more than any other industry of Northwest Russia - around 50% of ferrous metals, and about 85% of non-ferrous metals. This, as well as the fact that primarily products with a low degree of processing are exported, makes companies highly dependent on the world market changes. Because the competitiveness of such products depends mostly on their low prices, the policies of many importing countries, which have recently undertaken measures to protect their manufacturers from Russian price dumping, are a major factor in the instability of the sector.

In recent years, the products of ferrous metallurgy have encountered more limitations on international markets. For this reason, the portion of Russian steel on the markets of developed countries is currently not big, and shows a tendency toward reduction. Severstal is forced to search for new consumers in the geographically remote developing countries of Asia and Africa, where competitiveness on the markets is also growing. Non-ferrous metals enjoy steadier demand on international markets, although developed countries (the US, in particular) also undertake anti-dumping measures to limit imports of products of Russian manufacturers.

Figure 6.13 Metal Consumption per Capita in Russia, kg



Source: Swedish Institute of Steel Consumption, 2001

Such strong dependency on exports influences the development of the companies in the cluster. The modernization of equipment of the

leading companies is aimed at updating facilities manufacturing semi-finished products for export, rather than products with higher added value.

In the 1990s, the domestic market of metal products was severely reduced, due to the drop in the output of the Russian machine-building industry, as well as an abrupt curtailment in the volume of the construction and infrastructure replacement works. A return to the consumption of the last decade of the Soviet period is unrealistic in the near future because of substantial structural changes in the Russian economy, which led to a drop in potential demand. In this situation, the increase in flexibility and broadening of the range of services for consumers (creation of service centres for supplying various products directly to end consumers), as well as the increase of the production of preprocessed intermediary products for mechanical engineering, may become the main tendencies of development for the leading local manufacturers.

In the authors' view, the demand for the products of metal companies in the coming years will be characterized by the following trends:

- Significant growth of the domestic market as a result of the urgent need to replace the worn-out railway tracks, cars, vessels and other transportation fleet, worn-out facilities in the electric power industry, as well as due to the increased demand for packaging materials (foil and aluminium cans);
- Lag in the demand for non-ferrous metals behind ferrous metals;
- Continuing stagnation and even disappearance of some manufacturers in Russian machine building, the main consumer of metal products. This process, however, will be compensated for, in part, by the appearance of new machine-building manufacturers with a much shorter production cycle utilizing preprocessed intermediary metal products;
- Increased imports of metal products with higher added value;
- Intensification of competition on the world market;
- Reduction of the number of limitations for Russian metal products on the markets of developed countries as a result of Russia's entry into the WTO.

Energy cluster

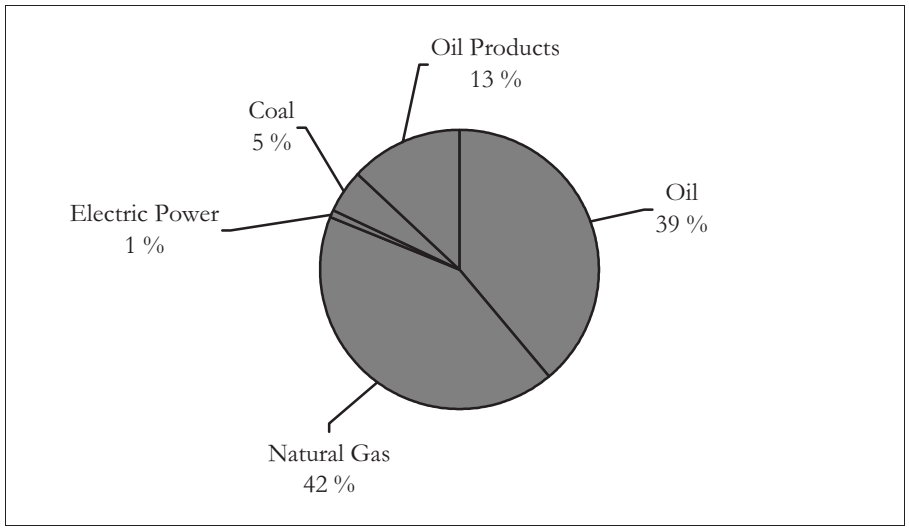
The domestic demand for the products of the companies of the energy cluster has also experienced a significant drop in the past ten years. The reason for this was the sharp reduction of energy consumption due to

the drop of production in industry, transport, agriculture, and a significant fall in the output of the military sector. In this situation, the companies that had the highest export potential found themselves in an advantageous position. In the Northwest Russia, these were primarily the companies of the oil and oil refining industries. The electric power, coal, and power engineering industries, the exporting abilities of which are currently much lower, have found themselves in a worse situation.

In spite of the drop that occurred in domestic demand (less than in other major industries), it still remains significant; but profits of energy companies are limited by the government, which carries out a policy of restraining and regulating domestic prices for fuel and power. This especially hinders the development of the electric power and the gas industries. The oil sector compensates for its losses on the domestic market by its significant exports.

In addition to government regulations, the domestic market is characterized by very weak competition. This substantially limits the abilities of consumers to choose suppliers. Only the marketing of oil products in St. Petersburg shows signs of a competitive market. It is expected that the reform of the electric power and gas monopolies will lead to a significant increase in the number of players and, thus to the intensification of competition. The experience of the privatisation of the oil sector has shown, however, that even after the reform the domestic market will probably remain greatly monopolized for some time to come.

Figure 6.14 Russian Energy Exports in 2000



Source: Minenergo (Ministry of Energy of Russia), 2001

The international markets today afford the companies of the oil and gas sector (and in the future, probably, companies of the electric power industry) great opportunities for successful development. Exporting coal is profitable only while the cost of shipping it via railroad remain low. Exports of energy machines and equipment dropped significantly after the loss of the markets of the countries of the former Socialist bloc. Now, St. Petersburg manufacturers of energy machines and equipment are oriented primarily toward the markets of developing countries. To increase their competitiveness, they need substantial amounts of investment in modernization and development of new products. The manufacturing of equipment for dispersed energy production, for example, could be quite promising.

In the authors' view, the changes in demand for the products of the companies of the energy cluster in the coming years will be facilitated by the following major trends:

- Changes in the regional (within Northwest Russia) structure of the fuel mix toward increased utilization of natural gas and coal and lowering of the portion of oil;
- Decrease of the portion of nuclear power plants in the total production of electric power in the region;
- Gradual nearing of domestic prices for electric power and fuel to profitable levels, comparable with prices on the world market, which will lead to increased costs for consumers, and thus to the more active implementation of energy-effective technologies;
- Continued strong dependence of consumers in the domestic market on monopolistic prices, due to the slow development of a competitive environment;
- The expansion of the domestic market of energy machines and equipment, due to the construction of new production facilities in Russia;
- The large portion of exports of oil and oil products of the total production;
- Significant increase of exports and imports of electric power.

Food cluster

Among industries leading in volume of production in the Northwest Russia today, the manufacture of food products is the only sector that is based almost entirely on the domestic market. This market has also sub-

stantially dropped in comparison with the end of the 1980s, due to the significant reduction in the standard of living and purchasing power of the population. Its curtailment, however, was not as drastic as it was, for example, in machine building. Many local brands maintained or even strengthened their positions; a large number of successful new companies appeared.

At present, the domestic market of food companies is the most competitive and differentiated. At the same time, there is still significant potential for growth in many product groups (with the probable exception of the sector of alcoholic and non-alcoholic beverages), which makes it possible for both domestic and imported goods to find their niche. The slight rise in the standard of living of the population (at least in large cities) that has been registered recently creates additional possibilities for the development of companies of the cluster.

Fish products are the main exported goods in the food cluster in the Northwest Russia. It is primarily raw fish, and, to a smaller degree, semi-finished fish products that are being exported. The food-processing facilities in the Northwest Russia are not yet able to satisfy the quality requirements of consumers in developed countries. In addition, there is strong competition in this sector from Norwegian and Danish companies.

In the authors' view, the demand for the products of the companies of the food cluster in the coming years will be characterized by the following trends:

- Further segmentation of the domestic market aimed at satisfying the growing variety of requirements of consumers;
- The large discrepancy between the St. Petersburg market and the markets of all other regions of the Northwest Russia;
- Gradual saturation of the domestic market of dairy, meat, and bread products;
- Substantial development of fish-processing in the region;
- Strengthening of government control over the market of alcoholic beverages.

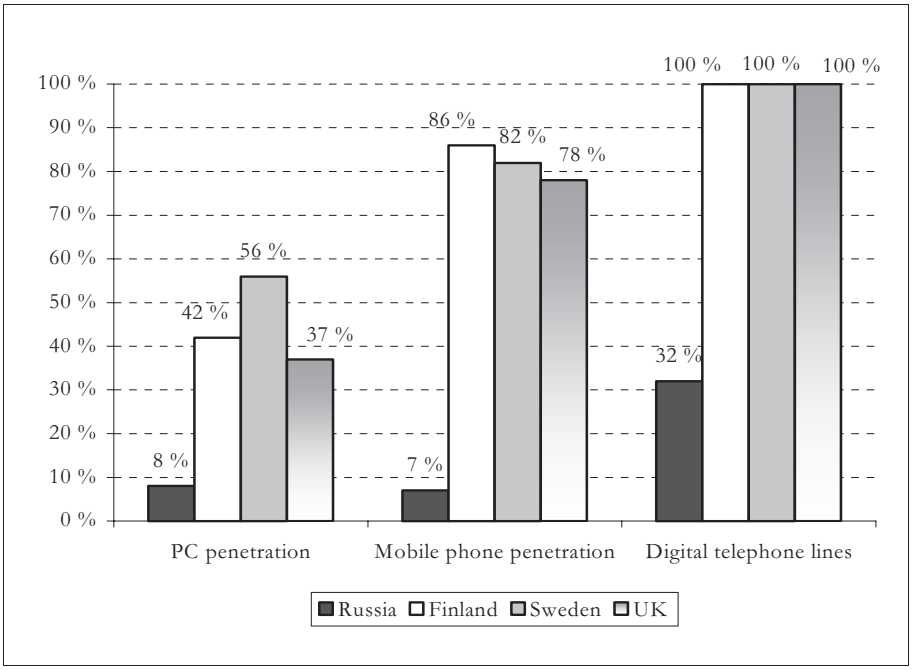
Cluster of information and communication technologies

The cluster of information and communication technologies (ICT) also primarily rests on the domestic market, which has been experiencing a boom in the last decade (both quantitatively and qualitatively - the appearance of new segments, growth of competition, etc.), connected with the development of new technologies: mobile telephony, the Internet, etc.

These sectors were built from scratch and are now far from reaching market saturation. The sector of wired telecommunications, which still maintains the monopoly and government tariff regulation inherited from the Soviet period, also has significant potential for development.

At the same time, growth of the domestic market of ICT companies of the Northwest Russia will probably encounter limitations soon, primarily due to the low purchasing power of most of the population, as well as the very low density of the population on most of its territory (especially in the north and east of the region). The growth of demand for information and telecommunication services in the Northwest Russia has so far occurred mainly because of St. Petersburg.

Figure 6.15 ICT Penetration in Russia and Selected European Countries in 1st quarter of 2002



Source: Ministry for Telecommunications of Russia, EMC (Issue 161), Morgan Stanley Research, 2002

Another obstacle (which is of a national, but not regional, nature) in the way of development of the domestic market of ICT companies is the extremely widespread use of pirated software. This negative factor has its bright sides, however. The use of cheap pirated copies facilitates the popularisation of information technologies and the eventual growth of registered users.

The export potential of companies of the cluster is for the time being relatively low, and is realized primarily in the sphere of offshore programming, as well as in the supply of companies for equipment assembled abroad.

In the authors' opinion, the following trends in the increase of demand for the goods and services of the companies of the cluster in the coming years will predominate:

- The increase of the demand for new information and telecommunication technologies, not only in St. Petersburg, but in other large cities of the region;
- Further qualitative development of the domestic market - broadening of the range of services, price differentiation, development of competitive environment, etc.;
- De-monopolization of the domestic market in the sector of wired telecommunications;
- Introduction of new technologies that allow the solution of problems of providing large areas with telephony most effectively;
- Significant increase of the domestic demand for Russian software and stricter measures against piracy;
- A certain increase of the exports, primarily due to the development of offshore programming.

Thus, in the economy of the Northwest Russia, as in the whole of Russia, a natural process of mutual adaptation of demand and supply in the new economic environment is occurring. These changes occur at different rates in different sectors. The rigid schemes for interaction of manufacturers and consumers gradually give way to competitive relations, which stimulate diversification and increase the flexibility of manufactures, eventually facilitating an increase in competitiveness.

6.4 Firm Strategy, Structure and Rivalry – Adapting to New Conditions

During the Soviet period, working out the strategy and directions of economic development, deciding on priorities of regional development and allocation of industries in different regions, as well as developing services there, were political targets. That meant, in the first place that decisions were made by government bodies under the guidance of the

Communist Party. The main development directions were determined by party congresses and conferences, whereas government bodies centrally developed and implemented measures to follow these directions.

Industrial planning, including plant allocation, their production volumes and assortment, connections with other branches, raw material suppliers and customers, issues of future development, also fully depended on governmental and Communist Party bodies, concentrated in Moscow, the capital of the country. The policy was implemented by command methods. Enterprises had no independence in almost any field of economic activity. Even such insignificant questions as the amount of stationery provided annually for the administrative and bookkeeping needs of an enterprise were solved centrally.

Company managers, constantly controlled by the party, performed only routine production management and were responsible for fulfilling plans devised by their superiors in Moscow. That is why the managers did not have any skills in financial and strategic planning, market analysis, marketing and sales or working in a competitive environment. This factor had a negative impact on the efficiency of many industrial enterprises during reforms, and spawned the long and painful economic transition period.

The prevailing organizational structure of Soviet enterprises was strict hierarchy, with clearly determined limits of functions and responsibility, where party organs necessarily participated in making production decisions. The majority of largest enterprises were set up as maximally self-sufficient units from the point of view of goods and services provided by related and supporting branches (semi-finished products and components, repair and assembly, engineering, energy and chemical inputs, etc.), which was achieved due to a cumbersome structure including numerous auxiliary departments. As far as the regional division of labour is concerned, the emphasis was also made on creating specialized structures, maximally autonomous from the point of view of production processes and called "territorial-production complexes", or TPCs.

The number of staff was determined by the technological development of an enterprise when it went into operation and by the principle of 100 % employment of able-bodied citizens, underpinning the state economic and social policy. The latter consideration defined technological choices and became a significant obstacle to equipment modernization. This is particularly evident at the enterprises situated in small towns with few possibilities for alternative employment. As a result, labour efficiency is low and the number of employees at many enterprises is excessive, which is still one of the most acute problems of Russia's industry.

An additional burden for enterprises in one-enterprise towns (towns built simultaneously with enterprises, which used to be typical for Northern regions of Russia, rich in natural resources, but scarcely populated) has

been up to now the necessity of financing social services: kindergartens, personal services, cultural establishments, etc. Otherwise, the towns could not survive. Only recently, due to changes in the taxation legislation, the basis for development in this sphere has been laid down.

The socialist economy of the Soviet Union excluded competition. Each producer specialized in a narrow assortment of goods, produced in large quantities to satisfy the entire domestic demand and often the demand of other Socialist blockcountries. The range of products of different companies working in the same branch did not overlap, and, even if it did, each producer had its own particular customers.

Thus, domestic competition did not exist at all, imports were very limited, and the possibilities of foreign competition were kept within strict limits. Since production was entirely separated from trade and customers, export producers had no direct contact with their foreign customers either. Competitiveness was achieved due to low export prices, and losses were covered by the government manipulating domestic prices. All that provided for another important factor to determine low efficiency of Russian companies.

During the last decade, radical changes have taken place in this sphere, like in many others. The most important changes in Northwest Russia, and in Russia in general, are:

- New ownership of the majority of industrial companies as a result of privatisation;
- The continuing process of property redistribution and forming of a new class of owners and managers;
- Gradual shift of emphasis from struggling for property to understanding one's place in the market and starting the development of strategic plans for company development;
- The beginning of state monopolies restructuring, formation of large industrial holdings and gradual structural changes within particular enterprises aimed at production optimization;
- Emergence of the first signs of competition between domestic producers on the domestic market.

One of the main directions of liberal reforms carried out in Russia is the privatisation of industry. It actively started in the first half of the 1990s, and at present the government has significant interests exclusively in the energy sector. It is going, however, to gradually hand them over the to private sector. Thus, in the end of 2002, when the government sold out its portfolio of Slavneft shares, the privatisation of the oil sector was practically completed.

Box 6.1 Russia's Privatisation Chaos

Many enterprises in Northwest Russia were privatised with severe violations of existing rules. The most common infringements were the following:

- acquisition of shareholdings of enterprises at an investment competition with no further fulfillment of investment obligations;
- Organizational infringements at competitions and auctions of shareholdings of privatised enterprises;
- consolidation of shares by company management, and infringing the rights of the shareholders working at the enterprise;
- non-market methods of competition for assets of privatised companies.

Some violations led to later disputes over the results of primary privatisation, possible due to a 10-year privatisation period stipulated by the current legislation. The most vivid examples of such disputes in Northwest Russia can be found in the pulp and paper industry. In 2001-2002, Basic Element, the biggest player in the Russian aluminum market (a holding company controlling Russian Aluminum) used the infringements that had taken place during primary privatisation of a number of large pulp and paper industrial complexes in Bratsk, Arkhangelsk and Kotlas, to gain control over them. In Bratsk, Basic Element was first satisfied with selling the enterprise to its former owner, Ilim Pulp (see box in Chapter 4), and then repeated the whole procedure. In Arkhangelsk a similar attempt failed, while in Kotlas the conflict with the same holding company, Ilim Pulp, still continues.

Public opinion in Russia is still generally unfavourable to the privatisation results, especially when company performance has deteriorated after the privatisation. According to different surveys, the majority of the population tends to think that it is necessary to discover violations of the law connected with privatisation, and return the unfairly acquired property back to the state. One of the episodes of a long-standing conflict around the Vyborg Pulp and Paper Industrial Complex was the seizure of the enterprise by its workers, who formed an illegitimate committee, which operated the factory for several months.

As you can see from the examples above, the privatisation, in many cases, became an impetus for further long-standing processes of property redistribution, which is not yet over everywhere.

The privatisation process was going spontaneously, practically without any control from the government, and against a background of flourishing bureaucratic corruption, which led to the situation whereby many important assets were privatised nearly for free. Criminality was particularly high during that period, and sometimes the repeated redistribution of property went as far as armed captures of enterprises.

Different players continued to struggle for property in most sectors all through the 1990s. Public scandals, court actions, fake bankruptcy procedures, handing out company assets to inexistent subsidiaries, infringement of minority shareholders' rights by emitting additional shares, etc. became commonplace.

New owners often understood nothing of the acquired business. Moreover, they were by no means always interested in long-term development of their production. In most cases the main effort was directed at struggling for property, while the enterprises were considered as a simple source of liquidity, which could be pumped out in a comparatively short period of time. In the poorest state were the enterprises that lost their integrity in the course of privatisation, which led to the disruption of a single technological cycle and to a practical collapse of production (the example of Nevsky Zavod in St. Petersburg - see box in Chapter 4).

Against the background of the general economic chaos, even those new owners who considered staying in their business for a long time did not have a possibility to seriously invest in effective production development. Finally, some regional authorities took part in the process of property redistribution as well. Thus, in Karelia, the local government was not satisfied with the policy of the Swedish company, Assi Domain, which started radically restructuring the Segezh Pulp and Paper Plant. The local government ended up practically forcing the Swedes out. Moreover, from then on, the Karelian authorities have an a priori negative attitude to potential foreign investors.

By now the property redistribution in most sectors of Russia's industry seems mainly over. This semi-criminal process is likely to be completely over within the coming decade, and a more stable set of rules will appear. Further changes of ownership will proceed legally, through mergers, takeovers and setting up of new production facilities.

The gradual stabilization of property relationships already gives the new owners an opportunity to pay more attention to business development. One of the biggest problems remaining here is efficiency and controllability of enterprises. Old managers, running their companies ever since the Soviet period, have a good understanding of Russian business particularities and different personal contacts with their partners and the state authorities. These managers, however, are hardly familiar with the new business environment. They pay little attention to financial planning and developing customer-oriented marketing and sales systems. Hierarchy is still the most widespread organizational principle, and companies are not oriented toward consumers' interests (which demands significant flexibility), but at mere technologies and production processes.

On the other hand, young managers employed by the owners often have a modern business education (although, very often, its quality is still far from perfect) and are active in establishing new contacts. They tend to treat problems rather schematically, however, and do not have sufficient knowledge of the specifics of both production processes or cooperation with traditional partners.

As a result, the most economically successful companies today are those partially or completely belonging to foreign capital and managed according to the best practices of the world business. It is significant that the highest labour efficiency in the Northwest Russia is achieved in newly created companies not having any burden of old problems and developing on the basis of the current market situation.

While accessing the position and the role of foreign capital in Russia's economy, one must consider that it is divided into two fundamentally different types. The first one is proper foreign capital, predominantly from developed countries. It should be mentioned that companies using this capital are the most successful. The second type is offshore capital, resulting from the capital flight from Russia in the first years of privatisation and belonging to people who managed to "break the bank" in the course of the primary property redistribution. The efficiency of companies controlled by such capital (in Northwest Russia they own some machine-building, steel, pulp and paper and other enterprises) is generally no different from Russia's average. The offshore capital return has not yet led to modern technologies and management practices inflow to the country.

We think that in the coming decade, should no radical political changes occur in Russia, the share of foreign capital of both types will increase in most sectors of the country's economy. For the significant increase of the weight of the foreign capital from developed countries it is necessary, however, to substantially improve the investment climate in comparison with its present state. During the indicated period of time, new organizational forms are likely to appear, and we can also expect new partnerships and alliances, as well as rapid development of small and medium-sized enterprises, and new goods and services at the market.

As far as company strategies are concerned, during the most part of 1990s they were focused at mere survival. At best, those strategies were the reaction to outside changes and aimed at mitigating their effect. The main reasons for that, apart from active property redistribution, were the rupture of the majority of economic links after the collapse of the Soviet Union leading to no more total state regulation of economic processes, and the drastic decrease of the market capacity in all sectors.

Table 6.2 Companies with Best Productivity in Northwest Russia in 2002

Company	*Sector*	*Owners (at the beginning of 2003)*	*Sales in 2002, USD million**	*Productivity**, *USD thousand*
Soufflet St. Petersburg	Food & beverages	Grouppe Soufflet (France) & Baltika	43.4	867.9
Philip Morris Izhora	Tobacco industry	Philip Morris Holland BV (Netherlands)	584.5	730.7
Petromax	Metallurgy	Kuusakoski (Finland)	38.7	386.8
Rothmans Nevo	Tobacco industry	Rothmans International Tabak (UK)	103.2	344.2
Petersburg Products International	FMCG (Fast Moving Consumer Goods), razors	The Gillette Company (USA)	130.6	326.5
Kraft Foods	Food & beverages	Kraft Foods Inc. (USA)	64.2	320.9
Petro	Tobacco industry	GT International (Switzerland)	513.5	285.3
Amcor Rench Novgorod	Tobacco industry	Amcor (Australia)	44.1	220.6
Pskovalko	Food & beverages	Regional authorities	21.3	212.9
Telebalt	Household appliances assembly	Company's management	71.0	177.6
Pirometr	Instrument-making	Several Instrument-Making Companies	120.3	171.9
Pfleiderer Chudovo	Construction materials	Grupo Uralita (Spain)	45.2	150.8
Dirol	Food & beverages	Cadbury Schweppes PLC (UK)	51.1	127.9
Vena	Food & beverages	Oy Sinebrychoff Ab (Finland), EBRD	86.2	123.1

* Calculated using average annual RUR/USD rate equal to 31,36 in 2002.

