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Development of the North 2.0: challenges of making a new theory *

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Abstract. It is proposed to create a new theory of economic development of the North on three primary sources — the Soviet development school, the European school of regional studies, the North American school of frontier studies. Each of these schools relies on a broad conceptual foundation (location of productive forces, endogenous economic growth, innovative search), the fusion of which is capable of radically and positively transforming the theory of modern time. Comparison of the nature of the development process today and in the Soviet times reveals significant differences: an increase in spatial and temporal irregularity (polarization), multiactorism, glocalization, and the role of the grassroots “design” level. Numerous projects of new development implemented in the Russian Arctic and the North have common features in the form of an experimental nature, pilot-clone schemes for saving on experience, a plurality of equal status supply and training bases, etc. Large resource corporations that lead the world are directing actors of the territorial structure of the process of new development, and it depends on the internal organizational and institutional structure of the company itself.

Keywords: *the North and the Arctic development, glocality, Soviet theory of colonization, frontier theory, endogenous economic growth.*

Introduction

The first approaches to a new theory of the economic development of the Arctic and North of Russia appeared in the 1990s. Even then, using the example of pioneer development of gold deposits in the Magadan area (primary Kubaki in the North-Evensk territory), it became evident that some other, new (compared to the previous state model) patterns of economic development operated there. However, some aspects were unclear to us at that time. What were the peculiarities of the new territorial development structures? What were the differences between the current pioneer area of development from the old ones? What new economic effects were acting there? How did the specific investment project of resource development form the general laws of economic growth? Now, almost 30 years after the transition to the state-corporate model of the Arctic and North development, we see an opportunity to generalize the new reality that has shaped more substantively and conceptually.

It was previously difficult to do because of objective reasons: the crisis of the 1990s confused the scientific community — Is it possible to keep the centuries-old research tradition of the Russian developmental school created by the efforts of historians, geographers, sociologists, demographers, economics? But now, after almost 30 years of the new Russian economy, we fill con-

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confidence that no reforms and political upheavals can cancel the underlying themes of studying the Russian space as being primarily mastered and developed by the efforts of millions of Russians. But this means that there is a social order for a new theory of development, and it must be implemented considering the new realities of the last three decades and the latest achievements of the world, domestic and regional science.

Three sources and three component parts of the new development theory

The fundamental task of creating a new theory of economic development can be solved by using three primary sources: The Soviet development school, the European school of regional science and the North American school of the frontier. Each of them provides a broad conceptual foundation that can enrich the new theory of development.

An outstanding achievement of the Soviet school was the ability to see the process of mastering as an integral part of a general operation of the new (industrial) distribution of the country's productive forces. The fact that the Soviet researchers used a comprehensive methodology (we are talking primarily about the famous triad “location of productive forces — economic zoning — territorial-production complexes”), undoubtedly, was their strength.

It is what S.V. Slavin postulated as “Mastering the North as a whole follows from the immediate tasks of developing the national economy of the USSR” [1, Slavin S.V., pp. 191–192].

An important feature (and merit) of the Soviet theory of economic development was that it was built into the vast and maximally applied Soviet doctrine of the distribution of productive forces, because the very location of productive forces in an actively industrialized country meant the economic development of new, previously not industrialized spaces and resources.

It is precisely by relying on the theory of the distribution of productive forces that the Soviet theory of development provided consideration of this process by its best authors (Slavin S.V., Kosmacheva K.P., Bandman M.K. [2–4], etc.). It is a system, with its inherent spatial and temporal structure (development zones, stages, development cycles, etc.). If we consider the development process an autonomous, separate from the development of the country, the theory of development will lose integrity features. And the incorporation of the development theory into the general theoretical platform of the new placement of the productive forces of the country naturally follows from the features of the vastness of the industrially transformed northern spaces of the USSR, unprecedented for the world.

It was for this areal scale that the concepts, methodology, and methods of studying economic development were developed.

Within the late Soviet-era development school, two methodological approaches were distinguished. They are characterized by different perceptions of the development space (Table 1). The first — economic-geographical — used by the leading scholars (Dergachev V.A., Saushkin Yu.G. [5–6], etc.); it was explained with a heightened sense of space and was understood as internally heterogeneous, with a landscape and ethnic structure.

