

Alexander Granberg, Council for the Study of Productive Forces, Russian Academy of sciences, Moscow, Russia, *Alexander Pelyasov*, Council for the Study of Productive Forces, Professor, Moscow, Russia

Russian regions on the route from industrial to network (Russian realities and experience of the EU regions)

This work reflects the results from the cycle of research done in 2001-2004 for 20 Russian regions. At the end of it, it was possible to generalize the regularities of the initial stage of transition which were characteristic for the Russian regions on their move from industrial to network model of economic development; compare Russian experience with EU core regions experience (the latter has started this way 20-25 years earlier, in mid-seventies). Typical features of this period are the increasing economic role of support sector and knowledge economy in the regional development, the increasing role of the mobile assets and footloose firms, gradual transformation of the industrial complexes into economic clusters, changes in typology of infrastructural networks (from vertical hierarchy to horizontal grid), etc. Regional authorities in every region abandon previous style of administrative commands and shift to economic coordination with the actors of the regional economy. There are expectations in the Russian regions that this transition will help to overcome economic and environmental limitations of the industrial paradigm which are evident in late Soviet period. The speed, intensity, and vulnerability of this transition are different among northern, central, and southern regions of Russia. Old economic ranks of the Russian regions of the industrial period have changed essentially. Cities-service centers have increased their importance; on the other side, role of big and small industrial cities and settlements has universally decreased. The most painful transformation is characteristic for the big industrial regions like Kuzbass (analogue of the German Ruhr). On the other side oil and gas regions of Russia are passing this transformation in the easier way. But each Russian region has its own peculiarities in economy and social sphere which determine the trajectory and speed of transition.

Introduction

During the last century Russian economy has experienced agroindustrial and industrial-service transitions. Russian fundamental specificity is that both transitions of the national economy happened to realize in the period of radical changes of political institutions and the whole scheme of property rights. In the other European countries such dramatic, leading to revolution, combination of technological and institutional (that is, economic and political) changes were not characteristic. Under the Soviet era bolsheviks had to complete industrial transformation of the national economy not finished by the tsar government. Similarly now under the new Russia era Russian government has to solve concrete problems of post-industrial economic transition, previously only mentioned and stressed by the Soviet authorities. Now Russia is experiencing crisis of fordism with 20-30 years time lag from the developed European countries.

This reality demands new view on the development of the Russian regions under the period of radical economic reform, new structuring of the Russian regions, above traditional separation into northern and southern, European and Asian, central and far-flung, resource-dependent and processing regions. Resource northern region can be close to network (post-fordist), on the other hand, European region with industrial processing factories can be typical "fordist" region.

During the first years of the radical economic reform all the economic agents were too preoccupied with the ownership issue (how to privatize national assets) and therefore underlooked gradual technological transition, after the long Soviet inertial phase, from the industrial to network society. Meanwhile a lot of regional problems we were investigating in the 1990-s, for instance, problem of huge interregional disparities, in reality may sound like differences in the rate of adaptation of the previously industrial regions into service ones.

In this paper we are voting for the combined look at the organizational (in other words, institutional) and technological changes in the Russian regions. We think that the majority of radical structural shifts in the regional economy can be counted as technological and organizational simultaneously. On the example of evolution of centralized regions into network we can trace this “co-production”. Such approach is not something new for the national economy. We can only mention the names of Karl Marx, Douglas North, Manuel Castels whose efforts were devoted to unite organizational and technological approaches in one political economic. But for the regions, in spite of their coming importance in the era of globalization, such attempts are limited.

Regions of research were participants of our previous investigation in the 2001-2004 done under the contracts with regional authorities and Federal Ministry of economy and trade. That is, five regions from the central European Russia – Vladimir, Moscow, Ryazan, Smolensk, Tula Oblasts; two regions from the North-Western part of Russia – Republic of Komi and Kaliningrad Oblast; six regions from the Volga River basin – Republics of Marii El, Mordoviya, Chuvash, Orenburg, Penza, Samara Oblasts; four regions from Siberian Russia – Khanty-Mansiisk autonomous okrug, Republics of Buryatiya, Tyva, Kemerovo Oblast; three regions from the Russian Far East – Jewish autonomous and Sakhalin Oblasts, Republic of Sakha (Yakutiya). During the previous four-year period of studies we have determined the role of institutional factors in the economic development of the Russian regions under the transition from the plan to market economy.