** Sales divided by number of employees.

Source: Expert Northwest, 20-26.10.2003

The general uncertainty and instability caused by rapid changes of operational environment led to a situation where company managers' only

concern was to solve routine problems of maintaining their current production even at minimal levels. Not everyone could succeed in that, however. Some companies had to stop the production altogether, only to resume it after a long period of time or never at all.

During recent years, the most negative implications of the "shock therapy" have mostly been overcome. Companies began to realize the necessity of market and sector analysis, organization of modern marketing and sales services, and working on other strategic development issues. The activity in this direction is also stimulated by the fact that the production potential inherited from the Soviet Union has been significantly exhausted, and already now the great need for big investment is felt for maintenance, renewal and development.

It is still too early to say that Russian companies have adequately adapted to radical changes in economic surroundings. As a matter of fact, they are only starting to master the new rules of the game and to design first drafts of their development strategies. Moreover, most companies still do not perceive their position as stable enough to come openly to the market and publicize the details of their long-term plans. Only the largest players can afford it, although only still partially.

In general, Russian business transparency, company efficiency and the level of strategic planning remain very low. The necessary information basis still does not exist. The data about different industrial sectors and markets, provided by state and private companies, cannot be considered truthful or adequate. The shift to more sensible and economically feasible activity is complicated by the remaining lack of professional managers and employees, capable of working in the new business environment.

Strategies, designed or already implemented by the leading players normally include one or several of the following basic elements:

- equipment modernization;
- optimising general management, sales and marketing processes;
- Horizontal and vertical integration;
- diversification;
- setting up new production lines.

The above-mentioned strategic actions seem reasonable, but there are carried out only partially, in an uncoordinated manner and without due knowledge of current economic and sector processes. Such weakness in analysing and accessing company resources and possibilities is normally determined by the lack of reliable information, insufficient management training, and by prejudices formed during the period of the planned economy.

Equipment modernization of Russian enterprises is carried out in different ways. The most successful companies prefer introducing new technologies and equipment of the leading foreign producers to the maximum (as far as this is possible in the current situation). In many cases it is more reasonable to maintain old production facilities in operable condition and to set up parallel technological lines, which are absolutely new and permit the shift to more effective production, while keeping the access to infrastructure and the contacts with consumers. The old lines, which normally do not integrate in the changed market environment, should be used until they are exhausted, and then taken out of operation, leaving the place for fully new production facilities. In practice, such an approach is typical of companies owned by big international firms.

As far as companies owned by Russian capital are concerned, they use more dubious modernization and development methods, trying to economize. Normally they limit themselves by partial modernization also using imported equipment, but this equipment is generally second-hand. Finally, the least successful companies choose Russian equipment to modernize their production. The competitiveness of such equipment is rapidly falling and is likely to continue falling in the coming years.

One of the negative features of modernization that should be mentioned here is the fact that most resources are generally allocated to modernize facilities producing goods with low value added, which are easier to sell abroad. And on the contrary, facilities that were created already in the Soviet Union and allow the production of high value added goods are poorly used today, and companies either invest little or nothing in their modernization. This trend is unlikely to change in the coming years, because it is hard for companies to invest simultaneously in initial stages of raw material processing (which demand less investment per unit, and where the projects quickly yield a return) and in production of highly technological goods, which, among other costs, demands significant additional costs for market promotion.

In order to achieve a considerable efficiency increase in managerial processes, most Russian industrial companies need to go through restructuring and widely implement modern managerial methods, as well as introduce information technologies. We will dwell on the specialties of the use of information technologies at Russian enterprises in the next section of this chapter, while here we will consider some problems of restructuring in detail. The issues of state energy monopolies restructuring were viewed in detail in a special study on the present set of publications, devoted to competitiveness of energy cluster of Northwest Russia (P. Filippov et al. 2003). The example and problems of energy companies are quite illustrative, because similar problems have been dealt with in other sectors, although on a smaller scale.

Big industrial companies still bear a burden of ineffective support for production lines, superfluous numbers of staff and considerable social burdens (this primarily concerns one-industry town enterprises).

Outsourcing (withdrawal of support and related activities from the company structure) and buying necessary services on the open competitive market could be the optimal solution of the first problem. Outsourcing policy, however, is still implemented only by oil companies, which have already understood the advantages of such an approach and can afford paying for high-quality and expensive services, provided by the leading world firms specialized in oil business services.

For most other industrial companies the outsourcing possibilities are much more limited. In the first place, it is due to a poorly developed market of appropriate services and to the low profitability of many companies. Slow development of Russia's industrial services market and the low density of the infrastructure in most parts of Northwest Russia force managers to keep supporting productions within the company structure to ensure an uninterrupted main production process and to diminish general risks.

Substantial development of the market of supporting services and production will certainly provide a big positive impact on development of competitive industrial companies. The government should carefully consider this issue. Creating favourable conditions for the emerging and development of the services business can give a considerable impetus to development of many towns and regions.

Reduction of the social burden of industrial companies and plans to significantly cut the number of employees (which is necessary for the transfer to more effective new technologies and management practices) also directly depends on the policy implemented by regional authorities. At present, the latter do not have any possibility to undertake the support of social infrastructure and are afraid of serious social conflicts, which can be caused by growing unemployment and a sharp decrease of living standards in distant industrial towns after the implementation of such restructuring programs.

In developed countries, the reduction of the number of industrial employees is compensated by the development of other economic sectors, especially services. In Russia, the level of income of most of the population is still very low and is not enough for consumption growth, necessary for rapid services development. That is why we consider it very important for the government to implement a range of focused measures aimed at supporting and speeding up the development of small and medium-sized enterprises. Among such measures there could be introduction of more favourable taxation, state purchase contracts, organization of necessary staff training, etc.

Today, at big enterprises, the labour force is still abundant, whereas salaries, which are very low compared to developed countries, allow Russian companies not only to compensate for the labour costs (and the costs of social infrastructure maintenance), but also to compete in the international market due to the low prices of goods.

The other side of the coin, however, is that the low incomes of employees do not provide them with the incentives to improve their qualifications, get additional training or obtain other relevant skills. In the long term, it will mean that the companies will lose the advantage of cheap labour because of the lack of local qualified specialists and the need to bear significant expenses to bring them in from other regions.

Thus, the structure of the majority of industrial companies has not significantly changed, which is a serious obstacle to increasing the competitiveness of the Russian industry. The coming decade will become a period when the company competitiveness will be achieved due to the new factors, and not to the old resources and reserves. Professional education and training of the personnel will play a major role, which gives the government an opportunity to participate in the process in a positive manner.

We think that restructuring will be the most active at the enterprises of St. Petersburg and several other successful industrial centres of Northwest Russia, where the business environment is more favourable than in the region in general. An important incentive for speeding up restructuring processes could be numerous examples of more effective activity of companies controlled by foreign capital, whose structure is more economically feasible.

Another legacy of the Soviet times is the low level of marketing at Russian industrial companies. Back then this function was not needed at all. All company managers interviewed during the present survey in Northwest Russia complain that their marketing departments' employees do not have sufficient knowledge and experience. As a matter of fact, marketing in Russia is only making its first steps. Companies are only learning the rules of effective behaviour on domestic and foreign markets. That is why the necessity to develop sales and marketing systems is a significant part of strategic plans, implemented by nearly all Russian economic players. The state here can provide considerable support, organizing training of personnel with relevant qualifications and developing information services. Concentrated measures in this direction will be very useful for business development, especially within agglomerations of economic activity.

Only the managers of big companies, which have already accumulated sufficient resources for implementing large-scale long-term projects, develop other strategic activities.

Horizontal integration processes reflect the urge of the leaders towards further increasing their role in the appropriate business and economizing due to big volumes. At present, there are several holding companies of the country's scale operating in Northwest Russia. The table below indicates only those whose regional departments (located in Northwest Russia) provide more than 50% of the overall profits of the holding companies. Apart from these companies, such leaders of Russia's economy as Lukoil, Surgutneftegaz (both from the oil sector), Norilsk Nickel, SUAL (both working with non-ferrous metals) and others operate in Northwest Russia.

Many Russian businessmen agree that one of the methods to ensure industrial development sustainability of Russian companies in the long term is to implement vertical integration. This approach considerably differs from the current global economic trends, which praise outsourcing and concentration on core competences of a given company. Russian economic players are still trying to ensure their sustainable development and achieve competitive advantages using vertical integration, diversification and control over the entire chain of value creation. This is a logical consequence of the remaining instability and lack of financial resources.

At present, "downward" integration prevails in Northwest Russia, where the largest manufacturing enterprises try to gain control over the main sources of raw materials. One of the most vivid examples of such integration is the acquisition by Severstal of its two out of three iron ore suppliers (Karelsky Okatysh and Olenogork Ore Mining and Processing Enterprise) and its purchase of Vorkutaugol (the main coking coal supplier) share holding. Another example is the region's pulp and paper companies buying most of the timber enterprises.

"Upward" integration today can be mostly seen in the energy cluster. Lukoil, the leading oil-producing company, totally controls the second biggest oil-processing plant in Northwest Russia in Uhta (Komi Republic) and has expressed its interest in purchasing power plants, which will become possible after the RAO EAS monopoly is restructured. The oil processing plant in Kirishi (Leningrad Oblast), the biggest in the region, is also controlled by an oil-producing company, Surgutneftegaz, whose main assets are located in Siberia. This company also aspires to obtain an important position in the electric power business.

Further horizontal and vertical integration processes will run differently in different sectors. We can expect fast horizontal integration in electric energy and gas industries, right after their planned privatisation. To diminish their dependence on unstable conditions of the partners, leading industrial companies are likely to continue for some time to try to embrace the whole vertical dimension of their business. Already now, such

Table 6.3 The Largest Holding Companies in Northwest Russia in 2002

Company	*Sector*	*Sales in 2002, USD million**	*Number of employees, thousand*	*Productivity**, *USD thousand*
Severstal	Ferrous metallurgy	2,296.3	58.3	39.4
Ilim Pulp Enterprise	Forest	848.3	49.0	17.3
Baltika	Food & beverages	682.7	8.1	84.3
Akron	Chemicals	468.0	13.3	34.7
Silovije Mashiny	Power engineering	337.2	19.1	17.7
Titan Group	Forest	293.6	20.7	14.4
LENSTRO Group	Construction materials	161.6	7.0	23.1
LSR Group	Construction materials	100.4	7.6	13.2

* Calculated using average annual RUR/USD rate equal to 31,36 in 2002.
** Sales divided by number of employees.
Source: Expert Northwest, 20-26.10.2003

a policy starts giving a negative impact on financial results, and soon companies are likely to change this strategy for the strategy of outsourcing and concentration on their main sphere of competence.

Diversification in the form of companies' acquisition of considerable assets of radically different business sectors, not connected with their main activities, is still less developed in Northwest Russia than integrated processes. Among the noticeable examples we can again mention Severstal, which has recently simultaneously acquired controlling shares of several machine-building plants and big assets in the transportation and timber sectors. It is yet difficult to judge the economic efficiency of such measures, but they are likely to be part of the struggle of big Russian financial and industrial groups for the spheres of influence. Other examples of diversification in Northwest Russia include the Lenstro holding company, which possesses assets in the building materials industry and food industry. It seems to be more of a legacy of the 1990s property redistribution, when the aggressive strategy of the players was to acquire as many assets in promising industries of any sector as possible.

Thus, the diversification in Russian industry in the last decade should be considered as investors' attempt to provide for higher and more stable profitability of their spare resources in an unstable financial market situation. As financial services in Russia become more developed, the companies' strategic emphasis to use them will grow. The coming years are also likely to be marked by the rapid growth of amounts and capitalization of investment funds and a considerable increase in the number of companies quoted on the stock exchange.

During the last decade, only very few new production facilities were put into operation in Northwest Russia. These include a bauxite mine in the Komi Republic, oilfields and oil pipelines in the same region and in Nenets Autonomous Region, a tobacco factory on the outskirts of St. Petersburg and several others. Considering the size and the population of the region it is far from enough. During the last few years, however, there has been significant activity in green field projects, and both domestic and foreign investors show an interest in this area. The latter are in an even more favourable situation, because they can count on big amounts of external resources, whereas Russian players can only rely on their own reserves, the country's financial services being poorly developed.

Up to now the majority of projects have been designed for the most profitable sectors of Russia's industry, namely for oil and gas and aluminum sectors. We are even witnessing some kind of "aluminum rush" in the region: at least five big projects are being discussed today (see the research on steel and metal-processing cluster in Northwest Russia of the present series of books - *S. Boltramovich et al. 2003*). Such activeness can be explained by the concentration of several favourable factors in Northwest Russia: the aluminum stocks are the largest in the country, the energy produced in the region is abundant (in the first place, due to nuclear power plants), and there is a sea transportation route. In the oil and gas sector, a considerable increase in output and processing is previewed, partially due to development of oil fields on the Barents Sea shelf.

We find it difficult to adequately assess all the nuances of the projects proposed, but there is no doubt that out of numerous projects only those will be successfully implemented that are based on comparatively long-term competition factors. New facilities are also planned in other sectors, such as the timber, pulp and paper and machine-building industries. One of the negative trends for the long-term development of the region is the fact that mainly the production of low value-added goods is planned, based on cheap raw materials and labour. There exist several obstacles to creating technologically more advanced production processes: the poorly developed infrastructure, the low qualification of personnel, and the instability of the political and general situation in the regions.

Finally, we shall touch upon the situation of competitiveness in the Russian economy. Despite the decade of market reforms, the development of competitiveness went on rather unevenly in various industries. There are still many heavily regulated and monopolized spheres of activities. The majority of large enterprises compete only in international markets, while in the domestic market each has a stable number of consumers, and their interests practically do not overlap.

The competition with imports cannot fill this gap, since the imported products are usually not produced in Russia, and the volumes of imports fell significantly after the financial crisis in August 1998, while the government periodically limits the imports of consumer goods (ban on imports of chicken from the USA, high customs duties on foreign cars, etc.). Such a weak competitive environment is one of the main factors preventing the development of the competitiveness of the Russian economy.

However, albeit slowly, the competitive environment is taking shape in today's Russia. First of all, competition develops in the consumer goods sector in big cities. In Northwest Russia, the competitive environment is best developed in St. Petersburg: the markets of foodstuffs and beverages, especially beer and non-alcoholic drinks, furniture, petrol, and some others. In the coming years competition is most likely to grow in the consumer goods markets.

In order to develop competitive environments in other markets, there is a need for a significant growth in domestic demand, expansion of product ranges, and an increase in the quality of goods. All this is impossible without substantial development towards a better investment climate, so here the role of the state is indispensable, since it can influence the formation of a competitive environment, and, consequently, of competitive companies.

As for the imports, the authors think that after Russia joins the WTO and the trade barriers are lifted, the competitive impact of imported goods will grow immensely. This will also be accompanied by a decrease in import duties, which will lead to full legalization of large volumes of "gray" imports, which are now delivered to Russia under titles for which lower duties are payable.

In conclusion, it should be stated that the Russian corporate sector is now undergoing deep reformation, and that this process is far from complete. At present it is influenced by both the old factors inherited from the Soviet period and the new factors that have emerged under the totally new economic conditions. A simple transfer of ownership does not guarantee effective development, and for new competitive producers to appear in Russia a number of active measures are required, the review of which is the focus of the present book.

6.5 Related and Supporting Industries – Emerging and Growing

Related and supporting industries play an important role in sustainable functioning of economic clusters. They form an important segment of the general economic infrastructure and participate in creating synergy and ensuring highly adaptive capacity in constantly changing surroundings.

The territorial industrial complex approach, which was used in the USSR to form production agglomerations, paid little attention to connecting the main production lines with related and supporting industries. The emphasis was placed on basic production factors, whereas related and supporting functions were partially delegated to company structural departments and partially provided on the centralized level. Moreover, certain important elements, such as the goods and services market, financial services did not exist at all, because they were not needed within the planned state economy.

In the reform process, the new economic environment developed, and the rules of the game drastically changed. These scale and structural changes are far from being completed at present. Many Russian companies only start understanding the importance of well-developed and competitive related and supporting sectors (suppliers and contractors) for successful business promotion. That is why today the effective interaction and development of this important sector is mainly mentioned in the future tense.

Further we are going to analyse the present state and development opportunities of those related and supporting industries that play (or can play) an important role in the functioning of the main potentially competitive economic clusters of Northwest Russia. The most significant related and supported industries are: logistics, fuel and energy complex, industrial and financial services, business consulting, information and telecommunication, geological prospecting, and environmental protection. We are not going to consider numerous narrow related branches, such as pipe production for the oil and gas sector, refractory materials production for metallurgy, etc. We touched upon these issues in our previous works of the present cycle, devoted to particular clusters (G. Dudarev et al. 2002; P. Filippov et al. 2003; S. Boltramovich et al. 2003; A. Averin et al, 2003).

Logistics

The situation in logistics has a direct or indirect impact on all economic sectors. For Northwest Russia, logistics has a special significance, since

after the collapse of the Soviet Union the region became a kind of transport corridor to Western Europe for the whole Russia. The transportation network of Northwest Russia is directly connected with the European network, which imposes higher quality standards on the regional logistics and is an important incentive for its development, aiming at getting closer to the international requirements.

Today, however, the quality of logistics in Northwest Russia, and in the country in general remains very low and does not correspond to the demand of the customers. This is reflected in a number of negative features, including:

- Prevailing obsolete means of transportation, having by far exhausted their operational potential (railway carriages, ships, etc.) at the disposal of carrier companies;
- Lack of cargo transportation means for general and, especially, specific purposes (railway carriages, ships, etc.);
- Outdated approach to schedule planning (forming cargo trains and car classification, delays while entering and leaving terminals and passing canals, etc.), which leads to noncompliance with contract delivery terms and slows down deliveries considerably;
- Bad connections between different means of transportation;
- Low cargo safety, with significant rates of damage to cargo and cases of cargo loss;
- Lack of warehouses of general and specific purposes and absence of a task-oriented development program for this sphere even in the St. Petersburg and Leningrad region, the main transportation gates of Northwest Russia;
- Low quality of cargo storage at warehouses (obsolete handling methods, lack of automation and information systems, lack of necessary packing facilities and other services, etc.);
- Obsolete terminal equipment that does not correspond to present day needs (slow cargo treatment, high damage rate, etc.);
- Insufficient informatics level of the system, not allowing the clients to effectively control the passing of their cargos;
- Poor linkage (of transporting and packing types, coding principles, etc.) with logistics systems of neighbouring countries, which, together with customs and other barriers, further complicates the activity of exporters and importers.

The logistics business is one of the less transparent ones in Russia. The high level of shadow transactions does not even allow estimating the real cargo traffic of the principal terminals. Low transparency is typical of both private and state companies (railroad, air carriers). The lack of transparency in tariffs on railway transportation is used by many big industrial companies, able to lobby for temporarily favourable conditions, often at the expense of others. Relatively low transportation tariffs (in comparison with Europe), however, cannot be considered a long-term factor of price competitiveness. The tariffs are growing under the pressure of both high current costs and the necessity to invest in modernization and are inevitably approaching the world average. This process is likely to speed up if the government finally starts the railway system reform, the necessity of which has been discussed more than once.

We hope that already in the coming years the main areas of growth and successful development of Russian logistics will be determined. The sector development will be decisive for the destiny of many regions in Northwest Russia, because economic development, and, consequently, living standards, directly depends on it.

Fuel and energy sector

The issues of stable and sufficient energy supplies are also vital for the industry of Northwest Russia, whose enterprises, especially metallurgy plants, are large energy consumers. Today, electricity and gas supplies are controlled by the government and provided by such monopolies as RAO EES and Gazprom. The coal supply lies also within the responsibility of the companies where the state has the decisive vote. Low fuel and electric energy tariffs (compared to the world average) are still one of the most important factors of the price competitiveness of Russian companies abroad.

In this sector, however, the tariffs are also rising (again, due to high costs and necessary significant investment in modernization) and every year they are approaching the international level. This process is likely to speed up after the restructuring of monopolies. The reforms have already started in the electric energy sector. The government is going to privatise electric energy production and sales. After the reforms are completed, the gas monopoly restructuring is likely to start. This must lead to a surge in domestic gas prices. But the restructuring has a positive feature - companies will get a possibility to choose from different energy and fuel suppliers and thus influence the tariffs, which they cannot do today.

At the same time, the government is going to (as it was repeatedly mentioned by its members) to keep control over the infrastructure - electric distribution lines and the system of gas-main pipelines. It will thus

leave at its disposal the mechanisms of influencing energy tariff policy, so there will be no full independence from the state in this sector.

To limit the costs in the situation of considerable uncertainty in the sphere of energy supply in the coming 10-15 years and the constant growing of energy elements in the production cost structure, companies can resort to two main strategies:

- Diminish energy consumption due to wide introduction of new less energy consuming technologies at enterprises and limit unnecessary energy losses, caused by inefficient use of equipment, low working culture, etc.;
- Develop companies' own power facilities, the so-called small energy sector, which will allow to significantly decrease or even eliminate the dependence on electricity and heat suppliers, cut losses and other inconveniences arising while transmitting energy (especially heat) through long distances, and to transfer the company to modern and more economic production methods (mode flexibility, etc.) and raw materials.

Another way to achieve energy independence is to establish cooperation between a number of big companies aiming at implementing joint projects of new power plant construction. Examples of such cooperation can be found in developed European countries, including Finland. Russia's level of business transparency and trust between partners, as well as the desire to cooperate, however, are not high enough for companies to withstand the long-term risks of equity participation, whereas the insufficient development of financial, banking and insurance sectors prevent companies from taking large credits needed for such purposes. We think that only very serious stability problems or a significant increase in energy prices can force companies to cooperate in this area in the coming years.

During the last few years, the largest Russian companies are also trying to gain the control over fuel sources that play an important role in their production. In Northwest Russia this assumption is proved by Severstal's acquisition of share holdings in coal-mining companies in Vorkuta and Ruzbass, which supply steel producers with coking coal. Such strategic expansion is limited, however, by both significant government interests in the sector (including monopolies), and a very high price of potentially available fuel assets - any more or less considerable oil company is a "hard nut to crack" for players from other sectors.

All that makes us think that in the coming decade, the main changes in the field of energy supply will be, in the first place, the result of state monopoly reforming. Only these reforms, accompanied by a tariff in-

crease up to the economic level can stimulate industrial companies to take active measures towards more efficient energy supply and development of new energy facilities.

Industrial services

Up to now, the industrial services market has not been very developed in Russia. The overwhelming majority of companies still use the services provided by their structural divisions, whose work is not sufficiently effective because of the lack of a competitive environment. In the current situation of high economic risks, as has been mentioned above, the strategies of Russian industrial leaders have been aimed at vertical integration rather than at outsourcing.

The only sector starting to effectively use outsourcing is the oil industry. Big oil companies are consciously getting rid of non-profile assets to receive necessary services (equipment maintenance and repair, oil wells drilling, etc.) from the most efficient contractors in the business. As yet big foreign players like Schlumberger, Halliburton, etc., dominate the market of industrial services for oil producers.

In the coming decade we can expect the development of outsourcing in the gas industry and electric energy sector, when their service assets have to be separated after restructuring. The most favourable prospects await the gas industry, which can borrow the mechanism of cooperation with services suppliers from the oil sector, because their technologies and operation methods are similar.

Financial services and business consulting

The financial and banking sectors, industry insurance and business consulting are only forming in Russia today. During the Soviet the government monopolized period, banking and insurance business, and their old methods of functioning are not effective in the present situation. The financial market and business consulting appeared only in the beginning of the 1990s out of nowhere. These structures are very young, and their development has been unstable during the last decade, which explains their present weakness and inability to play the same important economic role as they do in developed countries.