Table 1

Comparison of two approaches to the study of the economic development in the late Soviet era

	Economic and geographic approach	Regional economic approach
The new development of space perception	Diversified by landscape and ethnics (heterogeneous)	Uniformly abstract (“dot”)
Dominant study method	Cartographic analysis, various types of natural resource zoning	Spatial econometrics (macroeconomic models applied to areas of new development)
Theoretical and methodological foundation	The allocation of productive forces theory	Optimal allocation of resources in the contour of the country (the theory of exogenous economic growth)
Key research plots	Territorial development structures (routes, bases, and settlement system)	Economic efficiency, cost reduction, economies of scale in the development of new areas

On the other hand, the second — regional economic approach (Granberg A.G., Bandman M.K., and others) by perceiving the development space as uniformly abstract, which was an inevitable simplification for TPC macroeconomic modeling areas of pioneer development and growth on the territories of new development.

After the breakthrough works of economic geographers of the 1960s, space had become a real participant in the development. It explains the quantitative increase in the development research in the 1970s — 1980s. It was primarily due to research devoted to the purely economic problems of the new development areas — cost, efficiency, economic growth, but not the properties of the mastered space itself. Space ceased to be an active participant in studying them.

Another source of new development theory is the impressive conceptual baggage of European regional science. The leading theoretical platform for the representatives of regional studies is the concept of endogenous economic growth and its main factors, decorated with a system of models and their qualitative interpretation [7–8]. In the postwar period, the models of exogenous economic growth dominated many decades. They emphasized the distribution of primary material resources across industries and space. In contrast to it, new development models emphasize the creative “packaging” of critical resources and growth factors, a localized site effect and positive externalities on the close interaction of economic actors, which generates new knowledge.

The properties of a specific localized site where the pairing of resources, energy, and efforts of the participants in the development process occurs, play a significant role. We can say that in the theory of endogenous growth, space becomes a real and active factor in economic development, as it was the case of economic geographers — representatives of the Soviet development school after the WWII. It acquires the properties of marginal heterogeneity, as our European colleagues write, and becomes diversified and relational [9].

Endogenous growth in the development space means the marginal localization of this process, the formation of enclaves, platform, island economic development sites (as they would say in Soviet times, by limiting its intensification). It directly implies the adequacy of the theory of localized growth poles for understanding new economic effects arising here: the suitability of the cluster approach for the study of material and institutional relations arising within the island sites of

the new economic development; a sharp unevenness (according to the center-peripheral algorithm) of development of the territories where the growth poles of a new development occur; and the need to search for places of application of the agglomeration effect (where and how it arises) at the sites of new development (e.g., in rotational settlements).

The North American frontier theory gives an idea of the innovative search for new opportunities for economic development in the newly developed territory. It is understood here absolutely in the Schumpeterian sense — as creative destruction with the creation of a revolutionary new. The development frontier is an advanced technological frontier. Slavin S.V. defined it as “the need to apply the most advanced technology in the process of developing and operating natural resources.”

Comparing the nature of the old and the new development process

Summarizing, one can imagine the development of the last 80 years as three successively developing schemes (in this case, of course, in real life it was a layering of the new system on the still existing one, that is, the boundaries between them are non-rigid — Table 2).

Table 2

Comparison of three historical development models

	The scheme of the development model of integrated plants (1930–1950s) — early industrial	The scheme of the Soviet departments' development (1960–1980s) — late industrial	Corporate development scheme (1990–2010s) - postindustrial
The main areas involved are the Russian North and the Arctic	The Magadan Oblast The Murmansk Oblast The Komi Republic The Norilsk industrial area The Arkhangelsk Oblast	Chukotka Autonomous Okrug Khanty-Mansiysk Autonomous Okrug Yamal-Nenets Autonomous Okrug The Republic of Sakha (Yakutia)	Nenets Autonomous Okrug North of Yamalo-Nenets Autonomous Okrug Arctic territories of the Republic of Sakha (Yakutia) Pechora Sea Shelf
Nature of development	All industrial development is pioneering, from a clean slate, on a layer of agro-industrial development of the indigenous peoples of the North	Industrial development from a clean slate, on a layer of agricultural development of the indigenous peoples of the North	Differentiation of postindustrial (“smart”) and industrial (type) development, incl. from a clean sheet and to the previously created industrial layer
Territorial development structures	Fine dispersion network. Integrated transport network	Linear frame Cut-off transport network	Center-Peripheral Network. Network of temporary, seasonal land roads and river (sea) routes
The dominant type of development	Mining	Oil & Gas Mining	Oil and gas, mining
Key development actor and principles of its spatial behavior	Integrated plant, the maximum possible self-sufficiency in energy, building materials, and food	Industry departments, trusts, etc. Delivery of all the necessary nomenclature of logistics, construction materials and food from the outside	Resource corporations. Cost savings and reliance on temporary, seasonal life support and resettlement schemes. Localization of the spatial contour of economic development
Key managing institution	Action plan of the labor camp management	State development program	Investment project

The development of new spaces in the USSR took place in the ideology of a uniform, “balanced and planned,” as they said, distribution of productive forces. The idea of this model was the absolute homogeneity (uniformity) of the new industrialized territories of the North and the Arctic in terms of economic development.