In this paper we first reveal some important features of the regional post-industrial transformation. Then we try to describe two kinds of contemporary Russian regions as centralized and network (that is, more advanced on the route of post-industrial transition and less advanced). Finally we trace the transition route for the most industrialized region of the Russian Kuzbass with analogies from German Ruhr.

1. Overcoming industrialism in the Russian regions

A lot of authors pay contribution to the topic of so-called post-fordist transition. Describing it they usually mentioned that by the end of the 1960s, the first signs of disintegration of the Fordist era were visible in the Western countries. Those days in the developed countries a new model of corporate organization in industry seemed to emerge. Vertical disintegration seemed to become a driving force in the reshaping of the space economy. This mode of business organization was relatively new in the West, but was typical of the Japanese industrial territorial organization.

The main enterprise controls only the final product and the key technology. Activities which are not strategic to the production process itself together with the production of parts and components are subcontracted. In this way there emerges a pyramidally organized interenterprise, interplant structure, in which a network of small and medium sized enterprises supports the activities in the main plant or plants. This system tends to a spatial clustering of functionally different and organizationally independent enterprises which exhibit close intraregional forward and backward linkages.

This new system created agglomeration advantages in which spatial proximity of interdependent plants is essential to a continuous flow of parts through autonomised phases of production. Technology exchange, product variations and adaptation to fast changing market circumstances via a flexible technological and organizational structure can be introduced relatively easily.

Many rapidly growing producer services had their place in the vertical disintegration model too. Those services which serve the management of day to day operations in production and which assure distributive functions for production and allocation of inputs and outputs, are part and parcel of this pattern of spatial interdependence. In general the location of producer

services has become less dependent on industrial location. Many of the expanding producer services are knowledge based and communication technology intensive¹.

Russian regions as their Western partners two-three decades ago are passing their route of post-fordist transformation. It means rise of new leaders of service and petroleum economy and fall of old leaders of industrial economy. The whole previous order in the team of the Russian regions is changing now. Some are developing very rapidly and the others are stagnating. The interesting thing is that the more successful under the Soviet era regions as a rule are not successful any more and are passing through various difficulties now.

Let us mention few indicators of this post-industrial dynamics from the centralized region to the network. First it is evolution in the topology of the spatial communication networks from the linear to the grid. Networks in their topology and nature materialize economic model, facilitate the means of communication that dominate in the society at the moment. The definite model of regional economic development (like fordist or post-fordist) corresponds to the definite type of communication networks.

Under the early industrial era railway networks played the dominant role in the cargo transportation. Under the late industrial era road network has increased its importance for the truck transportation. Under the post-industrial era digital networks are increasing their role as means of communication and information exchange. Therefore among regions of our research those with the leading positions in the telephone and Internet rates can be considered as more advanced on the route from industrial to network (table 1).