The August crisis of 1998 had a particularly negative impact on financial sector development. Many banks went bankrupt then, which undermined the trust of industrial companies in the banking sector. The trust has been reestablished only partially, and many companies still fear working with financial structures beyond their control. The widely used practice is establishing subsidiary banks, which serve the interests of large

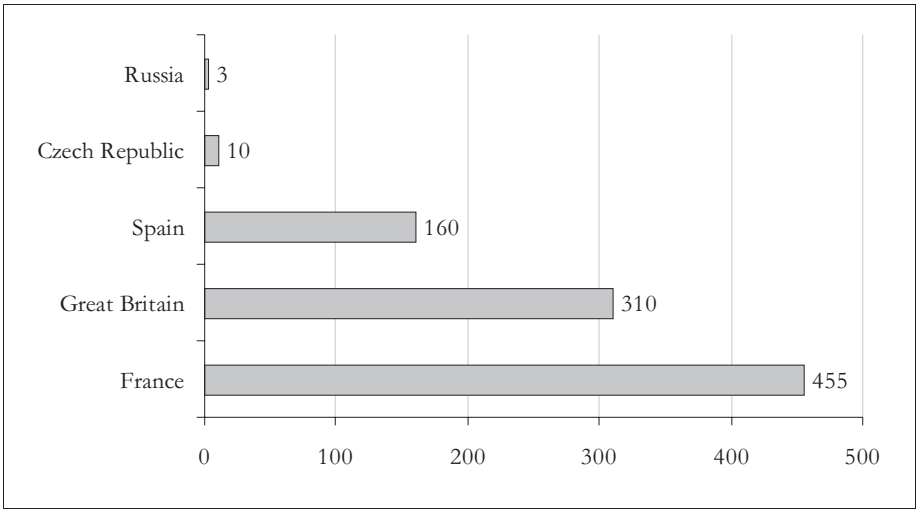
parent companies (usually from the oil and gas sector) and operate out of the competition-based environment.

The existing Russian legislation also plays its negative part in the development of the investment climate - its drawbacks make companies fear entering the public financial market, because they could lose control over their assets. Such attempts of secondary property redistribution with the use of semi-legal methods have lately become common in the pulp and paper industry of Northwest Russia.

Today Russian banks suffer from insufficient capitalization, which determines their inability to credit long-term and capital-consuming projects. On the other hand, industrial companies do not have a possibility to attract recourses from Russia's equity market, whose services are also very limited. Investment funds, especially dealing with venture and private investment (private equity), which finance small and medium-size enterprises, are also in their early stage of development.

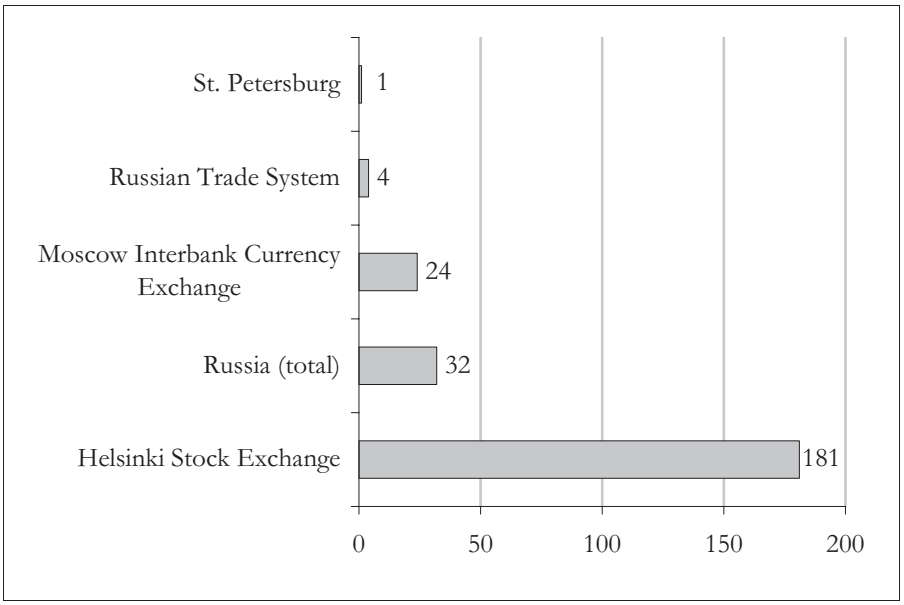
All the above-mentioned factors significantly limit the possibilities of Russian industrial companies to attract external financial recourses and make them count exclusively on their own funds (which are often minimal). The biggest companies can use the services of foreign counteragents and, if their accountancy corresponds to the world standards, come to international equity markets, although this can entail high transaction costs. Thus, the present poor development of Russian financial services significantly limits the scale and efficiency of investment programs, initiated by the companies.

Figure 6.16 Bank Assets in Russia and Selected European Countries in 2001, billion USD



Source: McKinsey&Company

Figure 6.17 Stock Exchange Turnover in Russia and Finland in 2001, billion USD



Source: McKinsey&Company

The Russian insurance business is also in its stage of inception, which has a negative impact on the investment climate. Russian insurance companies cannot insure large industries using only their own resources, whereas industrial companies are not ready or cannot afford to pay for the insurance.

The business consulting sector still mainly specializes on providing audit and information services. Management and strategic consulting is only starting to develop. Similarly to financial and insurance services, the leading Russian companies of this sector are concentrated in Moscow. In Northwest Russia St. Petersburg is the absolute leader, but its position in the sector is much weaker in all aspects than the position of Moscow.

Undoubtedly, in the coming years the development of financial and insurance sectors, as well as business consulting development will continue. If Russia experiences no more shocks, like the one in August 1998, the efficiency of the sectors and their influence on the economic development of Northwest Russia and the country in general is likely to increase. We should expect, in particular, significant progress in project financing by equity market and investment funds.

Information and telecommunications sector (ICT)

Compared to developed countries, the level of using up-to-date information and telecommunication technologies at industrial enterprises of Northwest Russia, as well as in Russia as a whole, remains low. Among the industrial sector the clear leader is the oil and gas industry, which possesses the most extensive financial resources and especially needs streamlining of management and communications, given the huge distances between different structural departments of the same company. The leaders of the sector can afford the development of vast corporate information and telecommunications networks.

The companies representing other industrial sectors at best limit themselves by introducing integrated information systems servicing a certain part of their production and management cycles within one production facility. Most of these systems are ready-made Western solutions that are poorly adapted to the current structure of a majority of Russian enterprises due to the differences in the organization of labour, record keeping, etc., which results in a low efficiency of such systems.

Russian companies are not yet ready for total reorganization of corporate activities which could facilitate a more efficient production and introduce Western information systems. The main reasons for this are the high costs of such radical changes and the general unavailability of other companies, suppliers and contractors who are able to comply with the requirements of such systems. That is why successful Russian companies usually do not introduce integrated information systems, but concentrate only on elements which support specific segments of the production and management cycle. Weak enterprises (and there are large numbers of them) restrict themselves to buying several personal computers for managers and accountants.

Domestically produced integrated information systems are as yet inferior in quality to those produced in the West, but they are often better adapted to the local production features. In the software industry of Northwest Russia the obvious leader is St. Petersburg, the second largest Russian centre of the information and telecommunication industry after Moscow. Most of St. Petersburg's programmers are working, however, for export. The high potential of the ICT sector in St. Petersburg nonetheless may well play a more important role in modernization of the region's industry.

There are also positive prospects for wider use of information technologies in the sphere of business-to-business and, especially, business-to-consumer communication. Simpler and more active links with consumers (both direct, as in online trade, and interactive), which is made possible due to the modern means of communication, may well become

an important incentive for Russian producers to raise the competitive level of their goods and services. An obvious obstacle here is the fragmented and underdeveloped nature of the regional infrastructure in the communications sector.

ICT services are anticipated, in the coming years, to display the highest rate of growth among the related and supporting industries, not least because of their high regional potential.

Geological prospecting

In Northwest Russia, geological prospecting activities form an important supporting industry for the clusters of energy and metallurgy, as well as, to a smaller extent, for the chemical and construction materials industries. Over the last decade, this sector has lived through a sharp decline that may reasonably be called a catastrophe. State funding has fallen to almost zero, and there are no real positive changes to be expected in the nearest future. As a result, the regional geological organizations have been forced to decrease the scope and range of their activities, and a huge number of qualified personnel have left these organizations.

It was expected that funding of geological prospecting would be undertaken by the companies working in the relevant sectors of the economy, but these companies show almost no signs of willingness to undertake capital-intensive long-term projects, such as wide-scale geological prospecting surveys. The resources of various raw materials found in Northwest Russia in the Soviet period are still abundant, and they will last for the periods of at least several years to 10-20 years. Besides, the current legal framework (lack of clear rules for long-term lease or concessions) does not stimulate investments in geology on part of the private sector. That is why, despite the annual decline in the quality of the raw materials base touched upon earlier in this chapter, the companies are reluctant to invest into geological prospecting activities. They tend to restrict themselves only to detailed studies of the previously found deposits, and these activities are carried out by the small geological service units belonging to their own companies.

In this situation the geological industry does not seem to have any positive prospects for at least several years. Additionally, the system of education and R&D activities in this sphere makes the prospects for the recovery of the industry in the long tem even more vague, since the quality of personnel and research are of paramount significance in this sector. That is why long-term risks for the extractive industries are growing substantially.

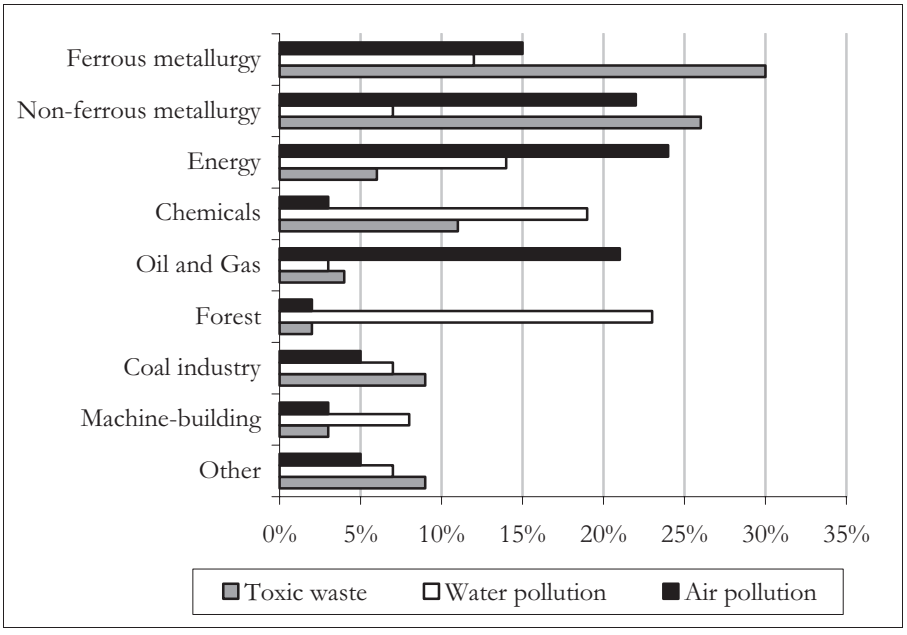
Environmental protection

Construction of large enterprises in the Soviet period was often carried out without considering their future impact on the environment. The technologies employed were very "dirty", and this legacy still influences the industries of the present day, even though due to the industrial recession of the last decade the absolute pollution of the environment fell, the relative pollution figures are still much higher than in advanced economies. Moreover, some plants located near the state border (in Northwest Russia these include Karelsky Okatysh, Pechenganickel and some others) inflict negative influence on the environment of the neighbouring countries.

Among the industrial sectors, the "dirtiest" are energy and metallurgy industries, and their negative environmental impact by far exceeds the shares of other industries of the economy.

At present the state is practically closing its eyes on the imprudent activities of industrial enterprises in the sphere of environmental protection. The current legislation is not well developed in these aspects, and does not stipulate an effective penalties system and enforcement procedures, as well as does not contain effective economic incentives for the enterprises to comply with the environmental rules and regulations. Besides, the biggest players in the energy and metallurgy sectors are even

Figure 6.18 Industry's Share in Total Environment Pollution in Russia (2000), %



Source: Ministry for Natural Resources, Environmental Conditions Report, 2000

able to influence local politicians, and can stop political decisions that undermine their profit margins.

The system of pollution control services is at present practically non existent in Russia due to a very low demand for such technologies and equipment. Over the coming years the prospects for positive developments in the environmental sphere are primarily connected with the activities of foreign organizations. The authors think that the most positive results can be achieved not by single demonstrative actions undertaken by, for example, Greenpeace, but a steady toughening of the ecological requirements for products sold in international markets, as well as state obligations to fulfill the provisions of international environmental agreements leading to changes in relevant national legislation.

For companies, the negligence of environmental requirements now means the danger of very high costs, even a possible bankruptcy, in a rather close future. However, there are few companies that understand this. For serious changes to take place, there is an urgent need for positive examples, public relations and a tough position taken by the state. Otherwise, the region and its population will inevitably suffer.

On the whole, in the nearest 10-15 years we can expect rapid growth of related and supporting industries within the Russian economy. The prerequisite for this is the steady stabilization of the rules of the game, which should allow the companies to concentrate their efforts on their core activities and which will create the possibility for procurement of the required industrial products and services in a competitive market. Very important for related and supporting industries are such factors as regional differentiation and the agglomeration effect: the development processes will go on better in the places where the quality of infrastructure and the workforce are the highest now, and where the regional powers exert a positive influence on such processes.

6.6 Government – Absence of Targeted Industrial Policy

During the Soviet period, the government ensured command management of the country's economy. All spheres of economic activity were regulated. Entrepreneurship was not allowed in any sector. Central governing bodies in Moscow made every major decision, leaving the regions to solve only specific problems, which could not seriously influence economic development. Such an approach inevitably led to a high level of inertia of the whole system, which was hardly able to adjust itself to changes.

The state was the only owner of the land and all natural resources, as well as of all enterprises regardless of their size and specialization. Often enterprises management was not based on economic expediency, but on political or other considerations. Notions like corporative strategy or domestic market competition did not exist. The assortment of goods was unified for consumption throughout the whole country. Due to the concept of obligatory overall employment, the number of staff at enterprises was superfluous. Thus, companies were deprived of incentives to increase efficiency, and their independence in major operations and development issues was quasi-inexistent. No activity in this area made any sense.

Only the government could plan and carry out construction of new production facilities, operate infrastructure and form commodity flows. Industrial agglomerates were set up on the basis of natural resources available in a given region, in the first place, and of the labour force, in the second. Strategic military planning was also a very important factor in allocation of big industrial enterprises. In general, the military sector, financed by the government as a high priority, played the major role in the economy. It was the largest consumer of science-intensive goods, and, as a consequence, the main agent of technological progress, a circumstance that still strongly influences Russia's system of scientific research and development.

The government regulated domestic demand through planned delivery of raw materials, semi-finished products and finished goods to consumers in accordance with consumption standards, calculated for each consumer group. Consumers could not influence producers directly, but only via the complicated bureaucratic chain, inevitably finishing in Moscow. Foreign demand was also partially regulated by the government due to the significant influence the USSR had on socialist countries and a number of developing countries.

Also, the government fully controlled finance, education and R&D. For the latter two sectors, such a control was favourable in many aspects. Regardless of the unification, typical for a socialist society, quite a high level of education was reached, especially in fundamental natural sciences. The same disciplines got high-priority research financing. During the Soviet times rather advanced systems of specialized research and development were established in most industrial sectors.

In the late 1980s and early 1990s, in the course of just several years, radical changes took place: the collapse of the socialist block, the dissolution of the USSR, major reconstruction of former socialist economies, including Russia. The reforms that took place and are still underway have led to a radical change of the economic role of the government. In general, we can say that government influence on economic development processes has drastically decreased in Russia. However, it is still very sig-

nificant, although the mechanisms of state interference have changed. At the same time, the Soviet legacy of state management with its rudiments is felt up to now, and many direct industrial policy methods are used.

Below we will describe the main features of modern government regulation in different economic sectors in Russia and the changes that we anticipate in the coming years.

Ownership on land and other natural resources

In Russia, the land and most important natural resources (minerals, water, forest) are still owned by the state. Multiple attempts of liberal political forces to establish wide private property rights have been unsuccessful up to now. Only draft laws have been adopted, allowing the public authorities to privatise limited plots of land, mainly in built-up areas and their close surroundings, or highly damaged lands, which need recultivation. The total area of such plots does not exceed several per cent of Russia's territory. Strong opposition still remains in the government and the society to private land ownership, which can be partially explained by the fact that its traditions were completely destroyed during the twentieth century in Russia. Forming a new class of land owners is a very long process, which is likely to bring about serious economic and social conflicts.

Nowadays there are no mechanisms of effective land use for the land owned by the government. The existing rules of short-term lease do not give incentives to companies dealing with natural resources to invest in large long-term projects and infrastructure development. Only if clear and reliable rules for long-term (49 or more years) leasing or concession are worked out will the companies have guarantees necessary for investment. We have all the reasons to expect that in the next 10 years, the government will realize the problem in depth, and take appropriate action, thus creating a significant incentive for speeding up industrial development. The share of privately owned land in the economy is also likely to increase. We think, however, that control over major natural resources will remain with the government.

Industry

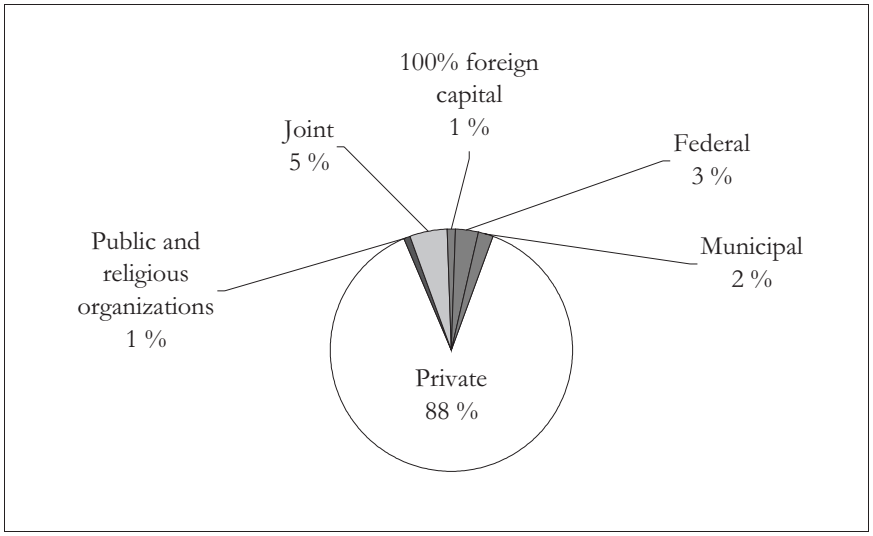
Liberal reforms carried out in Russia aim at maximal reduction of the state's ownership share in main production areas. During the last ten years, most industrial companies were privatised.

The privatisation process was largely spontaneous. The government tried to implement it as fast as possible to avoid the possibility of reverting back to the old system. As a result, the process practically fell out of the government's control, which led to numerous cases of corruption,

when new owners were not interested in production development, but wanted to make a quick profit selling off everything they could. No doubt, it had negative implications for the whole industrial sector. The legacy of this process, which took place mainly in the beginning of 1990s, still leads to attempts of ownership redistribution, often with the use of semi-criminal methods.

Today, only strategic enterprises of different sectors are owned by the government. As a rule, their activity is connected with the military industry, and, given the present economic situation, many of them are unprofitable. Moreover, the government still controls the main part of the energy sector, which brings most of the money to the state budget.

Figure 6.19 Distribution of Russian Industry by Types of Ownership in 2000, %



Source: Goskomstat, 2001

If the policy remains the same within the coming 10-15 years, privatisation of energy companies will continue. The reform of the oil sector is already being completed: in the end of 2002 the last state-owned oil company, Slavneft, was privatised. As far as electric power is concerned, the reforms have just begun in the sector, but are likely to be mostly completed within the period of time mentioned above. After the power industry is reformed, we can expect the beginning of gas industry privatisation. Thus, the share of state ownership in the country's industry will continue to decrease.

This decrease, however, does not necessarily lead to the proportional reduction of the state influence on the economy. The government will still have regulation possibilities, although indirect: through taxes, customs and tariffs policy, protectionist measures at domestic and foreign markets, etc.

At present, company managers share the opinion that the state industrial policy is chaotic, and that there is a lack of adequate understanding of the ongoing processes and clear development goals. Most of the time, the government just declares its interest in effective economic development, instead of taking real appropriate action. Measures implemented are singular, do not have any systemic character, and are often aimed at short-term goals or getting immediate benefits. Up to now, the government has mostly used the country's industry as a "cash cow", rather than tried to improve the investment climate. Moreover, it often changes its priorities, which can be different for federal and regional authorities. In general, an extremely low level of coordination between federal and regional policies as well as between neighbouring regions is widely observed.

Thus, the main government goal for the coming years is to develop a clear, well-directed and long-term oriented industrial policy, coordinated at all levels and possessing reliable implementation mechanisms.

Transport

During the last ten years, carrier companies were privatised, whereas the main infrastructure: railroads and public motor roads, trunk pipelines and pumping facilities remained the property of the state. The government explains such a situation by the need to support the home industry and agriculture during economic reforms. Indeed, distances between business partners are often huge in Russia, which will make the transportation element in production much higher for many companies than in Europe (if transportation tariffs get close to European levels), and a lot of enterprises will become unprofitable. That is why the state, keeping its control over the infrastructure, restrains the growth of transportation tariffs. Moreover, the biggest producers periodically get preferential transportation tariffs, which is the main element of the price competitiveness of their products at international markets.

Another factor making the government keep significant control over the transportation system is its extremely low efficiency, already mentioned above more than once. The experience of privatisation of carrier companies and numerous terminals can hardly be called positive. The business is one of the less transparent ones in Russia, because a lot of shadow transactions take place here. Russian transportation companies cannot meet international competition (where it is possible, for example,

in sea shipping), and are practically near bankruptcy. The situation causes the government's concern: quick privatisation of the whole transportation sector may lead to a serious economic crisis, should cargo flows become unstable.

At the same time, the state cannot sufficiently invest in transportation system development at present. During the last ten years it has only participated in some projects in Northwest Russia connected with oil exports, that is to say in the most profitable projects with fast returns. On the other hand, the insufficiently favourable investment climate does not allow companies to participate in the necessary transport sector development. As a result, the situation is still in a stalemate, and, we think, the problem will not be solved within the coming years. Such stagnation in the sector substantially decreases the competitiveness of the country's economy in the future.

Trade

Government interference with the domestic market is minimal if compared to the Soviet times. The state no longer regulates the volumes and the regional structure of demand or the goods assortment. No doubt, it is a favourable circumstance, because it creates necessary conditions for the growth of competition in the domestic market, and allows consumers to gradually increase their influence on producers' policy.

The government regulation of the domestic market is now expressed only in specific one-time measures, aimed at protecting some domestic producers from more competitive imports. Whereas in some cases, such measures seem appropriate (for example, the protection of Russian pipe producers from Ukrainian price dumping policies), in other cases, they are *a priori* wrong, because they deprive local companies of any incentives to improve the quality of their products (for example, the sharp increase of customs duties on imported cars, which, even after being used, remain more reliable and comfortable than their Russian analogues). These measures, however, do not seriously concern producers in Northwest Russia, which is why we will not consider them here in detail.

In international markets Russia is still learning to defend the rights of its producers. At present, demonstrative one-time actions prevail, like, for example, the ban on chicken legs import from the USA as a response to America's sharp reducing of metal imports from Russia. A lot of measures that are common practice in developed countries are still not implemented by the government. Such measures include state export insurance and crediting as well as information, marketing and consulting services to companies, etc.

Active measures in the international markets are further complicated by the fact that Russia is still not a member of the WTO. It is planning to join the organization in the coming years, which, as most experts agree, will facilitate trade negotiations, and enforce Russian producers' position abroad. In the meantime, the prevailing method of providing state support to exporters remains maintaining an artificially low rate of the rouble against the world currencies.

The existing customs policy is also characterized by low efficiency. The export duties system often does not take into account fluctuations of the world market. The rules are constantly changed not with the view of increasing competitiveness in the long term, but simply so that the government could "skim the cream" off the most profitable exporters. Temporary privileges periodically granted to certain companies are not differentiated and depend on unstable private contacts between company managers and state officials responsible for decision-making at a given period of time.