On the other hand, non-uniformity, center-peripherality, the polarization of space is immanently embedded in the new model. Extremely relatedly, more than ever before in Soviet times, the effects of concentration of economic development — its localization (“thickening”) — on minimal areas of economic activity manifest themselves. E.g., today a third of the priority projects of the Russian Arctic is for Yamal: the Yamal LNG and Arctic-LNG-2 plants, the seaport in the Sabetta village, the Northern Latitudinal Railway main line, etc.

It is no coincidence that the theory of growth poles is again gaining popularity to explain the extreme polarization (intensification) of the new development of the North and the Arctic. In the USSR, it was simply impossible, because the entire orientation of the economic development of the Soviet time was on a planned (“fair”), equal, coordinated development of old and young territories of the industrial age.

The idea of the “polarities” and development in the USSR was completely rejected by the idea of full-scale and balanced development, which the party and economic governing bodies aspired to as the ideal. Now the “sharp world” is visible to the naked eye not only in the high-density environment of urban agglomerations of industrialized territories for a long time, it is vividly manifested in the North and the Arctic: e.g., the satellite city of Reykjavik Kopavogdur agglomeration has overtaken Akureyri in the north and became the second most populated city of Iceland.

In the former regional or regional development model, local areas were neglected; they were of little importance for economic development. But in the new model, the contour of the new economic territory — the enclave, the island, the platform — is extremely localized. Slavin S.V. discussed the phenomenon of a focal, oasis-like type of development.

Previously, the main economic effects were generated in a regional, areal spatial contour the size of an administrative region or several districts. Now the main economic impact is provided in a localized shape of a separate investment project, to which a shift camp is dedicated, a segregated port (without a permanent land highway) and others. New technologies make it possible to tighten processing facilities to the production sites, which paradoxically violates the fundamental postulate of the Soviet dimension. In the North, there are only pre-bypass production, and processing in the central or southern regions of the country, where production costs are lower.

Previously, the main economic effects in the areas of new development were ensured by economies of scale in the activities of the large Soviet plants, united in the vast regions of technologically associated territorial-industrial complexes. Now, however, increasing returns are provided by limiting compactness, island isolation of new development objects (localized clusters), which mitigate the effect of northern prices, transportation and energy costs. E.g., Norway has a state legislative encouragement of the maximum approximation of localization processes of advanced

equipment and services for oil and gas fields of the shelf directly to the production sites: this ensured the unprecedented growth of Stavanger and its transformation into a first-class center of production services for hydrocarbon production on the shelf [10].

In the former “areal” model of economic development, the issues of distribution of scarce economic and material resources for “shock construction projects” were absolutely priority. The rates of the development process directly depended on them. But in the development of a concrete project from the local production system, the material, and technical resources immediately rely on distributed ones, and the process of their delivery is said to be “patter.” The process of development begins from the moment of their delivery, and their concentration on the locality goes on. How to creatively “roll up,” “pack” on the localized site of a new development is the main topic, and the main economic effects are related to it (i.e., localization and concentration). And this is the reason for discussion as well as the issues of external delivery. Delivery of industrial goods does not have the same meaning (Table 3).