Table 1

Indicators of regional network dynamics

Regions under research (2001-2004)	Telephones in the cities per 1000 urban residents				Place in the Russian Federation, 2002	% enterprises utilizing electronic mail, 2003	% enterprises utilizing Internet, 2003	Evaluation
	1990	2002	% 2002/1990					
Vladimir Oblast	90,7	195,9	2,16	53	40,9	34,5	++	
Moscow Oblast	116,6	221,5	1,90	27	36,8	30,4	++	
Ryazan Oblast	97,8	213,4	2,18	34	41,3	34,0	++	
Smolensk Oblast	115,3	235,8	2,05	18	40,3	26,7	++	
Tula Oblast	117,4	241,1	2,05	15	37,3	26,6	++	
Republic of Komi	109,1	262,2	2,40	5	42,9	34,9	+++	
Kaliningrad Oblast	89,2	196,1	2,20	52	38,9	34,9	++	
Republic of Marii El	92,1	253,5	2,75	10	54,3	34,7	+++	
Republic of Mordoviya	94,7	227,0	2,40	24	41,0	31,0	++	
Chuvash Republic	97,1	202,6	2,09	47	45,4	30,0	++	
Orenburg Oblast	92,1	200,3	2,17	50	48,9	38,7	++	
Penza Oblast	79,4	201,0	2,53	49	47,4	30,5	++	
Samara Oblast	93,5	209,8	2,24	38	51,1	47,7	++	
Khanty-Mansiisk Okrug	48,8	247,5	5,07	13	54,5	50,8	+++	
Republic of Buryatiya	65,6	141,4	2,16	74	41,3	33,2	++	
Republic of Tyva	83,3	139,4	1,67	76	27,2	22,6	+	
Kemerovo Oblast	83,4	171,4	2,06	67	47,5	39,2	++	

¹ Moulaert Frank, Swyngedouw Erik, Wilson Patricia Spatial Responses to Fordist and Post-fordist Accumulation and Regulation. Papers of the Regional Science Association. 1988. Vol. 64. Pp. 11-23. P. 12, 15,16.

Republic of Sakha (Yakutiya)	99,2	210,1	2,12	37	46,4	44,6	++
Jewish Autonomous Oblast	78,1	161,9	2,07	69	44,8	43,9	++
Sakhalin Oblast	104,2	209,2	2,01	39	49,7	34,3	++

+ the least advanced region

++ advanced regions

+++ more advanced regions

Each economic system reproduces itself in the shape of key structure. This structure plays the role of values keeper of the whole economic system. Fordist factory was such entity under the industrial era. University can consider such entity for the post-industrial era. Russian regions during the transition period are experiencing dissipation of the industrial huge factories, breaking into pieces of small enterprises, and gathering strength of the local Universities as new factories of post-industrial economy. Therefore we can count indicators of the University students share in the population (and the dynamics of this indicator) as reliable to judge about the progress of the region on its way from the industrial to network (table 2).

Table 2

Students of the Universities, share per 10000 residents

Regions under research (2001-2004)	Total, 2002/03	Place in the Russian Federation, 2002	Evaluation
Vladimir Oblast	273	61	+
Moscow Oblast	203	77	+
Ryazan Oblast	314	41	++
Smolensk Oblast	265	65	+
Tula Oblast	226	76	+
Republic of Komi	282	59	++
Kaliningrad Oblast	309	45	++
Republic of Marii El	374	29	++
Republic of Mordoviya	410	21	++
Chuvash Republic	437	12	+++
Orenburg Oblast	317	40	++
Penza Oblast	307	48	++
Samara Oblast	473	6	+++
Khanty-Mansiisk Okrug	206	76	+
Republic of Buryatiya	272	62	+
Republic of Tyva	151	80	+
Kemerovo Oblast	324	38	++
Republic of Sakha (Yakutiya)	386	28	++
Jewish Autonomous Oblast	311	43	++
Sakhalin Oblast	246	72	+

+ less advanced regions

++ advanced regions

+++ more advanced regions

During the transition to the service economy the whole structure of the regional economy is changing. Centralized industrial economy was more friendly for men and their occupations. On the other hand decentralized service economy is open for women which can receive equal rights in occupations only in it. The industries and economic activities which did not have full “civil rights” under the industrial economy unexpectedly are going upward as critically important. For instance, nomadic cattle breeding was universally replaced by the stationary in the late Soviet era. But under the conditions of the new economy potential of the nomadic (footloose) activities can be fully utilized.

Regions with coal, ore-processing capital-intensive factories with integrated assets are less successful in the speed of organizational and technological transformation than northern regions with reduced resource economy without processing plant and big service centers of Russia. As a rule economic dependency upon the activities with a spatially fixed character² are decreasing throughout the Russian regions.