Complications constantly arising when cargos pass the customs (the result of poor integration of Russia's customs rules with those of neighbouring countries), have become a serious obstacle to the development of trans-border cooperation, which is of major importance for producers in Northwest Russia, because this is the only region bordering on developed European countries, and, thus, having good potential for broad cooperation. That is why simplifying customs procedures and making them more effective would be particularly beneficial for economic development of Northwest Russia. One of the most important steps in this direction could be prompt adoption of the new Customs Code, which is now actively discussed at the government level.

Education

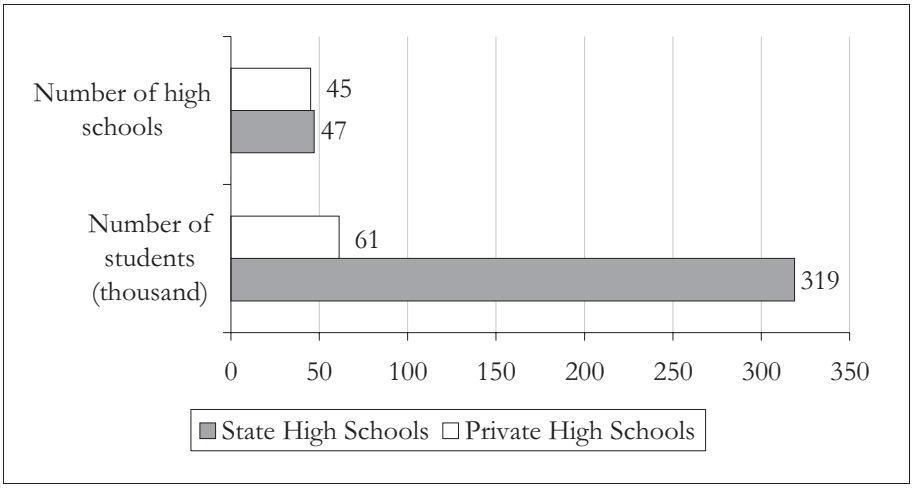
The government still controls the system of secondary, higher and special technical education. In comparison with the Soviet times, however, the degree of interference is significantly lower. This reflects, in the first place, on reduction of financing of state educational institutions and on less attention being paid to the education process control (programs, range of professions, teachers' qualification, etc).

It can be claimed that the government practically keeps education on "starvation rations", forcing educational establishments to raise development funds themselves. Under such circumstances, secondary and higher education are in a more favourable situation, having more possibilities for attracting additional recourses. As for special technical education, after having lost the support from enterprises and its social prestige due to the permanent industrial crisis, it experienced a sharp decline

when the number of students drastically decreased and some establishments had to be closed down.

The changes of the last decade have led to a significant deterioration of the quality of education, which has already been mentioned in this section. Numerous private educational establishments do not yet possess material and human potential, needed to compete with state institutions on equal grounds. Private colleges and universities mainly use the deficit of education in the humanities, inherited from the Soviet times, because the demand for such education is quite high at the moment. Diplomas issued by private establishments, however, are rated lower in the labour market, than diplomas of old state institutes with long traditions. Also, there are still no private colleges in the sphere of technical education.

Figure 6.20 Share of State and Private High Schools in St. Petersburg in 2002/2003 Study Year



Source: Peterburgkomstat, 2002

Having analysed the negative experience of the last decade, the government rejected the proposals, made already at the very beginning of liberal reforms, to fully withdraw from the sector, and is now making attempts to improve the quality of education. For example, the discussion of the possibility to return to a unified state standard in secondary education have resumed (because of great differentiation in quality of acquired knowledge in different schools); in higher education formal restructuring is underway (division between preparation of bachelor and master degrees) aiming at correspondence of Russian diplomas to international standards.

However, the main problem is still acute: the supply does not answer the demand. Major monitoring efforts to assess actual needs of the economy in different professions are absolutely necessary. If it is not done, a lot of educational establishments will continue running idly, spending significant resources on training specialists unneeded by the labour market. A good example is today's surplus of economists and lawyers, trained in practically all higher (and not only higher) educational establishments. Also we can now witness an apparent surplus of PR specialists and specialists in other branches of the humanities being trained.

In the future, the government will certainly keep its significant impact on the education system processes. It will not be able, however, to considerably increase the financing, which is necessary for effective reforms aiming at modernization and better quality of education at all levels. As far as private institutions are concerned, they will still limit themselves to filling up the gaps left by the state system due to its inertia. The only possibility to overcome the crisis of the special technical education is its broader cooperation with industrial companies, already experiencing serious deficit of qualified specialists in many professions and already looking for the renewal of contacts.

Research and development sector

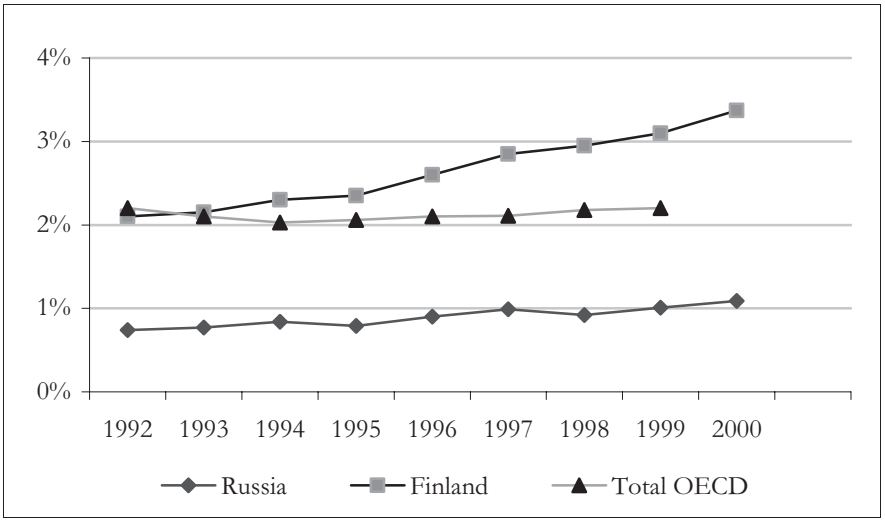
Within the last decade, the state financing of the scientific sector in Russia has reduced even more than the financing of education. Only several scientific and research institutions are financed as they were before. These are institutions working on strategic military research. Some other big scientific and research institutes, specialized in fundamental research, get minimal state financing, which is not enough even to maintain their potential, not to mention effective development. Smaller organizations of the research and development sector, or those working in a narrower field of research, have practically no government contractual work.

Such a situation has extremely negative implications for Russia's scientific and research sector as a whole. The great potential it used to have is rapidly decreasing. Even the most successful companies cannot or do not want to invest in science, because of the shift of production focus on goods with little value added during the last ten years. As a result the necessary restructuring of the sector is constantly postponed. The range and the quality of services provided by research institutes are not evaluating quickly enough to satisfy the changing demand.

Although the government constantly declares its devotion to acceleration of scientific and technological development of the country's economy, up to now it has not made any effective steps forward to improve the present negative situation. We think that in the coming years there

will still be no noticeable shifts in a positive direction, because the government does not possess necessary resources for restructuring and radical modernizing of Russia's research and development sector.

Figure 6.21 R&D Expenditures, % of GDP



Source: Goscomstat (2001), Russian Statistical Yearbook, Statistics Finland, www.stat.fi

Concluding the review of the government role at the present stage of Russia's economic development, we have to admit that this role is rarely effective. The government has not yet learned to use the regulation mechanisms that are widely and efficiently used in developed countries. Moreover, it has not yet developed its position on the major issue of its necessary and sufficiently active participation in different economic sectors in the long run. It is obvious to us that one of the priority measures to be taken by the government is working out a radically new industrial policy on federal and regional levels with no delay.

7 Northwest Russia: Integrating with Northern Dimension Countries

7.1 Need for International Cooperation and Possibilities of the Northern Dimension Concept

The course of development of the global economy during the past decades offers convincing evidence that integration and cooperation on the international level are important tools for advancing the efficiency of individual companies, and even whole sectors of national economies. The concept of a Northern Dimension provides broad opportunities for

Figure 7.1 Northern Dimension Countries

initiating integration in Northern Europe. Finland proposed the concept in 1997, and it was designed to carry out the following goals:

- Strengthening the political and economic integration of the countries of Northern Europe and the Baltic Sea, in order to increase stability in the region and to insure the stable growth of all partners;
- Constructive collaboration of the European Union with its northern neighbours, with prospects for further broadening of this activity;
- The search for mutual solutions to the region's common economic, ecological, demographic, and other problems.

In the broadest sense, the Northern Dimension includes:

- Member countries of the European Union (EU) - Sweden, Finland, Denmark, and Germany;
- Other countries of Northern Europe that are not members of the EU - Norway and Iceland;
- The Baltic countries - Estonia, Latvia, and Lithuania;
- Poland;
- Russia.

Table 7.1 Area, Population and GDP (GRP) of Northern Dimension Countries

Country/ Region	*Area, thousand km²*	*Population, million people in 2002*	*GDP/GRP, USD billion in 2001*	*GDP/GRP per capita, USD thousand in 2001*
Sweden	450	8.9	240.3	26.9
Finland	339	5.2	131.5	25.3
Denmark	43	5.4	149.8	28.0
Norway	324	4.5	138.7	30.8
Iceland	103	0.3	6.8*	24.8*
Estonia	45	1.4	14.3	10.0
Latvia	64	2.4	18.6	7.8
Lithuania	65	3.6	27.4	7.6
Poland	313	38.6	339.6	8.8
Germany	356	83.3	2,174	26.2
Russia	17,075	145	223.2*	1.6*
Northwest Russia	1,678	14.3	21.9*	1.5*

* - 2000 data

Source: The World Factbook, Goscomstat, 2002.

One is immediately struck by the heterogeneity of the Northern Dimension, evident on almost every level.

Today, Germany prevails as the absolute economic leader among the member countries of the Northern Dimension. Its volume of trade with almost all partners in the Northern Dimension is large. Germany also has economic priorities in other regions of Europe and the rest of the world, however. Currently, the German economy is experiencing serious difficulties that have to do with the ongoing process of integration with its eastern parts, and with the significant expenditures required by introduction of the common European currency. Germany's initiation of collaborative relations with its partners in the Northern Dimension, primarily with Russia, will serve as an additional stimulus to the development of this region.

Sweden, Finland, Denmark, and Norway comprise the second group of economic leaders of the Northern Dimension. Their economies are very strong, and the standard of living is among the highest in the world. Sweden, Finland, and Denmark can be viewed as the nucleus of the Northern Dimension; this is the centre of the main regional activity, and the place from which it originates. Iceland can, to a certain degree, also be considered part of this group. Its economy is also relatively strong. The volume of its GNP, and the regional activity, however, are rather low.

Estonia, Latvia, and Lithuania are the first candidates in line for membership in the EU (scheduled for 2004). Their economies are fairly mobile and have overcome numerous difficulties of the transitional period following the collapse of the Soviet Union. They are already integrated to the greatest degree in the economic sphere of the Northern Dimension. The relative portion of these countries is low, however, and has no prospects for significant growth.

Poland is also poised to enter the EU in 2004. Its market is potentially very large; its population greatly exceeds that of the other countries, with the exceptions of Russia and Germany. The Polish economy is characterized by a fairly high degree of stagnation and is still in the process of transformation. At the same time, it is more closely connected to the economy of Germany than to the economies of other countries of the Northern Dimension.

Russia possesses enormous economic potential, which is currently being utilized to only a small degree. Within the context of this study, the analysis of various aspects of the interaction between Russia and its partners in the Northern Dimension assumes primary importance. Northwest Russia is a region that is both geographically and historically closely tied to other countries of the Northern Dimension. It is thus well positioned for serving as a bridge between Europe and the rest of Russia.

International cooperation within the Northern Dimension presents an opportunity for more rapid assimilation of Russia into European political and economic structures. This is imperative for Russia, which is currently in a state of geopolitical indeterminacy and is experiencing serious economic difficulties due to the disintegration of the old system and the chaotic formation of new relations. It is also imperative for Europe, which can view Russia as a reliable, long-term supply of various resources, and a potentially very large and well developed market.

The following are the primary goals in a regional initiative that would unfold within the framework of mutual cooperation between Russia and the other countries of the Northern Dimension:

- To maintain general political stability in the region and categorically obviate acts of direct aggression, as well as the recurrence of the Cold War;
- To spur economic cooperation between Russia (especially the Northwest Russia) with the other countries of the Northern Dimension, which may become an important instrument for increasing the effectiveness of the Russian economy, and for gradually raising the standard of living in Russia to western norms;
- To solve common problems of migration, border control and trans-border ties, the division of spheres of economic interest on the shelf, ecology of the Baltic and Barents Seas, trans-border diffusion air pollution, etc.

As for the sphere of politics, the expansion of NATO and the European Union to include the former Socialist Bloc countries and former Soviet republics has strong implications for Russia. This expansion is often viewed as a threat to the country's security. The opportunities of the Northern Dimension here lie primarily in developing mechanisms for the effective participation of Russia in regional and pan-European international organizations. This would strengthen the perception of Europe as a positive partner, rather than as an adversary.

Expanding all forms of regional international cooperation to include the participation of Russia would also alleviate Russia's alienation within Europe, redressing in particular the "Big Brother" complex of the Baltic countries, which fear the potential aggression of their large eastern neighbour.

Within the sphere of economics, Russia plays the role of a large supplier of fuel (oil, oil products, and natural gas) for most of its partners in the Northern Dimension. In the future, this role may become even more important, as a result of the exploration of large deposits of oil and gas on the shelf of the Barents Sea, and also due to the politically unstable

Table 7.2 Russian Trade with Northern Dimension Countries in 2001

Commodity Group	*Russian exports, USD million*	*Share*	*Commodity Group*	*Russian imports, USD million*	*Share*
Germany[2]					
Mineral fuels, oils, distillation products, etc	6,478	66.5%	Machinery, boilers, etc	1,525	25.4%
Copper and articles thereof	532	5.5%	Vehicles other than railway, tramway	679	11.3%
Nickel and articles thereof	436	4.5%	Electrical, electronic equipment	661	11.0%
Aluminium and articles thereof	427	4.4%	Plastics and articles thereof	317	5.3%
Iron and steel	306	3.1%	Optical, photo, technical, medical, etc apparatus	308	5.1%
ALL COMMODITIES	9,746	100%	ALL COMMODITIES	6,006	100%
Finland					
Mineral fuels, oils, distillation products, etc	2,024	64.0%	Electrical, electronic equipment	487	19.2%
Wood and articles of wood, wood charcoal	419	13.3%	Machinery, boilers, etc	475	18.7%
Organic chemicals	175	5.5%	Paper & paperboard, articles of pulp, paper and board	236	9.3%
Iron and steel	161	5.1%	Vehicles other than railway, tramway	131	5.2%
ALL COMMODITIES	3,161	100%	ALL COMMODITIES	2,540	100%
Poland					
Mineral fuels, oils, distillation products, etc	3,871	87.5%	Paper & paperboard, articles of pulp, paper and board	118	11.2%
Aluminium and articles thereof	69	1.6%	Machinery, boilers, etc	76	7.2%
Fertilizers	46	1.1%	Plastics and articles thereof	61	5.7%

[2] Data for 2000

Commodity Group	*Russian exports, USD million*	*Share*	*Commodity Group*	*Russian imports, USD million*	*Share*
Iron and steel	46	1.0%	Electrical, electronic equipment	60	5.7%
ALL COMMODITIES	4,422	100%	ALL COMMODITIES	1,059	100%
Lithuania					
Mineral fuels, oils, distillation products, etc	1,215	78.2%	Vehicles other than railway, tramway	199	39.4%
Machinery, boilers, etc	52	3.4%	Electrical, electronic equipment	40	7.9%
Iron and steel	36	2.3%	Machinery, boilers, etc	38	7.5%
Salt, sulphur, earth, stone, plaster, lime and cement	30	1.9%	Dairy products, eggs, honey, edible animal product nes	31	6.1%
ALL COMMODITIES	1,554	100%	ALL COMMODITIES	505	100%
Sweden					
Mineral fuels, oils, distillation products, etc	58	21.4%	Electrical, electronic equipment	211	25.4%
Iron and steel	51	18.8%	Machinery, boilers, etc	158	19.0%
Nickel and articles thereof	42	15.8%	Vehicles other than railway, tramway	62	7.5%
Inorganic chemicals, precious metal compound, isotopes	21	7.9%	Commodities not elsewhere specified	60	7.2%
Wood and articles of wood, wood charcoal	15	5.4%	Paper & paperboard, articles of pulp, paper and board	44	5.3%
Articles of apparel, accessories, not knit or crochet	11	4.0%	Iron and steel	39	4.7%
ALL COMMODITIES	270	100%	ALL COMMODITIES	832	100%
Norway					
Aluminium and articles thereof	307	39.2%	Fish, crustaceans, molluscs, aquatic invertebrates nes	164	62.6%
Fish, crustaceans, molluscs, aquatic invertebrates nes	179	22.9%	Miscellaneous chemical products	21	7.9%
Mineral fuels, oils, distillation products, etc	99	12.6%	Electrical, electronic equipment	14	5.5%

Commodity Group	*Russian exports, USD million*	*Share*	*Commodity Group*	*Russian imports, USD million*	*Share*
Salt, sulphur, earth, stone, plaster, lime and cement	44	5.6%	Machinery, boilers, etc	10	3.7%
ALL COMMODITIES	782	100%	ALL COMMODITIES	262	100%
Estonia					
Mineral fuels, oils, distillation products, etc	220	33.7%	Vehicles other than railway, tramway	67	19.5%
Aluminium and articles thereof	57	8.8%	Cocoa and cocoa preparations	57	16.6%
Wood and articles of wood, wood charcoal	50	7.6%	Mineral fuels, oils, distillation products, etc	35	10.2%
Iron and steel	50	7.6%	Machinery, boilers, etc	26	7.6%
Fertilizers	48	7.3%	Electrical, electronic equipment	17	5.0%
Machinery, boilers, etc	36	5.6%	Dairy products, eggs, honey, edible animal product nes	10	2.8%
ALL COMMODITIES	653	100%	ALL COMMODITIES	344	100%
Denmark					
Mineral fuels, oils, distillation products, etc	135	40.0%	Meat and edible meat offal	133	21.3%
Fish, crustaceans, molluscs, aquatic invertebrates nes	100	29.6%	Pharmaceutical products	101	16.2%
Wood and articles of wood, wood charcoal	35	10.5%	Machinery, boilers, etc	87	14.0%
Iron and steel	20	5.9%	Fish, crustaceans, molluscs, aquatic invertebrates nes	29	4.7%
ALL COMMODITIES	336	100%	ALL COMMODITIES	624	100%
Latvia					
Mineral fuels, oils, distillation products, etc	160	49.8%	Meat, fish and seafood food preparations nes	34	28.7%
Iron and steel	33	10.1%	Electrical, electronic equipment	13	10.8%
Fertilizers	19	6.0%	Pharmaceutical products	11	9.4%

Commodity Group	*Russian exports, USD million*	*Share*	*Commodity Group*	*Russian imports, USD million*	*Share*
Articles of iron or steel	16	5.0%	Machinery, boilers, etc	8	7.0%
ALL COMMODITIES	322	100%	ALL COMMODITIES	117	100%
Iceland					
Mineral fuels, oils, distillation products, etc	25	73.8%	Fish, crustaceans, molluscs, aquatic invertebrates nes	3	41.1%
Fish, crustaceans, molluscs, aquatic invertebrates nes	3.8	11.3%	Wadding, felt, nonwovens, yarns, twine, cordage, etc	1	13.0%
ALL COMMODITIES	33.8	100%	ALL COMMODITIES	7.4	100%

Source: United Nations Statistics, 2002

situation in the Middle East, which jeopardizes long-term supplies from that area.

In addition to sources of energy, Russia is an important supplier of metals, lumber, fertilizers, fish, and some other types of ready-made products. Various types of machinery and equipment, as well as consumer goods, are primarily imported. The trade turnover of Russia with many countries of the Northern Dimension has already reached significant volumes. In 2001, the region accounted for 18.8 per cent of all Russian exports, and 14.2 per cent of imports. This large positive foreign trade balance indicates that the potential for further growth of the volume of exports is no longer very strong, due to the narrow range of exported goods, whereas the volume of imports has significant potential for growth.

The expansion and deepening of economic contacts in the Northern Dimension, which in addition to trade facilitates mutual investment activities, trans-border industrial cooperation, and other forms of business partnership, will undoubtedly be profitable both for Russia and European countries. The latter will gain the possibility to utilize more actively the natural resources of Russia, a relatively inexpensive workforce, and the historically accumulated scientific potential in a number of industries, as well as the opportunity of strengthening their positions on the growing domestic market.

Table. 7.3 Accumulated direct investments in 1999

Country	*Direct investments abroad, million USD*	*Direct foreign investments, million USD*	*Investments abroad/ foreign investments*
Germany	420,908	225,595	1.87
Finland	31,803	16,540	1.92
Russia	8,586	16,541	0.52
Poland	1,365	29,979	0.05
Estonia	272	2,441	0.11
Latvia	281	1,885	0.15
Lithuania	26	2,063	0.01

Source: UNCTAD, 2000

Table 7.4 Russian Direct Investments Abroad, the Outflow of Capital from Russia and Export in 1995-2000, billion USD

	1995	*1996*	*1997*	*1998*	*1999*	*2000*
Direct investments abroad	0.4	0.8	2.6	1.0	2.1	3.0 (estimation)
Registered outflow of capital	7.5	26.0	11.0	21.0	n/d	n/d
Export	81.3	88.4	86.7	73.9	74.3	105.2

Source: IMF, UNCTAD, 2000

For Russia, cooperation means an influx of foreign investment and advanced technologies, and the chance to obtain reliable and stable channels for exporting products to the global market. In addition, let us not forget that Russia itself is a large and growing source of investments in the economies of other countries. According to official statistical data, in 1999 the volume of Russian direct investments abroad exceeded 50 per cent of the volume of foreign direct investments in Russia. It is estimated that direct investments, however, account for no more than 5 to 10 per cent of the Russian capital transferred abroad. Thus, Russia is now investing a significantly greater amount than other countries invest in Russia, and the initiation of international cooperation within the Northern Dimension may facilitate the promotion of Russian investors in the region.

Among the common problems that require the collective efforts of all countries of the region, those concerning environmental protection are especially critical. Russia's role in the overall pollution of the basins of the Baltic and the Barents Seas cannot be overlooked. In St. Petersburg

alone, the largest city of the Northern Dimension, a third of the total amount of sewerage is being dumped without purification into the Neva, from which it then flows directly into the Gulf of Finland. The Barents Sea is subject to pollution caused by the military, including radioactive wastes. The Kola Peninsula is the site of a military base for the Russian Navy's Severny Flot (made up in part of nuclear submarines), and the Novaya Zemlya archipelago was used as a testing ground for nuclear weapons during the Soviet era.

Cooperation within the framework of the Northern Dimension may become an important incentive for amending Russian ecology legislation and introducing international standards for environmental protection, and implementing it in practice, rather than just on paper. The cooperation and integration of Russian companies with foreign partners may change stereotypical thinking in the direction of a more caring attitude toward nature and encourage the influx into Russia of advanced "pure" technologies.

Regional international cooperation is also necessary for addressing issues of migration and border transparency. In the authors' opinion, it is unlikely that European countries will eliminate visa requirements for Russians in the coming years. Both parties will undoubtedly have to attempt to simplify the procedures for legal crossing of borders. This will be a great advantage for all types of trans-border businesses, which are one of the most important elements of economic integration in the region. In addition, this issue has great significance for Russia, due to the extreme remoteness and isolation of the Kaliningrad Region from the rest of the country.

Multi-party international cooperation in the region of the Northern Dimension is only in its initial phase. Two-party ties are already well established, however. For this reason, we will analyse below the specific features of the contemporary interaction of Russia with other countries of the Northern Dimension separately. Of these, Iceland is the only country with which Russia has virtually no significant relations.