Transformation of the external structure of the regional economy from the heavy to the mobile and light activities is combined with the internal transformation inside the business processes of old industrial activities. Information and communication technologies help to reinvent old hierarchal nature of these activities into network. Industrial era was characterized by the concentration of economic assets in the monoprofile settlements, centralized political administration and economic management. On the other hand post-industrial era in the Russian regions is characterized by the deconcentration of several activities, outsourcing (subcontracting) of some activities and horizontal links in political and economic management.

Under the late Soviet era mobile artels of gold miners, builders, physicians in the regions were exception, not rule. But under the contemporary period, in general, degree of mobility and flexibility of the regional economy has been increased and are increasing constantly (table 3).

Table 3

Mobility of human resources (number of private cars per 1000 residents)

Regions under research (2001-2004)	2002	Place in the Russian Federation, 2002	Evaluation
Vladimir Oblast	115,2	57	+
Moscow Oblast	203,2	4	+++
Ryazan Oblast	131,4	35	++
Smolensk Oblast	108,7	63	+
Tula Oblast	128,3	39	++
Republic of Komi	115,5	55	+
Kaliningrad Oblast	220,8	2	+++
Republic of Marii El	91,6	72	+
Republic of Mordoviya	92,0	71	+
Chuvash Republic	70,7	76	+
Orenburg Oblast	158,4	16	+++
Penza Oblast	108,8	62	+
Samara Oblast	179,4	9	+++
Khanty-Mansiisk Okrug	224,9	1	+++
Republic of Buryatiya	87,8	74	+
Republic of Tyva	95,0	70	+
Kemerovo Oblast	120,3	50	+
Republic of Sakha (Yakutiya)	120,8	49	++

² Wiberg Ulf Medium-sized cities and renewal strategies. Papers in Regional Science. 1993. Vol. 72. № 2. Pp. 135-143. P. 135.

Jewish Autonomous Oblast	133,1	33	++
Sakhalin Oblast	185,4	8	+++

+ less advanced regions

++advanced regions

+++more advanced regions

Economy of scale was characteristic for the late Soviet industrial enterprises. Now economy of diversification is gradually replacing it, first in the oblasts, and then in the Republics of the Central Russia. This shift from one effect to another is provided by the small and medium enterprises created under the umbrella of big enterprises and independent ones.

There is correspondence between the model of regional authorities and the type of economic coordination inside the dominant enterprises in the region. It is strange to expect decentralized model in the region with strong industrial technologically hierarchical combines. As a rule in the regions with strong “fordist” structure of the economy there are very centralized, in the manner of administrative commands, style of regional government. All the strategic decisions are done on the level of the Governor/President. Under the periods of force-majeures this model functions efficiently. But at the period of gradual transition to the knowledge economy it fails to solve new problems as they demand concrete and very detailed information from the lowest level of the economy. Therefore trend to more decentralized model of regional government helps to catch much more information to take into consideration in the decision-making process. In this model right for economic decisions has not only the President/Governor but regional departments and ministries as well. This decentralization helps a lot in the communication between authorities and small business associations, in the capacity building, in the support of regional innovation process, etc. Weakness of this model is time-consuming process of coordination between all regional economic actors. Building communication networks takes a lot of time. But as Russian regions are moving towards the network model there are more and more of them to choose decentralized model of the regional government.

Under the industrial era industrial complexes were typical form of spatial concentration of economic activity. In the Soviet Union they were called territorial industrial complexes. A lot of works of our colleagues were devoted to this phenomenon. These complexes as the products of industrial era were highly hierarchical, closely connected with centralized region of their location. Now new forms of concentration of economic activity more adequate to the realities of the network society emerge in the Russian regions. Economic clusters are not simply new term for the old industrial complexes but new model of gathering of interrelated economic pieces in the localized space. The ideology of complex was - being inseparable, indivisible and immobile. On the other hand the ideology of the economic cluster is – combine economic nodes in the process of constant economic communication between regional stakeholders into a network. Therefore cluster usually consists of separate mobile modules.

2. Two types of the Russian regions – centralized and network

Our point is that above classical separation of the Russian regions into resource- non-resource based, northern and southern, European and Asian to stress their success on the way of post-industrial transformation we should use centralized-network dichotomy. This idea was stated in the Shchedrovitskii and Knyaguinin article³. We are sure that each economic era creates its own structuring. It is impossible to think that previous conflicts and contradictions will be entirely inherited in the new economic era. As a rule they somehow change.

The main watershed of the industrial centralized region was urban-rural dichotomy that reflected the previous agroindustrial transition. The main watershed of the network region is

³ Shchedrovitskii P.G., Knyaguinin V.N. Territorial dimension of the economic policy in Russia: who will pay for the globalization costs// Contemporary national economic policy of Russia. 2004. Vol. 2.

“inside or out of the network”, that is, accessibility problems. In place of “urban-rural” we meet “center-periferia” dichotomy. Centralized region solves the challenges of internal gaps (breaks) by the resource mobilization from the regional center which realize planning and programming procedures alone. On the other hand network region solves the challenges of internal breaks through the network coordinating mechanisms between all the actors of the regional economy. In this model regional authorities do not have monopoly in decision-making process. But this model presupposes that the more *striking* economic and social contrasts have been already overcome. Network society dislikes strong internal contrasts and better are built on the flat and smooth basement.

First model of the region was realized in the era of industrialization and is entirely connected with domination of the big enterprises playing the role of the place of work for the majority of regional population, the major source of revenues for the regional budget. Second model was typical for the post-industrial era with increasing role of small business and service economy, decentralized economic activities of various kinds like alimentary, art and crafts, tourism.

In the centralized regions major internal contract in the regional government and in the industrial complex is vertical contract (type of corporate management and type of regional management). Philosophy of vertical technological chains and philosophy of administrative commands - it is one philosophy, one atmosphere of hierarchal society and centralized region.

On the other hand in the decentralized regions major internal contract is horizontal contract. As a rule regional economic system with horizontal links is more complicated than with vertical links. It demands very sophisticated information processing and gathering mechanisms, numerous structures capable to collect knowledge and embed it in the decision-making process - like councils, associations, task forces, etc.

Centralized industrial regions specialize in the production of means of production and not final goods for personal consumption. On the other hand network regions are ready to fulfill the final demand of the separate consumer.

Under the vertical contract sharing of knowledge is usually of formal character. Under the horizontal contract digital network communication and sharing of formal knowledge are reinforced by the face to face communication and sharing of tacit knowledge⁴. Not surprisingly that network regions as a rule are more innovative than centralized.

Centralized regions function from above, and decentralized regions – from below, from the bottom up. In the first model fixed elements dominate in the economic system. In the second model flexible elements dominate. In the first model engineer, technical thought prevail, effect of economy of scale. In the second model humanitarian, thought on life sciences and effect of economy of scope prevail. General features and concrete indicators for each model are given in the table 4.

Table 4

Centralized and network regions

	Centralized	Network
Economic base	Mass standard production. Monoprofile regional economy. Production of means of production dominates.	Diversified flexible production for concrete groups of consumers. Production of services and final goods dominates.
Localized economic structures	Centralized territorial industrial complexes	Decentralized economic clusters
Assets	Immobile, indivisible, heavy	Mobile, divisible, light
Principal dichotomy	Urban-rural	Center-periferia (accessibility)
Major economic effect	Economy of scale	Economy of scope

⁴ Polanyi K. Tacit knowledge. <http://www.sveiby.com/Portals/0/articles/Polanyi.html#Main%20Theses>.