Germany is the largest foreign trade partner of Russia, and is one of the main investors in the Russian economy. Both countries attribute great significance to two-party economic ties and are making efforts to effect still greater interaction. For example, at the end of 2002 in Berlin, an extended presentation of the Northwest Federal District of Russia took place, with the goal of fostering business contacts. A regular ferryboat route between the Northwest Russia and Germany was opened, connecting St. Petersburg with Kaliningrad and Lubeck. The Finnish transport company Finnlines provides the carriers and service. Overall, the Russia - Germany axis may well become one of the key aspects of the Northern Dimension. Other ties may be formed around this axis.

Finland is another important partner of Russia in the Northern Dimension. It also conducts active trade with Russia, and is one of the largest investors in Russia. As the only EU country having a common border with Russia, Finland has especially broad opportunities for trans-border cooperation in many spheres.

Relations between Russia and Finland have a long history. After the Second World War, Finland was for a long time a strong partner of the Soviet Union, the only country that did not belong to the Socialist Bloc with which there were close economic and political ties. After the collapse of the Soviet Union, circumstances changed, but Russia and Finland continued to view each other as natural partners, whose extensive interaction remains mutually profitable. In addition, Finnish companies, perhaps better than companies of other countries, understand the peculiarities of conducting business in Russia and have valuable experience that can be used for establishing international contacts on the corporate level.

Sweden and Denmark also participate very actively in the integration processes in the Baltic Sea region, since their main economic interests are based here. Economic interaction with Russia attracts Sweden and Denmark in particular due to the fact that Russia has a potentially large domestic market for mass produced goods.

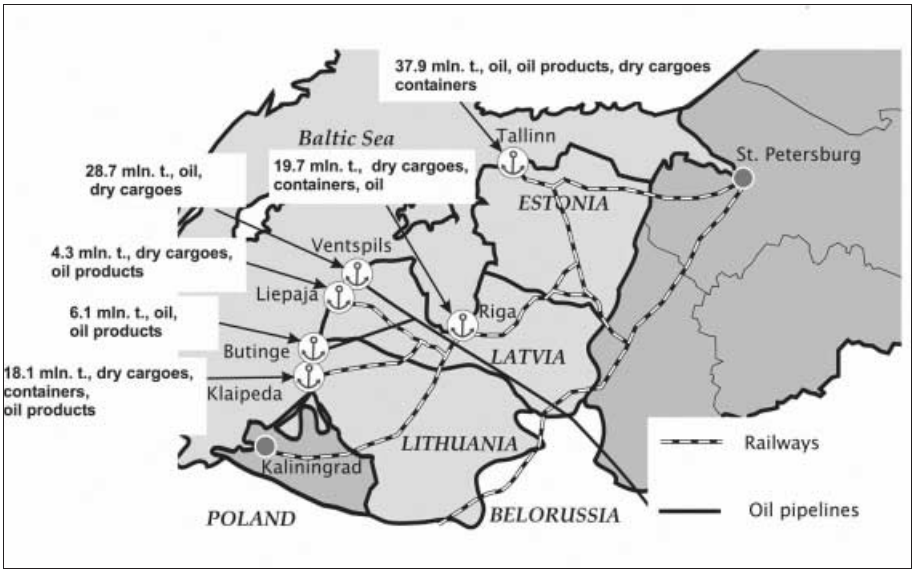
As is the case with Finland, these countries make great efforts in the area of protecting the environment in the Baltic region and are pressing Russia to participate in these activities. Still, the breadth and depth of interaction between Sweden and Denmark, on the one hand, and Russia on the other, does not fully utilize the existing potential. Initiating mutual contacts within the Northern Dimension, in the authors' view, will assist in overcoming existing barriers.

Norway borders Russia in the far north and shares a number of important points of contact with it. The most important of these is the division of spheres of influence and the common utilization of the resources of the Barents Sea. Up until recently, these resources were limited to fish. In the past decade, however, very large deposits of oil and gas were discovered in the shelf of the Barents Sea. Some of them will probably be utilized by Russia and Norway together. These countries already have the experience of long-term cooperative utilization (coal mining, scientific research, etc.) of the Spitsbergen Archipelago, which has been part of Norwegian territory since 1920.

The Baltic countries - Estonia, Latvia and Lithuania - are experiencing political alienation from Russia. This is, evidently, only a temporary state of affairs. In addition to large numbers of Russians living in those countries (over 10 per cent in Lithuania; around 30 per cent in Estonia; and about 40 per cent in Latvia) they have also inherited various links with the Russian economy from the Soviet period. All large-scale industrial

enterprises in the Baltic countries were integrated into the Soviet economic system, the disintegration of which gave rise to numerous problems for the enterprises concerned. The renewal of many of the previously disrupted links with Russian companies is, it seems, inevitable, and this process has already begun. In spite of existing political contradictions, Russian capital is already assuming a serious position in the Baltic countries.

Figure 7.2 Largest Sea Ports of Countries of the Baltic Sea Region: turnover of cargoes in 2002, specialization



The Baltic countries are extremely important for the transit of Russian freight. With inadequate seaport facilities and uncertain prospects for constructing at least some new sea terminals, Russia continues to conduct most of its foreign trade through the ports of Tallinn, Riga, Ventspils, Liepaja, and Klaipeda. The Kaliningrad seaport is also accessible through the territory of Lithuania. The revenues from Russian transit are one of the major components of the budgets of the Baltic countries.

Cooperation within the Northern Dimension should assist in eliminating existing contradictions between the Baltic countries and Russia. The former will be appeased, since they will interact not with their eastern neighbour alone, but rather also with the developed European countries. For Russia, it will be easier to realize a genuine connection with the Kaliningrad Region, which is now isolated from the rest of the country and which already in 2004 will become an enclave of the EU.

The interaction between Russia and Poland after the collapse of the Socialist Bloc was curtailed. At present, supplies of Russian hydrocarbon

fuel to Poland, and through its territory to Germany, are the basis for economic cooperation. In addition, the cooperation of Polish companies and their Russian partners in the Kaliningrad Region is growing. A new wave of Russian-Polish relations may be initiated as a consequence of the integration of Russia and Byelorussia, planned in the near future, which will lead to a significant increase of the total length of the common border.

7.2 Industrial Cooperation between Northwest Russia and Northern Dimension Countries

As we have already stressed in this study, there are strong reasons to suppose that the Northwest Region will become an important economic bridge between Russia and the rest of Europe. It is clear, however, that this role is at present only fully realized in regard to the trade in material goods. The development of the transport infrastructure (new seaports and pipelines) in the region in recent years has indeed augmented the role of the region as Russia's primary import and export gateway into Europe. It is already the case that up to 40 per cent of Russia's foreign trade is implemented through the Northwest Russia, and this percentage will most likely grow in the coming years.

Figure 7.3 Main export flows in Northwest Russia

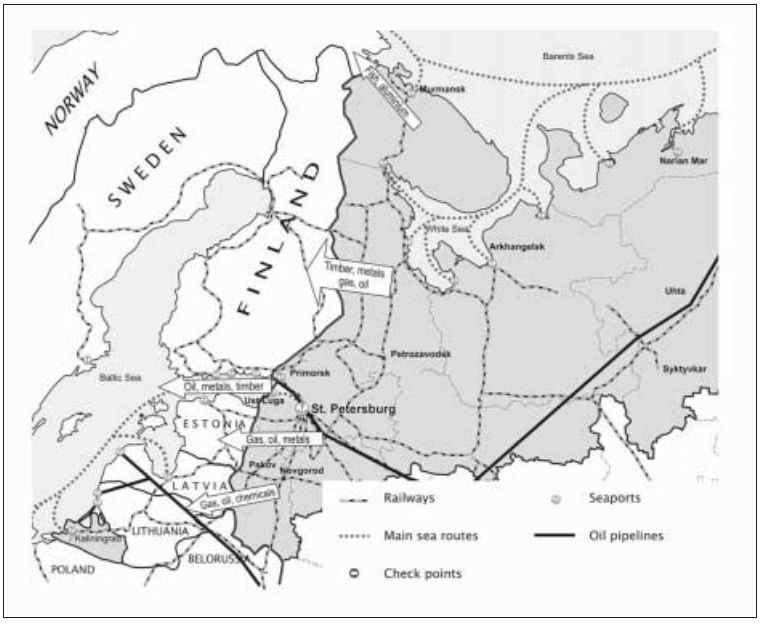
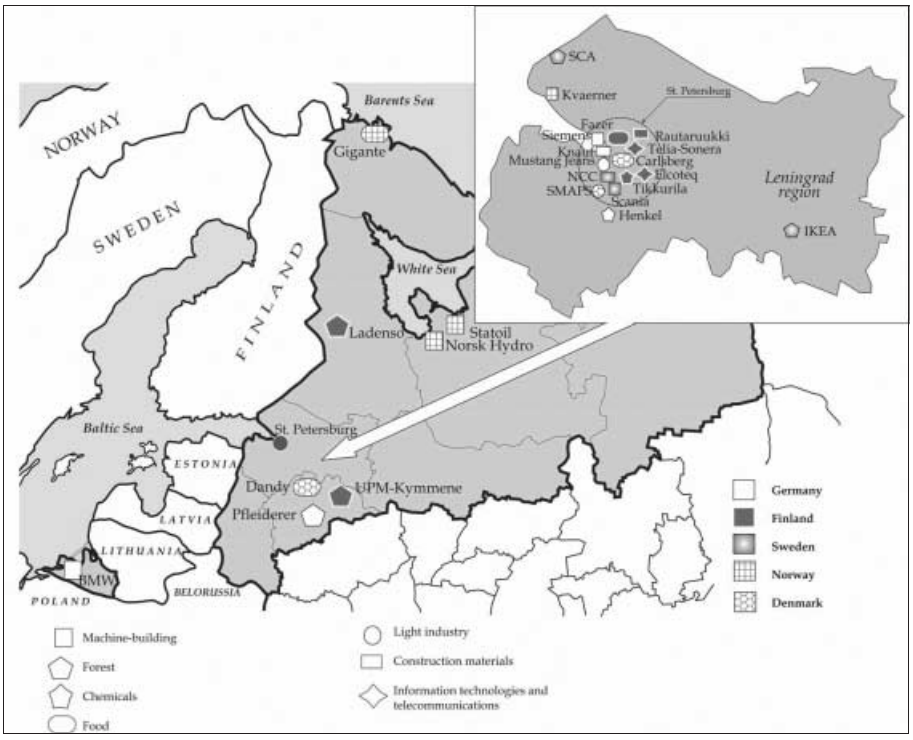


Figure 7.4 Largest Investment Projects of Companies from Northern Dimension Countries in Northwest Russia



At the same time, in other important aspects of international economic cooperation - trans-border cooperation and mutual investment processes - the presence of the Northwest Russia has not yet lived up to its potential. The scale of cooperation of the region and its companies with European partners only slightly exceeds the average Russian level. The only exception is its cooperation with Finland, with which the Northwest Russia shares a long border. The main reason for this situation lies in the insufficiently favourable investment climate. Even taking into account the negative nationwide factors (lack of effectiveness of federal legislation, low purchasing power, etc.) the regional authorities could do much more to stimulate international cooperation and attract foreign capital. The basic opportunities here lie in developing mechanisms for protecting investors' rights and maximum simplification of various bureaucratic procedures through regional legislation.

Later in this section, we will briefly look at examples of international cooperation in the area of industry between companies of Northwest Russia and companies from various countries of the Northern Dimension, and the prospects for its development.

Germany

German companies have a long history in the industry of the Northwest. Siemens alone has conducted business in Russia virtually since its foundation in the middle of the 19th century. By 1914, German capital was present in many industrial stock companies in the Northwest Russia, primarily in St. Petersburg.

Today, cooperation takes place in many industries: gas, machine-building, chemical, building materials, telecommunications and others. Around 300 companies with German capital are registered in St. Petersburg alone.

The German gas companies Ruhrgas and Wintershall have been long-standing partners of Gazprom. They share a number of companies with Gazprom that are involved in marketing Russian gas in Europe. Ruhrgas possesses more than 5 per cent of the stock of the Russian gas monopoly, and this share is likely to increase. Both German companies have repeatedly announced their intentions to participate in new large-scale investment projects with Gazprom. Their most probable activities in this area will be the initiation of exploration of large deposits of gas condensate in the shelf of the Barents Sea, planned for the coming years.

In the machine-building industry of the Northwest Russia, projects of the German companies Siemens and BMW are worthy of note. Siemens is a stockholder in several St. Petersburg power plant producers (Elektrosila and Leningradsky Metallichesky Zavod - both part of the Silovye Mashiny holding company), and it will probably greatly increase its share in the Russian energy technology market in the future. In addition, the company is the largest supplier of telecommunications equipment for telecommunications service providers operating in the region. It is also involved in supplying power plant equipment and computers. BMW has established a joint automobile assembly plant in Kaliningrad. This is the first company on the territory of Russia that is supervised by the German automotive company.

The German company Deutsche Telecom played a decisive role, together with Siemens, in creating the company Mobilnye Telkommunikatsionnye Sistemy (MTS) - now the largest provider of mobile telecommunications services in Russia. In the Northwest Russia it occupies the number two spot, but it is expanding rapidly. Deutsche Telecom has a large number of shares in MTS, and the German company views this part of its business as strategically important.

The German chemical consortium Henkel possesses the Era-Henkel-Tosno plant for manufacturing synthetic cleaning agents and glue in the Leningrad Region. With two other plants in Povolzhye, Henkel today is the largest participant in this Russian market. Knauf has an even greater

portion on the Russian market of building and finishing materials. At its plants, located in St. Petersburg and the Leningrad Region, it manufactures bricks, ceramic tiles, plasterboard, dry construction compounds, and other products. The company's policy stipulates that all products be manufactured from Russian raw materials and for Russian consumers. Mustang Jeans, which sews garments in St. Petersburg, on the contrary exports around 90 per cent of its output.

German investors in Russia were especially vigorous before the August 1998 financial crisis. This was followed by a period of malaise; some participants left the Russian market altogether, and some scaled back their participation. In recent years, however, German companies have revived their interests in Russian businesses. In the Northwest Russia in particular, the increased participation of German capital is anticipated, not only in the aforementioned industries, but also in the food industry and the forest cluster. Investments in these industries have thus far been limited to other Russian regions. Thus, the Pfleiderer consortium, which has recently sold one of its factories for manufacturing thermal insulating materials in the Novgorod region, intends to continue its business in the Northwest Russia in the sector of mechanical wood processing. The company announced the beginning of construction of a large plant for manufacturing particleboard near Novgorod.

Finland

The Finnish economy traditionally has close ties with the economy of the Northwest Russia. During the Soviet era, the Soviet Union was Finland's largest market for ready-made products. The collapse of the Soviet Union and the onset of economic reforms sharply curtailed the market, which forced Finnish industry to restructure and change the orientation of its marketing toward western countries. The long-standing ties were not broken, however. Russia still remains an important source of raw materials for Finland. Finnish companies are gradually adapting themselves to the new circumstances and are returning to the Russian market via new investment projects, as well. The first signs of a reciprocal process, the growing interest of Russian companies in investing in manufactures in Finland, have been witnessed in recent years,

Finland imports natural gas, oil, oil products, coal, and electric power from Russia (directly from the Northwest Russia or via its territory). The Russian company Gazprom is a large stockholder in the Finnish monopoly Gasum; the trade in oil and oil products is carried out primarily through companies that are controlled by Russian capital. The power plant industry companies in St. Petersburg that are part of the Russian

Silovye Mashiny consortium have recently received orders for modernizing a large number of hydropower plants in Finland.

At the same time, Finland's leading energy company, Fortum, is engaged in oil production on the territory of the Republic of Komi. It markets its fuel products through a chain of gas stations (including Russia's first completely automated, =self-service gas stations) in St. Petersburg and the Leningrad Region. It also has a number of shares in Lenenergo, a regional subdivision of RAO UES of Russia, which supplies electric power to Finland. In addition, Finnish machine-building companies supply diesel engines, boilers, and other energy production equipment to Russia. This is primarily low-power equipment, intended for utilization in small-scale power plants. Fortum also supervised the construction of the Northwest Russia Thermal Electric Power Plant in St. Petersburg.

Collaboration in the energy industry sphere is sure to grow. The development of exported power transmission lines is planned in the Northwest Russia. A portion of these will be directed to Finland. The exploitation of the Shtokman gas condensate deposit in the Barents Sea involves the construction of a main pipeline, which will most likely run through Finnish territory. Finnish companies will participate in its construction. Projects that are important for both parties are planned in the power plant industry. Thus, St. Petersburg companies will probably be involved in the construction of a new nuclear power plant in Finland. Extensive opportunities are opening up for Finnish companies, in light of the restructuring of the Russian electric power industry and the development of small-scale power facilities.

Large investments in new processing facilities on the part of Finnish forestry companies are quite probable in the forest sector of the Northwest Russia in the coming years. Investments in the mechanical and chemical wood processing industry are also likely. Up until now, Finnish companies have been primarily involved in purchasing Russian roundwood, newsprint, and other goods. Among the Finnish investment projects that are already underway in the Northwest Russia, only Ladenso lumbering company (owned by Stora-Enso) in the Republic of Karelia, and a factory manufacturing plywood and lumber in the Novgorod Region (owned by UPM-Kymmene), stand out.

The introduction of new processing facilities will most certainly increase lumbering volumes in the Northwest Russia, which will create opportunities for market expansion for the Finnish manufacturers of lumbering machinery - the global leaders in this industrial sector. Finally, the beginning of investment by Russian companies in processing Russian lumber on the territory of Finland deserves mention, as an important development in the process of collaboration.

In the metallurgy and metalworking sector, cooperation is for the time being limited to the supplying of Russian iron ore and primary metals to Finnish companies, and the reciprocal supplying of stainless steel and some other metal products with higher added value. In addition, Rautaruukki manufactures metal structures for building (primarily roofing) in St. Petersburg, and Kuusakoski collects and processes ferrous and non-ferrous scrap metal in the largest cities of the Northwest Russia, in order subsequently to ship it to Finland.

A potential direction for expanding cooperation in this sector lies in the modernization of mining, metallurgy, and metalworking companies in the Northwest Russia, with the help of advanced technologies offered by Finnish companies. Outokumpu, for example, is already engaged in the implementation of a project for modernization of the facilities of Norilsk Nickel (only at those of its companies that are located outside the Northwest Russia Region, however).

The telecommunications and information technologies sector offers enormous possibilities for increasing cooperation. The Finnish ICT cluster, one of the world's leaders in this sphere, may utilize the large educational, scientific, and industrial capital accumulated in St. Petersburg for forming a highly-efficient trans-border agglomeration. Currently, Finnish firms are exploring the market of the Northwest Russia. Sonera is one of the founders of the Megafon company, the largest mobile telecommunications service providers in the region. Elcoteq is engaged as a subcontractor of electronic parts in St. Petersburg. Other companies carry out servicing of cable data transmission networks and hire programmers from St. Petersburg for the implementation of their offshore projects.

Among Finnish food companies, beer-brewing companies are the most active in the Northwest Russia. Hartwall is one of the owners of Baltika, the largest beer brewing company in Russia. Sinebrychoff, which has recently merged with the Danish company Carlsberg, runs another large St. Petersburg company, Vena. After the beer market, these companies are determined to occupy a firm position on the market of non-alcoholic beverages. Among the Finnish companies of other food sectors, Fazer, which owns a number of bakeries in St. Petersburg, deserves mention. On the Russian market of paint and lacquer products, Tikkurila (which is part of the Kemira chemical group) stands out. It owns a factory in St. Petersburg that manufactures paints and lacquers for finishing interiors.

It is worthy of note that the cooperation of Finnish and Russian industrial companies in many cases is complementary. The reciprocal trade in various groups of products helps both parties to achieve competitive advantages when exporting products to third parties. There is every reason to expect not only the growth of trade in goods, but also significant expansion of trans-border industrial cooperation, increase of investments

in one another's economies, the growth of trading in skills, and greater influxes and outflows of the workforce in both direction.

Sweden

Swedish industry, like its German counterpart, has a long history in the Russian Northwest Russia. The Nobel and Ericsson factories in St. Petersburg were among the world's leaders in their respective industries before the revolution. In the 1990s, Swedish capital began a gradual return to the Russian economy. Today, the portion of Swedish companies in the industry of the Northwest Russia (among the countries of the Northern Dimension) is comparable with the portion of Finnish companies, only lagging behind Germany.

In the machine-building industry of the Northwest Russia, Sweden is represented by ABB, a joint consortium with Switzerland, and the Scania company. ABB manufactures power plant equipment, and until recently it was a shareholder of Nevsky Zavod in St. Petersburg, a large manufacturer of compressors and gas turbines. Presently, this plant is experiencing serious difficulties (see case study in chapter 4). Nevertheless, it still has a large potential for development. In 2002, Scania began assembly of city buses at an assembly plant also located in St. Petersburg.

In the sphere of telecommunications, the Swedish company Telia (recently merged with the Finnish company Sonera) is one of the founders of Megafon, the first service provider of mobile telecommunications, which offers its services all over Russia. Ericsson for the time being has no manufacturing facilities in the Northwest Russia, but is actively supplying equipment and technologies for service providers of mobile and wired telecommunications, which engage in business in this and other regions of Russia.

In the forestry sector, Swedish companies have had an unfortunate experience with Assi Domän and a pulp and paper plant in Segezh (the Republic of Karelia). Examples of positive experiences in cooperation, however, exceed the number of negative ones. SCA has a factory in Svetogorsk (the Leningrad Region) manufacturing various hygiene products. IKEA is not only marketing its furniture, but also providing orders for materials and parts for its Russian suppliers, located in particular in the Leningrad and Vologda regions. IKEA built its first lumber mill in Russia in Tikhvin, the Leningrad Region. The company is planning on further expansion of its manufactures by building new wood processing and furniture companies.

The Swedish company NCC owns concrete and asphalt plants in St. Petersburg and is a forerunner in the building materials sector. Sweden is one of the few countries of the Northern Dimension that does not de-

pend on the import of Russian energy sources. Nevertheless, there are possibilities for cooperation. In recent years, these possibilities have been realized in the area of modernization of a number of Swedish hydroelectric power plants, with equipment manufactured at power plant producers of St. Petersburg.

In coming years, the volume of Russian-Swedish collaboration is poised to increase in many areas. The stabilization of the political and economic situation in Russia is a strong indication of this. The signs of a possible increase in cooperation are evident in the high rate of activity of Swedish companies in the Baltic countries, the economies of which have switched to free market principles in advance of Russia, and numerous joint projects with Russia in the area of environmental protection (construction and reconstruction of purification facilities in Russian cities on the banks of the Baltic Sea), education (a branch of the Stockholm School of Economics in St. Petersburg and the international Baltic University), and others. It is imperative to note that the leading business publication in St. Petersburg, the *Delovoy Peterburg* newspaper, has been issued by the Swedish publishing house Bonnier for the last ten years.

Norway

Exploration of the deposits of hydrocarbon raw materials in the Barents Sea offers enormous prospects for the development of cooperation between the companies of the Northwest Russia and Norway. The proximity of some of the deposits (including the largest deposit, Shtokman) to the spheres of influence of Russia and Norway in the Barents Sea will facilitate this cooperation. The extensive experience of Norwegian companies in producing oil and natural gas in sea deposits and the transporting of these raw materials from these deposits, as well as the inadequate financing of Russian companies for independent exploration of these resources, are other factors that encourage this kind of cooperation.

Presently, Norwegian companies and the companies of the Northwest Russia are collaborating primarily in the food industry, telecommunications, and the machine-building industry. Industrial cooperation between the two countries is most evident in the fishing industry. Up until recently, this cooperation was carried out according to the following scheme: the Russian haul - shipping to Norwegian ports - processing at Norwegian fish factories - supplies of ready products back to Russia. In the past two years, however, Norwegian companies have begun investing in fish processing and industrial fish hatcheries on the territory of the Murmansk Region. The Gigante company has been a pioneer in this area, opening the first plant at the end of 2002 in Murmansk.

Telenor, the leader among the Norwegian telecommunications companies, is a shareholder in Vympelcom, the largest service provider of mobile telecommunications in Russia, which began expanding its business from Moscow into other regions, in particular the Northwest Russia. In the area of machine building, the Norwegian companies Kvaemer, Statoil, Norsk Hydro, and others collaborate with shipbuilding companies in Severodvinsk (Arkhangelsk Region) and Vyborg (Leningrad Region). For the time being, this collaboration is confined to the manufacture of hulls of specialized sea vessels (trawlers, seiners, ships for servicing maritime drilling platforms, etc.), maritime platforms, and several kinds of equipment. Thus, the large-scale Sea Launch project (a maritime platform for launching satellites), ordered by an American company with the participation of the Norwegian company Kvaemer, was partially carried out by the Vyborg Shipbuilding Plant. The main obstacles to the growth of collaboration in the area of machine building are the high Russian customs tariffs for importing parts and the guarding of national property at Russian military shipbuilding companies.

Norway also actively participates in projects aimed at reducing the pollution of the environment of the Northwest Russia. Their efforts are directed primarily at the mining area of Pechengi, located in the vicinity of the Russian-Norwegian border, and radioactive waste storage.

Denmark

Among the countries of the Northern Dimension, Denmark ranks second after Sweden in terms of its positive trade balance with Russia. This is due to the fact that its economy is only loosely dependent on imports of raw materials and because consumer goods prevail in its export structure. Industrial cooperation between Denmark and the Northwest Russia has thus far also been carried out in the sphere of manufacturing consumer goods.

The Danish company Carlsberg, which is expanding its business in Northern Europe, is the largest investor in the beer-brewing industry in the Northwest Russia today. It controls two of the four leading beer breweries of St. Petersburg, Baltika and Vena. Another Danish company, Dandy, a large manufacturer of chewing gum, began its business in Russia with a packaging manufacture in Novgorod, and later built a factory with a full production cycle there. The cooperation in the fishing industry is also significant. Here, however, collaboration is taking place according to the "Norwegian Scheme" - the Russian fish haul is taken to Danish processing plants, some of which is returned to Russia, in the form of ready-made fish products.

Another outstanding example of cooperation in the Northwest Russia in the sector of manufacture of consumer goods is the acquisition by the Danish-Swedish company SMAPS of the controlling interest of a Petersburg sewing factory, Pervomaiskaya Zarya, specializing in women's garments. SMAPS' investors carried out the modernization of equipment, manufacturing processes, and marketing research and systems. The factory became the main manufacturer of clothes under the brand name Kellerman.

Further industrial cooperation of Danish companies and the companies of the Northwest Russia will most likely occur in the food industry. The furniture industry, in which Denmark has achieved one of the leading positions in Europe, is deemed to have great potential for cooperation.

Iceland

Industrial cooperation between Iceland and the Northwest Russia is minimal, due to the geographical remoteness of the countries from one another, their orientations toward different kinds of consumers, and the absence of large companies of international scale in Iceland that are capable of investing significant amounts in other countries' economies. The only example of significant investment by Icelandic entrepreneurs until recently was the company Bravo International, located in St. Petersburg and engaged in the manufacture of beer, as well as non-alcoholic cocktails and cocktails with low alcoholic content. In 2002, however, it was purchased by the Dutch company Heineken.

New joint projects between Icelandic and Russian industrial companies, in the opinion of the authors, are most likely to take place in the fishing industry, which is the main industry of Iceland. This country occupies the leading position in the world in fish haul per capita, and in terms of its total fish haul rates among the world's top ten countries.

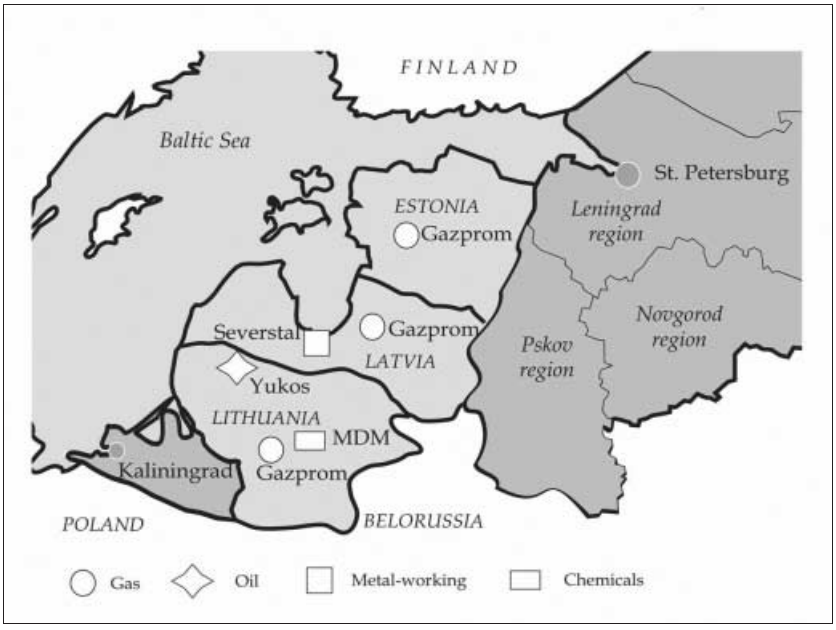
Poland

As we have already mentioned in a previous section of this chapter, the present industrial cooperation between Poland and Russia is based on transfer of Russian oil and natural gas via transit pipelines to Western Europe, as well as marketing of them in Poland. Companies that are engaged in this business are joint ventures; their stocks belong to the Russian Gazprom or Transneft and Polish fuel companies. At present, Gazprom is one of the three largest international investors in the Polish economy. In addition, it owns the fiber-optic cable connecting Russia and Western Europe through Poland.

The cooperation between Poland and Russia in other areas is as yet negligible. This is due to the ongoing process of restructuring of the economies of both countries, and also partially to their continued political estrangement. Polish companies are making the first inroads into the Russian economy, and have thus far not implemented a single large-scale investment project in the Northwest Russia. Such plans, however, do exist. Two examples of this are the project of the Polish company Can Pack to construct a plant for manufacturing aluminum beverage cans in the Leningrad Region, and the plan of the company Zasada to begin assembly of city buses and trolleybuses in Kaliningrad.

The Kaliningrad Region today offers the best opportunity for Russian-Polish industrial cooperation. The main obstacle here is the region's ambiguous political status, in light of the imminent membership of its neighbours (Poland and Lithuania) in the European Union.

Figure 7.5 Largest Russian Investment Projects in Counties of the Baltic Sea Region



Estonia

The main trend in the economic cooperation of Estonia and Russia during the past decade has been the curtailment of collaboration in almost all areas. The following facts speak eloquently about this trend. In 1991, Russia accounted for more than half of Estonia's entire trade turnover. Today it accounts for less than 10 per cent. The Estonian economy, in-

cluding its industry, has profoundly shifted its orientation from the east to the west. Estonian industrial companies at present maintain their closest and most vital ties with Finnish companies.

Joint servicing of freight transit forms the basis for Russian-Estonian cooperation today. The ice-free multi-functional seaport of Tallinn leads among seaports of the Baltic countries in freight turnover. The main flow of cargo (up to 75 per cent) through Tallinn is made up of Russian exported and imported goods. Many Russian industrial companies prefer to transfer cargo here, rather than in domestic ports, due to the higher quality of servicing. Another important area of economic cooperation is the supply of Russian fuel to Estonia. Gazprom, for example, is one of the stockholders of the Estonian gas company Eesti Gaas; Lukoil owns a chain of gas stations here.

Economic cooperation continues in the areas in which trans-border technological schemes were inherited from the Soviet era. Thus, the Estonian plant Silmet is engaged in smelting rare-earth metals (niobium, tantalum, and lanthanides) from concentrate, produced on the Koli Peninsula and pre-treated in Solikamsk (the Perm Region). At present, the production company Sevredmet in the Murmansk Region is undergoing difficulties, and it cannot be ruled out that Silmet will become its stockholder for providing long-term supplies of raw materials. Another example of partnership is evident in the shale industry. Most of the combustible shale produced in the Leningrad Region near the Estonian border is shipped to Estonia, where it is used to produce electric energy supplied back to the Leningrad Region.

From the Estonian side, after a long period of disaffection, signs of a growing interest in organizing businesses in the regions of the Northwest Russia near Estonia (the Leningrad, Pskov, Novgorod regions, and the Republic of Karelia) are becoming apparent. Joint projects are planned or being realized in mechanical wood processing, the fishing industry, production of packaging and building materials, the confectionary industry, and others. The scale of these projects cannot be compared to that of investment projects of transnational corporations, but they are very significant for the economies of certain regions of the Northwest Russia and for Estonian companies.

The authors consider it beyond dispute that the lowest point in the bell curve characterizing the amount of economic cooperation between Russia and Estonia has already been surpassed. In the future, an increase in partnership is inevitable, since it is profitable for both parties. The same is true of Russia's collaboration with the other two Baltic countries: Latvia and Lithuania.

Latvia

Among the Baltic countries, Latvia's political relations with Russia remain the most strained. This estrangement is directly reflected in the low volumes of Russia's foreign trade with Latvia: in 2001, the trade turnover accounted for only $440 million. This is more than two times less than the trade turnover with Estonia, and more than four times less than that with Lithuania.

Large flows of transit cargo are transferred through Latvia, as they are through Estonia. Three seaports - Ventspils, Riga, and Liepaja - are engaged in exporting oil and oil products. Ventspils is the largest seaport equipped for accommodating oil in bulk in the region. For a long time, it was also the port with the largest freight turnover on the Baltic Sea. In 2002, however, Russia decreased the volume of oil transferred through a pipeline to the seaport in Ventspils. In 2003, it stopped oil transfer altogether. This was explained by the intention of Russia to switch to its own oil seaports (primarily Primorsk in the Leningrad Region), as well as the attempt of the Russian national company Transneft to gain control over terminals of Ventspils.

In general, Russian fuel companies (Lukoil, YUKOS, and Gazprom, with its subsidiaries) are very active in Latvia. In addition to their activity in transporting oil and natural gas, they have established control over the largest oil storage facility in the country and a chain of gas stations. They are also involved in marketing gas. In other industries, large-scale Russian businesses have also expressed an interest in Latvia, giving economic profits priority over political differences. The metallurgy holding Severstal, the leader in the industry of the Northwest Russia, has acquired a portion of the Riga rolling stock plant, where it has established its own marketing and servicing centre. It has also opened several new metalworking facilities. Another example is in the food industry: a group of Russian companies purchased the controlling interest of Latvijas Balzams, the largest manufacturer of alcoholic beverages in the Baltic countries.

In their turn, Latvian industrial companies, like their Estonian counterparts, are expanding their businesses to the neighbouring regions of the Northwest Russia. New (as yet small-scale) investment projects are being implemented in packaging, the dairy industry, and some other industries. The attractiveness of the Russian market for Latvian companies is growing, and will certainly continue to grow in the coming years. The approaching entry of the Baltic countries into the European Union, one of the strategies of which is to engage in closer economic interaction with Russia, will also enhance the mutual attractiveness of the markets of Russia and Latvia.

Lithuania

Among the Baltic countries, Lithuania has the closest economic relations with Russia. In addition to economic interests, this is also conditioned by demographic factors. There are relatively few Russian-speaking people in Lithuania, and the process of their assimilation has not been as traumatic as it has been in Latvia and Estonia. In 2001, the volume of trade between Russia and Lithuania was more than USD2 billion. This is twice as much as the volumes of trade with Sweden, Norway, or Denmark.

Lithuania has enjoyed a great expansion of Russian capital in the past several years. Over one thousand companies based on Russian capital have been registered in the country; that number includes several of Lithuania's leading enterprises. The influence of Russian industrialists is especially strong in the power sector. In 2002, the oil company YUKOS acquired a controlling interest in the energy holding company Mazeikiu nafta, which includes the Mazeikiu Oil Processing Plant, supplying oil products to all the Baltic countries, and the oil terminal in Buting. YUKOS has shown an interest in the largest, not yet privatised, Lithuanian oil terminal in Klaipeda. Lukoil, which previously attempted to establish control over Mazeikiu nafta, owns a chain of over one hundred gas stations in Lithuania.

Gazprom, like the oil companies, is also expanding is presence in Lithuania. In addition to transporting and marketing gas, it is becoming a large participant in the Lithuanian national market of electric power. In 2003, Gazprom acquired the Kaunas State Regional Electric Power Plant - the second largest thermoelectric power plant in Lithuania. This policy of Gazprom is all the more promising, in that one of the mandatory conditions for Lithuania's entry into the EU is the shutdown of the Ignalin Nuclear Power Plant, which at present is producing up to 75 per cent of all electric power in the country. After its closure, the portion of electric power manufactured at thermoelectric power plants will increase sharply, and here Gazprom will gain the opportunity to establish control over almost the entire Lithuanian electric power industry.

The strong influence of Russian business in Lithuania is not limited to the power industry. The Russian chemical consortium Evrokhim (part of the MDM holding) has established control of Lifosa, one of the largest plants for manufacturing phosphorus fertilizers in Europe. The plant processes apatite condensate from the Kola Peninsula. Other Russian companies in Lithuania are engaged in automobile assembly, manufacturing of building materials, wood processing, and so on. Generally speaking, Lithuanian society is much more favourably disposed toward Russian businesses than are their neighbours. This is due in part to their disappointment in the American company Williams, to which Mazeikiu

nafta was originally sold at a low price. Williams, however, declined to make significant investments in the oil processing plant and resold a large number of stocks, including the controlling interest. Relations with the Europeans have also resulted in some disappointment, since the EU has pressured Lithuania to expedite the shutdown of the Ignalin Nuclear Power Plant.

The interests of Lithuanian companies in Russia have so far been limited to the Kaliningrad Region, the only Russian territory that borders Lithuania. Joint ventures (as well as companies with 100 per cent Lithuanian capital) are engaged in processing meat, fish, and milk, and the manufacture of furniture and television sets. On the territory of the Kaliningrad Region, the Lithuanian company Snaige is planning on making significant investments in the establishment of the manufacture of refrigerators under their brand name, which was popular in Russia during the Soviet era.

To summarize this analysis of the current state of affairs in industrial cooperation, and the prospects for its development between the Northwest Russia and the countries of the Northern Dimension, it is imperative to stress the following basic features that will most likely characterize it:

1. Cooperation with the countries that exhibit the highest level of development in terms of world standards - Germany, Finland, Sweden, Norway, Denmark, and Iceland - will take place in the coming ten years according to the following scheme: foreign investments, services, high quality management, skills and experience in the successful conducting of business, in exchange for Russian raw materials and workforce. The gradual improvement of the investment climate in Russia, as well as the growth in affluence of the population, will inevitably attract the leading international companies to the Russian market, and thus facilitate an increase in the efficiency of domestic manufacturing. The process of Russian capital penetrating the economies of the aforementioned countries, especially Finland and Germany, is also likely to unfold.
2. Cooperation with countries that have economies in transition - Estonia, Latvia, Lithuania, and, to a certain degree, Poland - will take place according to the following scheme: Russian raw materials and investments, in exchange for a foreign workforce and promotion of products on the market of the European Union. The leading Russian companies are already back on their feet and have the wherewithal to expand their businesses abroad. The countries with economies that were once integrated with the economy of the Soviet Union offer the best opportunities for this.

8 Industrial Strategy for Success

8.1 Industrial Strategy, Economic Policy and Cluster-based Approach

Among the important conclusions that one could draw from the preceding chapters of the study is that there is an urgent necessity for improving the economic policy and industrial strategy in Russia. The present study is aimed not only at describing the needs but also at identifying the goals and measures for the efficient industrial strategy. Therefore in this chapter our reader will find the description of a general approach and ideas on a set of targets, measures and tools that could be utilised to foster development of business activity both in the Northwest Russia and Russia as a whole.

The main prerequisites that determine the importance of cooperation between the government and companies for economic development of the regions are as follows:

- Prosperity of a nation requires existence of prosperous industries;
- Companies but not countries are involved in the world market competition;
- Competitive advantages of countries are unstable and require ongoing development;
- Regions gain competitive advantages owing to differentiation, while the strategy of imitation cannot lead to successful long-term results;
- Sustainable competitive advantages do not result from short-term effect of costs savings, but are driven by long-term dynamic development;
- It takes a decade or more to create competitive advantages in different industries they cannot arise in the course of a 2 or 3 years;
- Competitive advantages of a nation are rather often localized geographically, which means an increasing role of the regions and regional authorities.

In developed, market-based economies the role of the state as an agent of influence on economic development is limited to indirect measures and cases of market failures. This is exactly the kind of approach that is urgently needed in Russia as the old tools are demonstrating poor results. There is also growing demand (although still unorganised, chaotic and unspecific) on behalf of companies to facilitate and make government actions truly efficient. It is widely accepted that the current and past attitude of direct intervention as a major tool of government involvement shall be abandoned. Nevertheless the transition from the direct, highly restrictive and regulative approach characteristic of the Soviet period to a new indirect one is a major change to achieve. Achieving understanding and wide consensus on methods and targets of industrial strategy is desirable and necessary in the first instance.

In the beginning we would like to introduce and describe in more detail our approach and the terms we have used. As it was mentioned already in the present study the case for government involvement in economic activity could be first of all justified by the "market failures", i.e. inabilities of the markets and private agents to provide stable supplies of certain goods and services, such as higher education and basic research, at the reasonable cost. The standard "market failure" argument was already articulated in the 1960s in the developed countries in the framework of neo-classical welfare economics. It has since been the basic justification for most of the industrial, science and technology policies.

The economic policy in developed countries today is mostly concentrated on the needs of technology-based industries that are characteristic of the innovation-driven stage of economic development whereas in Russia and many other economies in transition the economies are in the factor or investment-driven stages of development. Analysis of the industrial and economic policy tools and measures for such cases is also important for the many developing countries of the world. Therefore there is an urgent need for the wider scope of analysis and appropriate theories.

The Approach to the industrial strategy making in the developed world was substantially advanced during the period when in the Soviet Union activities were directed by theories and methods based on the command economy as an operational framework. As far as the current state of affairs is concerned we believe that the following new theories and adjustments are essential. They could substantially enrich the current understanding and, therefore, could be applied for the purposes of our analysis:

- New growth theory challenges some of the main hypotheses underlying the neo-classical view of technological change to eco-

nomic development (Romer 1990; Aghion and Howitt, 1998). It stresses the importance of increasing returns to knowledge accumulation from investment in new technologies and human capital;

- Evolutionary and industrial economics demonstrates that this accumulation process is path-dependent (following "technological trajectories" which show some inertia), non-linear (involving interactions between the different stages of research and innovation) and shaped by the interplay of market and non-market organisations and by various institutions (social norms, regulations, etc.) (Metcalfe, 1995);
- Institutional economics addresses issues related to the design and co-ordination of institutions and procedures involved in handling more complex interdependencies, as growth leads to the increasing specialisation on tasks and productive tools (North, 1995).

Together, these streams of economic thinking provide the theoretical foundations of systemic analysis of industrial development and innovation. Such analysis helps define the tasks of governments in promoting economic growth, by emphasising that:

- Governments are also responsible for providing an efficient infrastructure and operating environment. Firms are not "simple algorithms to optimise the production function", but learning organisations whose efficiency depends on numerous and often country-specific institutional, infrastructural and cultural conditions regarding relationships among the science, education and business sectors, conflict resolution, accounting practices, corporate governance structures, labour relations, etc.;
- Competitive markets are necessary but not a sufficient condition for stimulating innovation and deriving the benefits from knowledge accumulation at the level of firms and individuals;
- Agglomeration economies at the regional level, network externalities and dynamic economies of scale in clusters of technologically related activities are important sources of increasing returns to private and public investment in R&D;
- In addition to correcting market failures (provision of public goods, intellectual property rights, subsidisation of R&D), governments have a responsibility for improving the institutional framework for knowledge exchange among firms and between market and non-market organisations.

For the most part, governments address current challenges with administrative structures and policy instruments that have been shaped by responses to past problems. There is definitely a need for a more proactive approach. We believe that it could be based on analysis of the kind presented in the present study, i.e. analysis of the clusters. Cluster analysis has been used as a basis for economic policy decision making for already 10 years in the developed world (OECD countries).

The governments should address systematic failures that block functioning of the certain markets and innovation system, hinder the flow of knowledge and technology and, consequently, reduce the efficiency of R&D efforts. Such systemic failures can emerge from mismatches between the different components of systems, such as conflicting incentives for market and non-market institutions, or from institutional rigidities based on narrow specialisation, asymmetric information and communication gaps, and a lack of networking or mobility of personnel. Governments need to play an integrating role in managing change. This requires a co-ordinated contribution from a variety of policies in order to:

- Secure framework conditions that are conducive for economic development and innovation, such as a stable macroeconomic environment, a supportive tax and regulatory environment, appropriate infrastructure, education and training policies;
- Remove more specific barriers to innovation in the business sector and increase synergies between public and private investment.

As it is demonstrated in many countries the cluster analysis as an analytical ground for the industrial strategy and policy making helps governments to identify the failures, to decide on priorities and to focus on the most important and efficient areas and measures.

8.2 A New Industrial Strategy and Policy Agenda

The authors believe that the new industrial strategy and policy in Russia shall be cluster-based. This new policy should complement broader structural reforms in many fields (e.g. competition, education and training, financial and labour markets). There is also an urgent need to build an innovation culture. The need for a reduced role in industrial and technology policy of direct government support suggests that governments shall mainly play a role as catalysts and brokers in strengthening economic links and clusters of firms. Apart from broad framework policies, a number of policies are generally considered suitable to cluster-based approaches:

- Stimulating knowledge exchange between actors in various clusters and supplying strategic information to reduce information failures;
- Using direct intervention - for instance in the form of R&D support - when there are clear market or systemic failures in view; when the private sector alone cannot undertake the task, or when there are strong social benefits to government effort;
- Acting as a demanding customer in the area of public needs;
- Strengthening co-operation between science and industry;
- Reducing or removing legislative barriers that prevent co-operation.

The above listed public policy measures are commonly used in many developed countries. Among the most demanding challenges for decision makers in these countries is to find the suitable and most efficient combination of measures and tools for the successful economic policy. The countries differ greatly in the choice of tools as presented in the Table 8.1.

As the studies in developed countries have demonstrated if governments are to act as brokers and catalysts, it is essential that tools and measures meet clear business needs and governments or intermediary institutions are well informed about the clusters and their specific needs. A top-down approach rarely works. Cluster policies also reinforce the need for a horizontal approach to policy making, and thus a need for modernisation of government policy making.

It is also demonstrated by many studies that the policies should capture the benefits of inward and outward investments and other global alliances owing to increasing returns to internationalisation of economic activities. Countries and regions should generally encourage openness to international flows of goods, investments, people and ideas.

Our ideas related to the industrial strategy for the Northwest Russia are based on the cluster analysis and tools elaborated and tested in the developed countries as they are described above. Presentation of the detailed proposals remained nevertheless beyond the scope of our study and in the text below we would like to present only a brief description of possible needs as it was seen from the cluster studies in the present book.