Dominating organizational and technological contract	Vertical, hierarchal	Horizontal	
Telephone supply per 1000 urban residents	Less than 210	More than 210	
% enterprises with electronic mail	Less than 50	More than 50	
% enterprises using Internet	Less than 45	More than 45	
Students of the Universities, per 10000 residents	Less than 400	More than 400	
Personal mobility, cars per 1000 residents	Less than 180-200	More than 180-200	
Regions from our list	Republic of Buryatiya, Republic of Tyva, Tula Oblast, Kemerovo Oblast, Penza Oblast	In between Vladimir Oblast, Moscow Oblast, Ryazan Oblast, Smolensk Oblast, Republic of Komi, Kaliningrad Oblast, Republic of Marii El, Republic of Mordoviya, Chuvash Republic, Orenburg Oblast, Jewish Autonomous Oblast, Sakhalin Oblast	Khanty-Mansiisk Autonomous Okrug, Samara Oblast, Republic of Sakha

3. Transformation of centralized regions to network: regional cases

But how do old industrial regions achieve their destination network point? What factors should be mentioned relating to this process? Each industrial region way to the network model is specific and is based on its peculiar features. Schemes of transformations can be numerous. In general we should stress the role of dissident elements inside the regional economy. Under the industrial era they were usually out of date but unexpectedly in the transition route they happen to be the most useful assistants of the regional economy. For instance, underdeveloped agricultural republics could under some circumstances get their chance for quick move towards the network model, missing hard phase of restructuring of industrial assets, which arise like barrier for the highly industrialized regions.

In Russia a lot of regions are the sphere of economic activities of the vertically integrated companies (VIC). Therefore their restructuring from the vertically integrated to the network model plays essential role in the total process of regional restructuring. Restructuring of Russian VIC is made possible with the help of outsourcing and by establishing new links with small and medium enterprises. As a rule, network companies diversify their economic activities in comparison with their VIC predecessors.

The state (the states in a federate system, the national state in a unitary nation) should be active in the restructuring process of old industrial regions through intensified use of the subsidy and tax exempt systems, implementing favorable (pre)retirement schemes, and setting up specialised agencies at the local level⁵.

To get more profound understanding of the shift of industrialized region into network it is useful to take the most difficult case of coal and steel region which is characteristic for the industrial economic era. We mean German Ruhr and Russian Kuzbass (Kemerovo Oblast) as typical old industrial regions. They both went through severe restructuring process. Ruhr has begun this process in late 1970-s, Russian Kuzbass in late 1990-s, 20 years after.

As H.Bomer wrote, during the last 25 years Ruhr, this coal and steel region, formerly the largest in Western Europe, has experienced total structural transformation of the economy. More than 500,000 jobs have been lost in the two basic industries. To capture with the drama of

⁵ Moulaert Frank, Swyngedouw Erik, Wilson Patricia Spatial Responses to Fordist and Post-fordist Accumulation and Regulation. Papers of the Regional Science Association. 1988. Vol. 64. Pp. 11-23. P. 17.

economic restructuring both defensive and offensive policies were implemented. Defensive strategy means socially controlled decline and modernization of both basic industries. Offensive policies mean five new universities, new infrastructure in the field of education, transport and housing, intensive inward investment activities. Since the 1980s, the phase of launching new clusters, like the software complex in the city of Dortmund or the logistics complex in Duisburg, has begun⁶. F.Bade clearly determined main features of Ruhr area before and after restructuring process (table 5).

Table 5

Characteristics of the Ruhr area before and after economic restructuring⁷

	Ruhr, 1970-s	Ruhr, 1990-s
Economic structure	Domination of large enterprises Mass production Several industrial sectors (coal and steel) Scientific research only at the large enterprises	Combination of big, medium and small enterprises Diversified structure of production of goods and services Scientific research at the big as well as small enterprises
Links	Vertical hierarchal relations between big and small enterprises	Horizontal and vertical relations, networks
Personnel	Not enough qualified, immobile, not ready to adapt to changes	Highly qualified, mobile and adaptive for changes
Knowledge infrastructure (for innovation activities)	Absent	Present
Centers of political influence	Corporate lobbies, local and regional political and trade unions	Small and medium business associations, civil society organizations, etc.
Innovative development	Lack of such development	First signs of creative atmosphere

Russian Kemerovo Oblast had coal and steel economy too. Since late 1990-s the region is in the process of hard restructuring. Its major features are: dissipation of the old huge industrial enterprises into small pieces of small and medium businesses; arriving of new corporate owners – Russian VIC in the coal mines and steel factories; essential role of women in the small enterprises (their share among SME employees is the biggest in the Russian regions); increasing role of business-orientated services like consulting, engineering, marketing and other. One of the first steps was the determination of the whole list of problem zones in the urban areas. Then promotion for the developers companies to regenerate them for the new purposes of the new economy.

Like Ruhr Kemerovo Oblast is looking for the new activities to attract as catalyst for the economy. For Ruhr it was Opel new factory located in Bohum in 1970-s and several Universities. In Kemerovo Oblast there are discussions on the new medical services location, new biopharmaceuticals enterprises. Until now, common people are not involved in the creative process of redevelopment of the old mines, old industrial places for new activities as it was typical in the Ruhr case. But in general mobility and dynamics of the old Kuzbass area has been increased in the last years owing to the regional authorities and small business efforts.

We expect that new local agencies of economic development, new centers for transfer of new technologies, new business-university networks will be created in Kuzbass. Transition to the

⁶ Bomer Hermann. Political Economy of Modernising old Industrial Areas and the Crisis of the New Economy – the Example of the Ruhr Area and the City of Dortmund. Paper presented to the 42nd European Regional Science Association Congress Dortmund, 27.-31.8.2002.

⁷ Bade, F.-J. (1999): Regionale Entwicklung der Erwerbstätigkeit 1997-2004. in: Mitteilungen aus der Arbeitsmarkt und Berufsforschung, Heft 4/1999. Nurnberg

network economy usually corresponds with the arising of numerous new structures aimed to stimulate economic agents' energy and creativity in search for new economic prospects.

Conclusions

1. Above traditional dichotomies “northern-southern”, “European-Asian”, export-internal oriented regions, one can distinguish centralized and network regions due to their advance in the route from industrial to post-industrial economy. Centralized and network regions have clear differences in their political organization, structure of the economy, type of economic coordination, economic assets; and indicators of mobility, development of digital networks and local University education.
2. Among contemporary 87 Russian regions, and 20 regions from the list of our research approximately 15% can be considered as network, 25% as totally centralized, and the rest 60% as being in between. Therefore problems of gradual transition of centralized and regions “in-between” from contemporary to network status can be recognized as critically important.
3. European industrial regions took the route of redevelopment to the network 20-30 years ago. Therefore their experience can be instructive for their Russian analogues in the economic space-time.

References

- Bade, F.-J. (1999): Regionale Entwicklung der Erwerbstätigkeit 1997-2004. in: Mitteilungen aus der Arbeitsmarkt und Berufsforschung, Heft 4/1999. Nürnberg.
- Bomer Hermann. Political Economy of Modernising old Industrial Areas and the Crisis of the New Economy – the Example of the Ruhr Area and the City of Dortmund. Paper presented to the 42nd European Regional Science Association Congress Dortmund, 27.-31.8. 2002.
- Moulaert Frank, Swyngedouw Erik, Wilson Patricia Spatial Responses to Fordist and Post-fordist Accumulation and Regulation. Papers of the Regional Science Association. 1988. Vol. 64. Pp. 11-23.
- Polanyi K. Tacit knowledge.
<http://www.sveiby.com/Portals/0/articles/Polanyi.html#Main%20Theses>
- Wiberg Ulf Medium-sized cities and renewal strategies. Papers in Regional Science. 1993. Vol. 72. № 2. Pp. 135-143.
- Shchedrovitskii P.G., Knyaguinin V.N. Territorial dimension of the economic policy in Russia: who will pay for the globalization costs// Contemporary national economic policy of Russia. 2004. Vol. 2. (in Russian).