Table 8.1 Public Policy Challenges and Tools in the Developed Countries

Systemic and market failures	*Policy response*	*Countries focus in cluster-based policy making*
Inefficient functioning of markets	• Competition policy and regulatory reform	• Most countries
Informational failures	• Technology foresight • Strategic market information and strategic cluster studies	• Netherlands, Sweden • Canada, Denmark, Finland, Netherlands, United States
Limited interaction	• Broker and networking agencies and schemes • Provision of platforms for constructive dialogue • Facilitating co-operation in networks (cluster development schemes)	• Australia, Denmark, Netherlands • Austria, Denmark, Finland, Netherlands, United States, Sweden, Germany, United Kingdom • Belgium, Finland, Netherlands, United Kingdom, United States
Institutional mismatches between (public) knowledge infrastructure and market needs	• Joint industry-research co-operation • Facilitating joint industry-research co-operation • Human capital development • Technology transfer programmes	• Belgium, Finland, Netherlands, Sweden, Spain, Switzerland • Finland, Spain, Sweden • Denmark, Sweden • Spain, Switzerland
Missing demanding customer	• Public procurement policy	• Austria, Denmark, Netherlands, Sweden
Government failure	• Privatisation • Rationalise business • Horizontal policy making • Public consultancy • Reduce government interference	• Most countries • Canada • Canada, Finland, Denmark • Canada, Netherlands • Canada, United States, United Kingdom

Source: Roerlandt et al. 1999

8.3 Industrial Strategy Goals and Measures in Russia

Rules of the Game

To ensure sustainable development the government must switch from its current, chaotic and mostly declarative, policy to actions aimed to improve the investment climate, and to establish clearly defined long-term rules of the game to be followed by international and domestic players in Russia.

At the same time, it is of fundamental importance that federal policy and rules take precedence over regional policies in determining the general and comprehensive framework for the development in order to prevent local authorities from hindering one by following their personal likes and dislikes. The federal framework legislative provisions normally tend to enable the regional authorities to implement some rules considering the local peculiarities. However the governments of the regions often use these frameworks to introduce additional administrative barriers. It is as very important to stress here that development of Northwest Russia clusters presumes cooperation between regions in many areas. Therefore, comprehensive interregional regulations are absolutely necessary for the development of the Russian industries.

In order to create favourable investment climate, the government should in the first place establish effective property rights protection. At present, the lack of such protection contributes to the continuous capital flight from Russia. In addition to the protection of the property rights the foreign investors also need guarantees of fair and equal treatment, prevention of discriminative treatment under certain circumstances.

There is an urgent need for the further simplification of regulation of industrial and business activity and adoption of the industrial legislation corresponding to the current needs. Excessive licensing and certification entails yet another large set of problems restraining the development of competitive domestic manufacturers. In this respect it is necessary:

- To reduce the number of licenses which are currently required for operating on the market;
- To implement in practise the long awaited "one-window" incorporation procedures;
- To define clear rules and criteria for licensing;
- To establish longer periods of validity of licenses, as well as to provide clear rules for extending those periods;

- To promote the adoption of the ISO and other internationally accepted standards;
- To scrap most of the domestic certification requirements by accepting and integrating into the legislation norms and practices common in the developed world.

The reform of customs regulations also plays an important role in promoting development of companies. These measures should be oriented not toward protecting (high import duties, etc.), but supporting domestic manufacturers, including those established on the basis of foreign capital. Possible measures could include the following:

- Reduction of customs duties for imported components, particularly for those having no competitive counterparts in the domestic market;
- Simplification of customs procedures (easier, less document and reporting requirements, more predictable and prompt processing and handling).

In order to ensure the smooth development it is also essential to address the following basic issues:

- Development of domestic accounting and tax standards in accordance with internationally accepted practices;
- Optimisation of the tax burden structure, i.e. reduction of VAT and heavy property taxation (2%), which is a substantial obstacle for investments in capital-intensive industries;
- Development of specific taxation conditions for decreasing payback period in investment projects.

In addition to the development of the competitive environment, the stimulation of domestic demand requires the improvement of legislation regarding protection of intellectual property rights and other matters related to software, operations in information networks (digital signatures, etc.), and the content provision (government programs oriented toward the creation and support of digital content), etc.

Improving Ownership Rights

The issues that concern land ownership and rules of natural resources' exploitation are presently among the highest priorities as the development of the Russian industry is still focused on processing of natural resources and related low value-added activities. Improvements in this area

could facilitate substantial investments in implementation of long-term projects related to improving efficiency of deposits and necessary transport infrastructure.

Experience of developed economies suggests that widespread private ownership would have a positive impact on the efficiency. For example, in the forest cluster, as private ownership takes hold, illegal cuttings, currently taking place in Russia on quite a large scale, would dwindle. At the same time, private ownership would promote forestry activities involving the resumption of reforestation operations and a generally more conscientious use of forest resources.

One should also note that over the preceding century, Russia has lost its private ownership traditions, and it is likely that the newly established private ownership practices will need a long time in order to take hold and become efficient.

There are also different development models, such as the ones with prevailing state ownership of natural resources and efficient government control. These models might be more suitable for implementation in view of Russian conditions (e.g. great distances, and low population density, culture-based low readiness for private ownership, limited domestic resources to create efficient for many types of ownership rights, such as agricultural and forest land). In this case, to ensure an efficient and stable operation of industries, one would need to elaborate clear regulations governing long-term utilization of resources within the framework of concessions or leases. At the same it would be feasible to increase the maximal utilization terms from 49 years at least to 99 years, particularly by the means of the practical introduction of the concession titles. In this event (just as in the case of private ownership, but with lower starting investments), companies would be in a position to develop the basic part of the necessary infrastructure investment on their own.

The rules of long-term lease of land or concession schemes assume that the State should implement thoroughly developed, feasible and differentiated land valuation. In accordance with such valuation, which will be unified in the framework of land cadastre, more distant plots with poor accessibility, infrastructure and exploitation potential should be offered at significantly lower price. It could prove feasible to increase price for well-accessible and easily exploitable plots. This could help to establish conditions for spreading economic activities over the limits of existing industrial agglomerations.

In authors' opinion, in this case the State will need to improve participation and controls of the prospecting activities. Educational and scientific potential accumulated in this field is very important for the national economy, while high risks related to implementation of long-term R&D projects still hinder investment by the private companies.

Domestic market development

As it was already mentioned in this research, the development of the domestic market is the important condition for improving competitiveness of local producers. Among the most urgent issues that should be addressed in this respect are de-monopolization and liberalization of the regulated markets such as gas, electric energy, fixed telecommunication, railroad transport etc. A general trend in developed countries is that energy, telecommunication and railroad transport networks are marketplaces for private competing actors. Also the price system is liberalized so that prices are based on competition, which guarantee a low price level. The restructuring activities within the mentioned reforms inevitably become a matter of highly politicised bargaining significantly influenced by the strongest administrative and business lobbies. Therefore the predictability of the outcome of such a process is usually very low.

Stimulating competition is important not only in the case of sectors currently regulated by government. Removing barriers to trade such as import duties, obligatory Russian market specific certification for internationally certified products and others are the key factors underlying development of the domestic manufacturing industries. At the moment the growth in imports is once again proving the fact that such barriers are grossly inefficient and damaging for domestic manufacturers. Through maintaining different than internationally accepted standards they restrict opportunities for the Russian producers on the international markets. Effects of increased cost competitiveness that domestic producers enjoyed in the recent years owing to the devaluation of the rouble in August, 1998 are offset by the recent appreciation of domestic currency and inflation. Low quality and durability of domestic products, high costs of their post-sale service and maintenance are the major reasons behind the gradual shift to imported goods and equipment. Therefore the goal could be to provide an operating environment that would motivate domestic producers to improve their strategies and company's structures in order to improve and sustain competitive positions.

In authors' opinion, the following steps could be of a great importance for domestic market development:

- Creation of the positive image of Russia and Northwest Russia as attractive business and manufacturing locations;
- Improvement of government purchases with more focus on stimulation of innovation and development of competitive environment;
- Improving availability of markets related data.

Integration into global trade

In the sphere of easing integration of the Russian companies into the global trade, the greatest influence will be the entry of Russia into the WTO. According to estimates, it could occur not earlier than 2005. It will give Russian exports stronger protection on the world market, as well as lead to an increase of competition in the Russian market.

As one could see from the analysis of the foreign trade presented in the Chapter 5 the Russian exports are dominated by the raw materials and low value added products. Achieving sustainability of such exports requires substantial investments and better protection of property rights and regulation of use of natural resources. Another goal of economic development could be also to limit exposure of Russia to volatility of the international markets for the raw materials by developing manufacturing activities. Therefore among the greatest challenges in Russia is to facilitate development of the export-oriented manufacturing industries. In this area cluster analysis provides an excellent basis for the purposeful policies. As one could see from the analysis of the clusters presented in the Chapters 5 and 6 of the present study the development of the suppliers in Russia is among the key factors behind the low speed of growth in export-oriented manufacturing.

The government could facilitate this process by implementing the following actions:

- Encouraging contacts between companies, on one hand, and colleges and universities and R&D institutes, on the other. This could include regulations and measures providing more freedom for state universities and R&D organizations in collaboration with the corporate sector;
- Supporting the local industries in the field of manufacturing of required components and services. The facilitation of inter-company contacts and cooperation (organization and carrying out of specialized exhibitions, conferences, etc.) could help to improve the networks in the clusters.

We believe that a high potential is integrated also in the science-based exports such as programming. Unfortunately in order to utilize the existing potential it is crucial to create an environment and conditions favourable for the development of IT companies. The realization of the following measures would assist in achieving these goals:

- Foundation of official information centres and associations for supporting contacts between local companies and potential customers;

- Creation and development of technology parks oriented toward software development;
- Unification of national and international quality standards;
- Support of specialized IT education.

The attraction of investments in the region, and the facilitation of integration of existing companies into international networks, is impossible without efficient cross-border relations at the individual and corporate levels. In order to simplify international contacts, it is necessary to create a favourable infrastructure. We believe that the following measures may be undertaken in order to achieve these goals:

- Simplification of procedures surrounding business trips of Western partners to Russia (and the Northwest Russia region in particular). This may include simplified visa and registration procedures, etc.;
- Spurring contacts between local and foreign universities and R&D institutes (student exchange, joint research projects, partnership programs, etc.).

Development of infrastructure

At present the transport and transmission infrastructure of the Northwest Russia, which serves the interests of the industry, generally does not meet its demands in terms of adding competitive power. In order words it is highly restrictive for development in many areas, acts as a additional volatility factor (cut-offs, low predictability of cost changes, changes in the rules of access and use, etc.). The system of pipelines is prone to a high risk of emergencies due to its high level of deterioration. The electric power transmitting lines are also in a state of deterioration, and their length and density are insufficient, thus preventing the utilization of many power plants to their full capacity. Railroads are of primary importance for many domestic producers and are a government monopoly. The system of railroads is insufficiently developed, and the efficiency of moving goods by railroad is very low. The local telecom infrastructure still lags substantially behind the neighbouring areas of Finland and Estonia in terms of penetration of the modern technologies (fast access to the Internet, etc.).

There is an urgent need to create conditions, i.e. an operating environment that will foster a substantial increase in private investment in the infrastructure and related activities. The state could also play a positive role in infrastructure projects and initiatives aimed at integration of Russian companies into the global industries.

In the future, infrastructure development will inevitably require action by both the industry and the government. So far, companies have been able to complete only relatively modest projects on their own (such as development of a railway link from the main railway line to the Timan bauxite deposit, or introduction of a corporate IT network within an enterprise, etc.). Wider-scale transportation projects (such as the construction of the Belkomur railway line) will require the support of the state.

Development of the banking, finance and insurance systems call for special governmental efforts and focus. The market of financial services is mature enough to open it for large foreign players capable of bridging international finance for larger projects and possibly take higher or longer term risks. We suppose that increasing capitalisation and competition in the sector will stimulate domestic players to improve business standards and widen the range of services, which will encourage the development of practically all the industries.

There is an urgent need for closing the gap between the available financing from the banking targeted at secured short-term projects and direct government support of the selected few innovations. Creating an efficient system of venture capital and private equity organisations shall be among the top priorities at the regional and federal levels. This system shall include all possible range of the tools from the start-up financing funds and business angels aimed to support creation of the spin-offs and new players to private equity funds specialised in opening the bottlenecks and investing in turn-arounds and business development projects. Participation of the government in such funds could provide a necessary boost and stability to the system on the initial stage of its development.

Innovations and technology development

Among the most important needs in area of education and training is to improve matching of educational programmes and number of students with current needs of the local industries In many areas of activity companies are already experiencing a shortage of skilled labour. It is most urgent for the "blue collar" professions. More active cooperation between companies of the cluster and educational establishments, especially improving of the system of secondary vocational training in this direction could be of crucial importance to ensuring sustainability in certain sectors of the economy.

It is also important to focus federal financing of education and to spread it over fewer leading colleges and universities, in order to provide modern training levels of excellence that would meet the existing and prospective requirements of the industry's leading companies.

The industrial policy in the creation of an efficient infrastructure may include measures for mutually beneficial partnership between the corporate sector and the system of higher education and R&D institutes. This policy may also include measures for promoting international contacts (international student exchange, joint educational and R&D projects, etc.). The needs of industry should be taken into consideration in the long-term planning of the development of educational and R&D systems. Legislation could be created in order to involve business in financing both educational and research programs (as is the case, for example, in Finland).

Targeted state actions for formation of national innovation system functioning within the frames of market economy are necessary also for reaching significant progress in the field of innovations and technologies. These actions could include:

- Identification of priority fields and organizations;
- Creation and development of technology parks;
- Measures providing more freedom for state universities and R&D organizations in collaboration with the corporate sector;
- Spurring contacts between local and foreign universities and R&D institutes: student exchange, joint research projects, partnership programs, etc.

Preservation of the environment

The companies of the energy cluster, along with metallurgy companies, are the largest sources of various kinds of environmental pollution. The Soviet period left a legacy of highly polluting technologies and equipment. At present, the government in practice tolerates serious damage to the environment in the interests of immediate profit. The situation can change radically only after passing adequate law enforcement and environment monitoring systems in Russia. Until that time, companies will have no serious motives for actively implementing relatively costly measures protecting the environment.

8.4 Concluding Remarks

We have spoken here a lot of the need for a well specified, efficient general and cluster-based industrial strategy and policy. It should be noted that also a well functioning economic policy is needed. This means a sta-

ble economic development of the society without defaults, avoiding unpredictable actions of authorities, creating necessary buffers against fluctuation of oil and raw material prices on the global market, etc. An important part of stable economic policy is neutral and efficient tax collection, which shall be based on a broad tax base to make tax rates low. Low taxation will encourage entrepreneurship and small business creation.

Russia is a vast country with diverse operational environments and resource bases for businesses. Federal districts and regions have different possibilities to upgrade their competitive edge. For Northwest Russia cooperation with European Union countries is a unique development possibility. EU countries, their financing institutions and their firms are willing to take part in investment projects in order to get energy, make transportation more efficient, finance long-term solid investments and participate in investment projects themselves as suppliers. Very often these projects are beneficial not only to the participating firms but also to states and regions. This makes room for the public policy officials and organizations to participate in investment and development projects. There is also a role and a necessity for comprehensive cost and benefit analyses, not just business calculations, for capturing all the social costs and benefits of the projects.

9 Conclusions - Looking into the Future

The present study is among the few reports that address the matters of economic development, competitiveness and integration into the global economy as regards Northwest Russia. In the previous chapters of the study our readers had a chance to learn about the major changes in the period of economic transition, the current state of development of the Northwest Russia economy and business, regional clusters and position of the region in relation to other nearby regions and countries. Although the analysis presented was largely retrospective, it provided a valuable basis for formulating the trends and processes that will have a great influence in shaping the future.

In the present, concluding part of our study we summarise matters that are essential to understanding the development of Northwest Russia in the medium term. Before going deeper into the matter we would like to stress that the authors are fully aware of the fact that presenting views and ideas related to the future is a delicate and demanding task. As it is well known from the studies related to strategy making, the knowledge currently available will lose its predictive power and shall be adjusted in a never ending process. The reason behind that is diffusion of knowledge among the players and corrective actions taken by many actors in an uncoordinated way. Nevertheless we believe that naming the major trends and factors, organising them within a comprehensive framework could already be a big step forward. The authors believe that the following dimensions and factors could be the most important for the future development in the region:

- Factors that determine economic development in Northwest Russia
    - The geographical position of Northwest Russia;
    - Impact of the transition to the market economy on the business, industry structure and economic activity in the regions of Northwest Russia;

- Clusters and concentrations of the economic activity in the region;
- The regional competitive advantages, i.e. the existing resources and human capital, industrial activities and traditions,
- Changes in the domestic and export markets' demand for the products of Northwest Russia;
- The possible industrial strategy, tools and methods for the economic policy aimed at exploiting the existing potential.

The geographic location of the region as one bordering numerous developed countries - members of the large single market of European Union - is a very important factor that will determine economic development of the region for many years. Possibilities related to this location are

- The improvement of the role of the region as a gateway and hub for the Russian-European trade. Such a position could be a basis for creating more industrial and business activity at the trade nods as the economic geography theory demonstrates, and
- The opportunities to converge and integrate in terms of industrial and technological development, as well as living standards with the neighbouring developed countries.

The cost differential between the neighbouring countries and Northwest Russia could spur a major shift in industrial activities to Northwest Russia. Investments in infrastructure and procedures (easier customs and visa regimes) as well as a better investment climate could substantially reinforce the trend. Substantial diversity in approaches toward developing the investment climate in regions of Northwest Russia will lead to faster growth in successful areas. This trend is expected to have a strong cumulative effect and over time the gap between regions will grow significantly.

There are many technological complementarities (in energy, metal processing, forest industries, etc) between the two neighbouring economic areas (European Union and Russia) that could also ease economic integration in many industries and clusters (over-the-border clusters) and lead to gradual convergence of the living standards.

Northwest Russia and its international gateway of St. Petersburg could also benefit greatly from the position of a transport bridge between Europe and Asian parts of Russia and countries of the Far East (China, Korea, Japan and others to a lesser extent). Development of the traffic along the Trans-Siberian railroad (the recent manifold increase in the

cargo flows proves the viability of this trend) is the key to changes in location of many processing and assembly activities in the Baltic Sea region. In this connection the beneficial costs, existing skills and industrial traditions create additional opportunities for Northwest Russia.

A great influence on economic development in the medium term will also have a unique set of factors specific to the period of transition to the market economy. This primarily includes the new market opportunities that opened gradually after transition to the market economy and possibilities to get ahold of the undervalued assets that are offered by the privatisation (still on-going). The above-mentioned market opportunities are based on the inherited imbalances in the structure of the domestic market where certain products and services were not available in the Soviet period. Improving purchasing power of the population in Russia leads to a gradual growth and opening of the new segments. Growth of the domestic market will be behind the development of many industries as we see from Figure 9.1 below.

Industrial amalgamations that were developed in the Soviet period lost their competitive strength immediately after the markets became free owing to heavy operating costs and low efficiency. Due to market pressures such producers were forced to restructure. That led to a slump in output and discontinuation of many production lines, creation of the new, more efficient producers in some cases as well as to a great number of spin-offs and emergence of successful smaller manufacturers and service providers.

The new opportunities attracted new players. The new entrepreneur-driven companies were able to find efficient ways of operation in traditional and new markets. The early entries and corporate changes were difficult but rewarding. In analysis presented in the present and preceding studies we observed that the market shares are now substantially redistributed in favour of new players as compared to the early 1990s. We believe that this trend will have a cumulative impact on the successful companies and will lead to further changes in the corporate leaders.

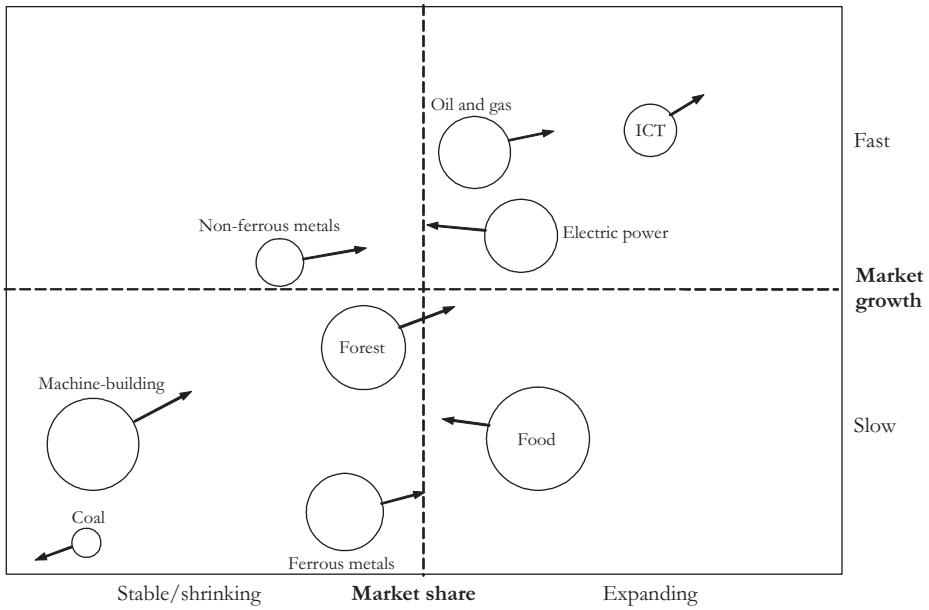
The new companies paved their way to leading positions in many segments. The new banking groups played an especially important role in this process. They used wealth and cash flows accumulated from their financial services business to take advantage of privatisation opportunities. As a result the newly created groups were strengthened by acquisition of large stakes in raw materials based manufacturing and occupied the leading positions in Russia. Investments by such groups in equipment and consumer products manufacturing that followed the initial stage of accumulation of wealth led to demand for domestic investment goods and to a revival of many domestic producers. As a result of these changes a shift to a larger share of manufacturing in the total industrial

output will take place. It is important to mention that the significance of this trend will be largely determined by the ability of the domestic companies to offer competitive new products and government support in providing a steady inflow of skilled professionals and access to up-to-date R&D.

In the process of the initial growth many groups have built very diverse business portfolios. Competitive pressures in the near future will lead in the near future to divestiture of the non-core and non-related activities by the above-mentioned groups. This will add to an overall process of consolidation that could be seen in recent years. As a result more focused and competitive players will emerge, redistribute and concentrate market shares in many segments (primarily in services - hotels, software development, maintenance and cleaning services, etc and manufacturing of components and assembly companies).

Better investment power of the most competitive companies, faster growth of certain new markets will lead to creation of the new industry structure (primarily a shift to a bigger share of services in total production) in the years to come. A major factor behind the changes in the Northwest Russia economy will be the demand for products on domestic and international markets

Figure 9.1 Market Growth and Market of Northwest Russia Industries



Note: Size of the circle corresponds to the relative current production of the industry in question.

Understanding economic growth in Northwest Russia will not be complete without taking into consideration regional differences in the development. Existing concentrations of the economic activity in the Northwest Russia will play a major role in shaping the industrial future. Russia and its Northwest Federal District have a common problem of large territories and distances between the cities, compounded by an extremely low density of the population. The high cost of developing the infrastructure as well as the harsh weather conditions always motivated concentration of the economic activities in and around limited number of centres (City of St. Petersburg, Petrozavodsk, Syktyvkar, Arkhangelsk, etc). As a result close to 80% of the total population of Northwest Russia is living in the cities today. It is envisaged that migration from the smaller to the larger cities encouraged by the employment benefits owing to diversity of opportunities and higher pay in the larger cities will continue.

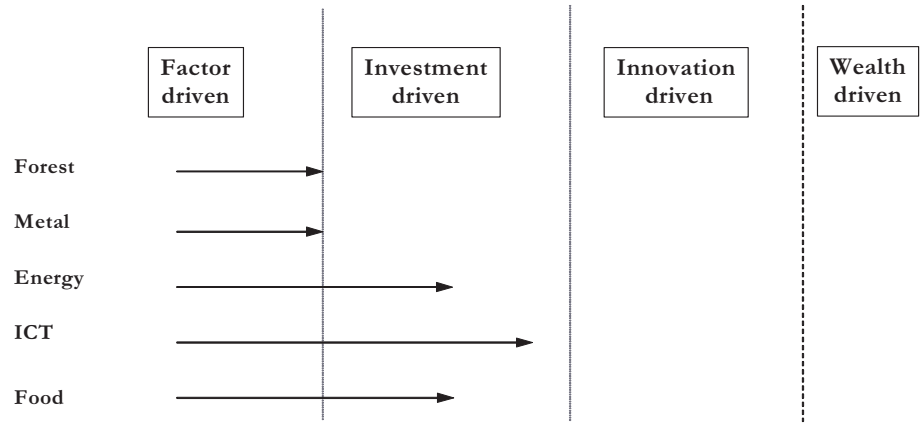
Poor infrastructure and high costs of development of new areas will most probably lead to location of the new industrial activities around the existing growing agglomerations. Here the most successful will accumulate the lion's share of the total investment. As a vivid example of this trend one could name the example of the Leningrad Region where industrial activity is developing owing to an attractive investment climate and advantages offered by transport infrastructure and the City of St. Petersburg, the nearby centre of consumption and labour resources.

The authors have chosen the analysis of clusters as the main tool for the study. The clusters of forest, energy, metal and information and telecommunication technologies companies were identified in the present report. These are the interregional clusters with a number of specialised concentrations in Northwest Russia. The region will benefit substantially from interregional policies and cooperation aimed at supporting these clusters. This is of the highest importance to the forest cluster.

The competitive advantages of the above-mentioned clusters are based today mainly on the production factors, i.e. availability of raw materials and low operating costs as we see from Figure 9.2. Therefore the advantages that the local companies today are enjoying are of a temporary nature and exhibit high volatility. Sustaining and increasing the current levels of production output and extending the range of competitive producers will require substantial investment in technologies and equipment of the companies as well as commitment and investment of the government into the infrastructure, education and research and development. Using M. Porter's terminology, the transition to the investment-driven stage of development in all the listed clusters is a major challenge and trend for the coming years.

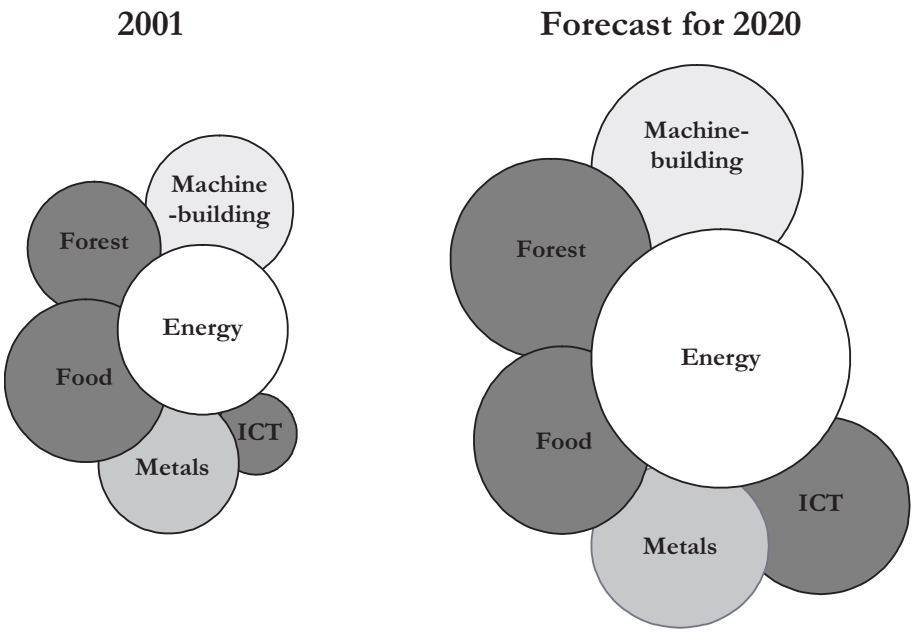
Moving into the investment stage is a function of the investment climate, legal framework, transparent and clear rules of the game.

Figure 9.2 Stages of Industries' Development and Sources of Competitive Advantage



Shifting from a resource-based to an investment- and innovation-driven economy requires commitment from the government and a stable environment. There is a great deal of help and initial input that could be generated through wise and well-planned government actions.

Figure 9.3 Development of Production Output of the Northwest Russia Clusters



Source for the year 2001 data – Goskomstat, 2002

Analysis of the development trends in the selected clusters of Northwest Russia allowed us to make an estimation of growth in different clusters presented in Figure 9.3.

We believe that the energy cluster will sustain its relative importance in the medium term. Nevertheless the output structure of its companies will be different from the one today. It is expected that more processed goods and power generating equipment will be manufactured in this cluster. Machine-building and ICT clusters will increase their relative importance owing to their existing advantage and the shift of manufacturing from the high cost locations. Nevertheless difficulties with the new product development and availability of the skilled personnel will complicate development and growth in these clusters. The advantageous position of St Petersburg as a major centre for the food industry will allow the food cluster to sustain its important position although the weight of this cluster will decrease.

Growth of the exports by the Northwest Russia clusters will be necessary to improve the position of the region as a competitive location. This is a very demanding task for the decision-makers in this region. We believe that energy-related exports will remain the main engine of economic growth. The forest and metals clusters (primarily in machine-building) will increase their volumes and share in the total exports as relates to the other clusters. Creating easier rules and removing trade barriers between European Union and Russia could substantially improve development of the clusters where resources are complementary (energy, forest and metals in the first place).

Yet another important issue will either deter or, depending on the pattern selected by the regional authorities, facilitate development of the manufacturing activities and, consequently, growth of the economy and improvement of living standards. This entails development of competitiveness related to and supporting activities of the clusters. Transition from the cost-based competition to the most sustainable and sophisticated levels require availability of unique, good quality and competitive supplies. In this area a policy of supporting competition, development of smaller manufacturers of essential supplies for the leading companies will help. As we see from the recent examples (development of the supplier's network for Ford after creation of the assembly plant near St. Petersburg, investments by international companies in suppliers of bottles for the St. Petersburg-based beer manufacturers etc.) this process does not require the direct involvement of the government. Nevertheless efforts in lifting the restrictions and barriers, development of the new industrial and technology parks will add substantially to the development in this direction.

Although the general development trend is already clear, decisions on goals and priorities, methods and tools of government strategy and involvement will shape the future results. Focused efforts will help to save valuable resources and reach desirable results in a shorter time frame.

As we know from the experience of developed countries the government-business cooperation on the level of business associations, politicians, government officials and business leaders will make decision making easier. Nevertheless a high concentration of business power and influence in the few hands of new, private owners could be a great obstacle for the successful development owing to active lobbying by small interest groups for the decisions at the expense of the others. The recent conflicts of the state with some of Russia's mighty businessmen signal yet another major trend that will alter the business landscape in Russia. We believe that emergence of more players and diminishing power of the few groups will be characteristic of the near future.

There is a great inertia in the processes of structural change that Northwest Russia is undergoing at the moment. Among the most complicated obstacles for development of the competitive activities are traditions and cultures created in the long period of the command economy and dictatorship. These cultural obstacles seem to be especially difficult in the areas of services and quality controls. But even in such difficult areas openness of the economy and business to international trade will facilitate learning, better education will create new generations ready for the more efficient operations. In the medium term the level of language skills and proportion of professionals with appropriate skills (primarily in business and management) will increase owing to adjustments in the curriculum of the Russian universities. Nevertheless this change will be more profound if the joint efforts of neighbouring countries are increased.

Development of sustainable competitive advantages is a demanding and complicated process. It is also a key to a prosperous and successful future for the people living in the region in question. In our study we highlighted a long list of matters essential to achieving the desired results of rapid economic growth, increasing of the industrial activities marked by high value added, improving innovation and training. As it was stressed already we are in the beginning of this long journey. We believe that the present study will add its own important input for making the way shorter and easier.

References

Non-Russian

1. Abramovitz M. (1990). The Catch-up Factor in Post-War Economic Growth. Economic Inquiry, Vol. 28, January, pp 1-18.
2. Aghion, P. & P. Howitt (1998). Endogenous Growth Theory. MIT Press, Cambridge, Massachusetts.
3. Alho, K. (ed.) (2000). Economics of the Northern Dimension. ETLA, Taloustieto Oy, Helsinki.
4. Ali-Yrkkö, J. (2001), Nokia's Network - Gaining Competitiveness from Cooperation. ETLA, Taloustieto Oy, Helsinki.
5. Asheim, B.T. & Isaksen, A. (1997), Location, Agglomeration, and Innovation: Towards Regional Innovation Systems in Norway? European Planning Studies, Vol. 5, No. 3, pp. 299-330.
6. Averin, A. & Dudarev, G. (2003). Busy Lines, Hectic Programming/ Competitive Analysis of the Northwest Russian ICT Cluster. ETLA, Taloustieto Oy, Helsinki.
7. Barney, J. & Griffin, R. (1992). The Management of Organizations: Strategy, Structure, and Behavior. Houghton Mifflin: Boston, MA.
8. Becattini, G. (2000). Il Distretto Industriale: Un Nuovo Modo di Interpretare il Cambiamento Economico. Turin: Rosenberg & Sellier.
9. Boltramovich, S., Dudarev, G. & Gorelov, V. (2003). The Melting Iron Curtain/Competitive Analysis of the Northwest Russian Metal Cluster. ETLA, Taloustieto Oy, Helsinki.
10. Brezis, E. & Krugman, P. (1997). Technology and the Life Cycles of Cities. Journal of Economic Growth 2: 369-83.
11. Brown, A.N. & Brown, J.D. (1998). Does Market Structure Matter? New Evidence from Russia. centre for Economic Policy Research, Discussion Papers, No.1946.
12. Cockburn, I. M., Henderson, R.M. & Stern, S. (2000). Untangling the Origins of Competitive Advantage. Strategic Management Journal, No. 21, pp. 1123-1145.
13. Competitiveness of Russian Forest Industry (2002). Jaakko Pőyry Consulting Oy.
14. Dahmen, E. (1988). Development Blocks in Industrial Economics. Scandinavian Economic History Review, 36, pp. 3-14.
15. DeVries, J. (1984). European Urbanization 1500-1800. Cambridge, MA: Harvard University Press.

16. Dudarev, G. (1999). The Role of Technology in Shaping the Energy Future in Russia. ETLA, Discussion Papers, Helsinki.

17. Dudarev, G., Boltramovich, S. & Efremov, D. (2002). From Russian Forests to World Markets/Competitive Analysis of the Northwest Russian Forest Cluster. ETLA, Taloustieto Oy, Helsinki.

18. Dudarev, G., Hernesniemi, H., & Filippov, P. (2002). Emerging Clusters of the Northern Dimension/Competitive Analysis of Northwest Russia. ETLA, Taloustieto Oy, Helsinki.

19. Dudarev, G., Sevenard, K., Prigara, P., Filippov, P. & Hernesniemi, H. (2000). Potential Competitiveness of Saint Petersburg's Industries. ETLA, Discussion Papers, Helsinki.

20. Dudarev, G. & Zverev, M. (1999). Energy Sector in Russia: Economic and Business Outlook. ETLA, Discussion Papers, Helsinki.

21. Dunning, J.H. (1993). Internationalizing Porter's Diamond. Management International Review, Vol. 33, No. 2, pp. 7-15.

22. Dyer, J.H. (1996). Specialized Supplier Networks as a Source of Competitive Advantage: Evidence from the Auto Industry. Strategic Management Journal, No. 17, pp. 271-292.

23. Enright, M. J. (2000). Survey on the Characterization of Regional Clusters. University of Hong Kong, Working Paper.

24. Feser, E.J. (1998a). Enterprises, External Economies, and Economic Development. Journal of Planning Literature, Vol. 12, No. 3, pp. 283-302.

25. Feser, E.J. (1998b). Old and New Theories of Industrial Clusters. In Steiner, M. (ed.), Clusters and Regional Specialization. London, Pion Ltd, pp. 18-40.

26. Filippov, P., Dudarev, G. & Osipov, A. (2003). Energy^3: Raw Materials, Production, Technology/Competitive Analysis of the Northwest Russian Energy Cluster. ETLA, Taloustieto Oy, Helsinki.

27. Fishlow, A. (1965). American Railroads and the Transformation of the Antebellum Economy. Cambridge, MA: Harvard University Press.

28. Fujita, M., Krugman P. & Venables A. J. (1999). The spatial economy; cities, regions and international trade, MIT press Cambridge MA.

29. Gas and Electricity in the Baltic Sea Region (2001). Baltic Gas, BALTREL.

30. Hall, P. (1998). Cities in Civilization. Oxford: Blackwell.

31. Harrison, B. (1992). Industrial Districts: Old Wine in New Bottles? Regional Studies, Vol. 26, No. 5, pp. 469-483.

32. Hazley, C. J. (2000). Forest-Based and Related Industries of the European Union - Industrial Districts, Clusters and Agglomerations. ETLA, Taloustieto Oy, Helsinki.

33. Henderson, J. V. (1997). Medium-sized cities. Regional Science and Urban Economics 27: 583-612.

34. Hernesniemi, H., Kymäläinen, P., Mäkelä, P., Rautkylä-Willey, R. & Valtakari, M. (2001). Suomen avainklusterit ja niiden tulevaisuus. ETLA, Helsinki.

35. Hernesniemi, H., Lammi, M. & Ylä-Anttila, P. (1996). Advantage Finland - The Future of Finnish Industries. ETLA, Taloustieto Oy, Helsinki.

36. Holmes, J. (1992). The Organization and Location Structure of Production Sub-contracting. In Scott, M. & Storper, A.J. (eds.), Pathways to Industrialization and Regional Development. London, Routledge, pp. 80-106.

37. International Energy Agency (2001). Needs for Renewables, Developing a New Generation of Sustainable Energy Technologies. Paris.

38. International Energy Agency (2002). Russian Energy Policy. Paris.

39. Isaksen, A. (1997). Regional Clusters and Competitiveness: The Norwegian Case. European Planning Studies, Vol. 5, No. 1, pp. 65-76.

40. J'son & Partners (2000). Russia: Telecom Market Potential and Economic Expectations.

41. Jacobs, D. & de Man, A.-P. (1996). Clusters, Industrial Policy and Firm Strategy: A Menu Approach. Technology Analysis and Strategic Management, Vol. 8, No.4, pp. 425-437.

42. Jacobs, J. (1969). The Economy of Cities. New York: Random House.

43. Kaldor, Nickolas (1963). "Capital Accumulation and Economic Growth," in Friedrich A. Lutz and Douglas C. Hague, eds., Proceedings of a Conference Held by the International Economics Association, London, Macmillan.

44. Krugman, P. (1995). Development, Geography and Economic Theory. Cambridge, MA.

45. Krugman, P. (1996). The Self-organizing Economy. Cambridge, MA.

46. Kuznets, Simon (1973). "Modern Economic Growth: Findings and Reflections," American Economic Review, 63, 3 (June), 247-258.

47. Kuznets, Simon (1981). "Modern economic Growth and the Less Developed Countries," Conference on Experiences and Lessons of Economic Development in Taiwan, Taipei, The Institute of economics, Academia Seneca.

48. Learner, E. & Storper, M. (2001). The Economic Geography of the Internet Age. Journal of International Business Studies (December), and NBER Working Paper no. W8450.

49. Liuhto, K. & Jumpponen J. (2002). Where is My Lawn? Russian Investors Looking for Greener Grass Abroad. In Кузнецова Н.П., Сутырин С.Ф. (ред.) Основные тенденции развития мировой экономики:

контуры нового тысячелетия. Санкт-Петербургский государственный университет.

50. Marshall, A. (1919). Principles of economics. London: Macmillan, (8th ed.).
51. McKinsey Global Institute (2000), Unlocking Economic Growth in Russia.
52. Medvedev, A. (2000). Economic Geography of the Russian Federation: Business Profile of Russian Regions. South Carelia Polytechnic Publications.
53. Medvedev, A. (2001). International Management: Doing Business Operations in Russia. South Carelia Polytechnic Publications.
54. Myllyntaus, T. (1991). Electrifying Finland/The Transfer of a New Technology into a Late Industrializing Economy. ETLA, Helsinki.
55. Nelson, R. (1993). National Innovation Systems: A Comparative Study. New York.
56. Nelson, R. & Winter, S.(1982), An Evolutionary Theory of Economic Change. Cambridge, MA.
57. OECD (1999). Boosting Innovations/Cluster Approach.
58. OECD (1998). Science, Technology and Industry Outlook. Paris.
59. OECD (1998). Technology, Productivity and Job Creation: Best Policy Practices. Paris.
60. OECD (1997-2001). International Trade by Commodities Statistics (ITCS).
61. Ohmae, K. (1995). The End of Nation State: The Rise of Regional Economies. New York.
62. Paija, L. (2001). Finnish ICT Cluster in the Digital Economy. ETLA, Taloustieto Oy, Helsinki.
63. Park, S.O. & Markusen, A. (1995). Generalizing New Industrial Districts: A Theoretical Agenda and an Application from a Non-Western Economy. Environment and Planning, Vol. 27, No. 1, pp. 81-104.
64. Penttinen, R. (1994). Summary of the Critique on Porter's Diamond Model - Porter's Diamond Model Modified to Suit the Finnish Paper and Board Machine Industry. ETLA, Discussion Papers, No. 462.
65. Porter, M. E. (2001). Clusters of innovation: regional foundations of competitiveness. Washington, DC: US Council on Competitiveness.
66. Porter, M. (1990). The Competitive Advantage of Nations, Houndmills, London.
67. Pred, A. (1966). The Spatial Dynamics of Urban Growth in the United States, 1800-1914. Cambridge, MA: Harvard University Press.

68. Pred, A. (1974). Urban Growth and the Circulation of Information, 1790-1840. Cambridge, MA: Harvard University Press.

69. Reunala, A., Tikkanen, I. & Asvik, E. (1999) (eds.). The Green Kingdom/ Finland's Forest Cluster. Otava Publishing Ltd, Helsinki.

70. Roelandt, T. & Den Hertog, P. (1999). Boosting Innovation: The Cluster Approach. OECD, Paris.

71. Romer, J (1990). Endogenous Technological Change. Journal of Political Economy, Vol. 98. pp. 71-102.

72. Rosenfeld, S. (1996). United States: Business Clusters. IN: OECD. Networks of Enterprises and Local Development. Paris: Organisation for Economic Cooperation and Development, Territorial Development Service.

73. Solow, Robert M., (1956) "A Contribution to the Theory of Economic Growth", Quarterly Journal of Economics, 70, 1 (February), 65-94.

74. Steiner, M. (1998). Clusters and Regional Specialization. Pion Ltd., London.

75. Storper, M. (1997). The Regional World/Territorial Developments in a Global Economy. New York & London.

76. Storper, M. & Walker, R. (1989). The Capitalist Imperative: Territory, Technology and Industrial Growth. Oxford: Blackwell.

77. Storper, M. & Scott, A. (1989). The Geographical Foundations and Social Regulation of Flexible Production Complexes. In Wolsch, J. & Dear, M. (eds.), The Power of Geography/How Territory Shapes Social Life. London, Unwin Hyman, pp. 21-40.

78. Swan, Trevor W., (1956). "Economic Growth and Capital Accumulation,"Economic Record, 32 (November), 334-361.

79. Teafold, J. (1986). The Twentieth Century American City: Problem, Promise and Reality. Baltimore: Johns Hopkins University Press.

Russian

80. Абалкин Л.И. (ред.) (1999). Россия - 2015: оптимистический сценарий. Москва.

81. Андерсон А.Е., Андерсон Д.Е. (ред.) (2001). Ворота в глобальную экономику. Москва.

82. Госкомстат Республики Коми (2000). Лесная промышленность регионов Северо-Западного федерального округа и Кировской области.

83. Госкомстат Республики Коми (2000). Топливно-энергетический комплекс регионов Северо-Западного федерального округа и Кировской области.

84. Госкомстат России (2001). Охрана окружающей среды в России. Москва.

85. Госкомстат России (2002). Промышленность России. Москва.

86. Госкомстат России (2000-2002). Регионы России. Москва.

87. Госкомстат России (1999-2002). Российский Статистический Ежегодник. Москва.

88. Госкомстат России (2002). Россия в цифрах. Москва.

89. Госкомстат России (2002). Россия и страны мира. Москва.

90. Госкомстат России (2003). Социально-экономическое положение Северо-Западного федерального округа в 2002 году. Москва.

91. Госкомстат России (1999). Транспорт и связь в России. Москва.

92. Государственный таможенный комитет Российской Федерации (2001). Таможенная статистика внешней торговли Российской Федерации. Москва.

93. Гранберг А.Г. (ред.) (2000). Региональное развитие: опыт России и Европейского Союза. Москва.

94. Деловой Петербург. Ежедневная газета Северо-Западного региона, 2000-2003 гг.

95. Кастеллс М., Химанен П. (2002). Информационное общество и государство благосостояния: Финская модель. Москва.

96. Колосовский Н.Н. (1969). Теория экономического районирования. Москва.

97. Лаврищев А.Н. (1986). Экономическая география СССР. Москва.

98. Мастепанов А.М. (2001). Топливно-энергетический комплекс России на рубеже веков - состояние, проблемы и перспективы развития. Москва.

99. Межеловский Н.В., Смыслов А.А. (ред.) (2001) Недра России/в 2-х томах. Санкт-Петербург-Москва.

100. Министерство природных ресурсов Российской Федерации (2001). О состоянии окружающей среды в Российской Федерации. Москва.

101. Министерство энергетики Российской Федерации (2001). Основные положения энергетической стратегии России на период до 2020 года. Москва.

102. Морские порты России (2001). Москва.

103. НИПИЭИлеспром (2002). Лесной комплекс Российской Федерации в 2001 г. Москва.

104. Партнерство-XXI век (2003). Россия - Германия. Москва.

105. Партнерство-XXI век (2003). Россия - Финляндия/Технологии лидерства: финская модель. Москва.

106. Партнерство-XXI век (2003). 300 лет Санкт-Петербургу/Самый европейский город России. Москва.

107. Портер М. (2000). Конкуренция. Санкт-Петербург - Москва - Киев.

108. Рыбаков Ф.Ф. (2000). Экономика Санкт-Петербурга: прошлое, настоящее, будущее. Санкт-Петербург.

109. Рыбаков Ф. Ф., Чистобаев А.И., Шконда К.В. (2002). Северо-Запад России: Тернистый Путь к Рынку. Санкт-Петербург.

110. Северо-Западная Медиа группа (2002). Петербург телеком/ энциклопедия связи. Санкт-Петербург.

111. Центр стратегических разработок (2000). Анализ мирового опыта реформирования электроэнергетики. Москва.

112. Центр стратегических разработок (2002). Материалы семинара «Конкурентоспособность российской лесной промышленности». Москва.

113. Эклунд К. (1991). Эффективная экономика - шведская модель. Москва.

114. Эксперт. Аналитический журнал, 2000-2003 гг.

115. Эксперт/Северо-Запад. Аналитический журнал, 2000-2003 гг.

Internet

116. Association of Mining and Metallurgy Companies of Russia, www.ampoc.ru

117. Association for Investor's Rights Protection, www.corp-gov.ru

118. CIA World Factbook, www.cia.gov/cia/publications/factbook

119. CNews, Hi-Tech Information and Analytical Portal, www.cnews.ru

120. Coal Industry Portal, www.rosugol.ru

121. ComNews, Information and Analytical Portal about Communications, www.comnews.ru

122. Fishery business of Northwest Russia, Information portal, www. fishnw.ru

123. Food Industry, Publishing House, www.foodprom.ru

124. Forest Companies Portal, www.drevesina.com

125. Forest Industry Information Portal, www.lesprom.ru

126. Forestry Information Portal, www.forest.ru

127. Gazprom, official site, www.gasprom.ru

128. IDC, ICT Analytical and Consulting Agency, www.idc.com

129. InfoBusiness, IT Information and Analytical Portal, www.infobusiness.ru
130. Institute for the Economy in Transition, www.iet.ru
131. International Iron & Steel Institute. www.worldsteel.org
132. Internord Kompass, Business Information Portal, www.internord.ru
133. Neftegaz, Oil & Gas Information and Analytical Portal, www.neftegaz.ru
134. RAO UES of Russia, official site, www.rao-ees.ru
135. Russia/Oil, Oil & Gas Information and Analytical Portal, www.rusoil.ru
136. RosBusinessConsulting, Information and Analytical Agency, www.rbc.ru
137. Sotovik, Russian Telecom Information and Analytical Agency, www. sotovik.ru