Table 3

The nature of the development in the Soviet industrial and new Russian models

	Soviet industrial model	Russian model
Nature of the development	Pioneering as a principle, almost no redevelopment	The presence of both the development of a clean slate (for example, offshore) and on the infrastructure foundation of the past development
The dynamics of the development	The scheme of uniform growth with polycentric elements of settlement (“growth belt,” development in breadth)	The pattern of sharply uneven growth of the center-peripheral (“Growth pole,” development into the deep)
The dominant type of development	Mining	Oil & Gas
Main actor	State super-organization (main board, trust, etc.)	TNK as a superctor of new development: the relationship of its territorial, organizational and institutional structure
System effects	Operate in the district and regional contour in the form of TPC and other regional production and territorial combinations	Due to the multi-factorization of the development process, systemic effects on the regional and regional contours do not work — only in the localized contour
Increasing returns at the expense of	effects of regional / regional integration (TPK, industrial complex) (economies of scale)	effects of localized concentration — cluster, industrial area (savings on localization)
Development cycles	District / regional scale	The local rhythm of a separate project
Time	Linear, homogeneous	Nonlinear, sharply heterogeneous in phases of development. Ability to interrupt the process at any stage
Stationarity / non-stationarity	Regularity and stability	Natural, economic turbulence, and instability. Ability to interrupt the development process at any stage
Territorial development structures	Trails, bases, permanent single-industry settlements	Cities and rotational settlements
Methods	Zoning	Microdistricting
Ultimate dynamism in infrastructure development	Transport linear-nodal	Communication network
Control	Development programs	New development projects
Technology system	“Production in the North, processing in the South.”	The emergence of a new scheme “integrated mining and processing in the North.”

Inside the new economic development, it is possible to isolate the development option from a "clean sheet" development in the ideology of a state-corporate partnership and on the foundation of the infrastructure created in the state-owned period of Soviet growth (Table 4). At the same time, it is critically essential in which epoch of development the pioneering infrastructure was created: one thing — in the era of integrated GULAG combines, another thing — in the age of dominance of sectoral departments and trusts. The form of the created infrastructural framework (continuous linear-node or discontinuous cut-off) and, in general, the strength of the Jack London effect [11] — the dependence of the new development on past economic activity will depend on this. In the second case, a localized cluster is based on the regional TPK, created in the former industrial model, with the simultaneous alteration of previously existing local development structures.

Table 4

Comparison of two different algorithms for new (localized) economic development

	The algorithm "from scratch."	The algorithm "on the infrastructure of the former development."
Example	Sabetta: Yamal LNG	The development of hydrocarbon resources in the territories along the route of gas pipelines of the Republic of Komi
Main effect	Pioneering infrastructure arrangement — effects of localized clustering (integration of mining, processing, energy, transport support)	The effect of Jack London: past economic activity affects modern investment decisions and the structure of economic entities (TNCs)
Effect depending on the path	Does not work	It is important in which economic epoch the initial infrastructural framework of development was laid.
Territorial structures	Associated with winter roads, seasonal river, and sea routes	Allocation to single-industry cities and districts — local bases of new development

Within the limits of the regional or district contour of the recent industrial development or in the new spaces of a "clean sheet" of economic development, localized areas are deliberately allocated, where the effects of economic concentration occur. The localized area of space acquires an active role in the development as a result of its institutionalization — registration in the form of a separate area, enclave territory, or economic "island."

Earlier the main development effects were provided by inter-industry, technological conjugation of efforts of several large state-owned enterprises of the region or regional TLC. Now, it is due to the extremely localized clustering of production facilities at the site of a separate economic enclave, where the resource corporation conducts an experimental, pilot testing of new technological, organizational and institutional solutions. The desire to save on the costs of obtaining new knowledge determines the temporal rhythm and spatial structure of the new economic development.

What has been said, of course, does not mean that all the modern development of resources and spaces of the North and the Arctic suddenly becomes "acute" — insular and enclaved.

At the same time, the patterns of the past industrial (areal) development continue to exist, and new development zones are being formed.

E.g., the development of new and technogenic deposits of the Upper Kolyma basin is still going on “in full”; areal forest industry development continues in the Irkutsk Oblast, the Republic of Karelia, and the Krasnoyarsk Territory. But here there are laws of the spatial distribution of productive forces inherited from the previous economic epoch. They are critical for a significant part of the North and the Arctic territories.

At the same time, new gold development projects of the Magadan Oblast and the Chukotka Autonomous District, new oil and gas development projects of Yamal, Ugra, and Yakutia show us new postindustrial development patterns begin to work on the Arctic shelf. They provide significant concentration and the intellectualization of economic enclaves, the formation of new high-tech support development bases, which take on unprecedented significance and usually accommodated in the nearest research and educational centers.

E.g., a new round of gold mining in the Magadan Oblast accompanied a radical change in the locations of the key exploration expeditions. Earlier some of them were very close to mining sites. Even at the cost, highly qualified personnel are not ready to live in Nexicana, Ust-Omchuga or Yagodny settlements and local centers along the Kolyma highway. Geologists who perform routine, but not exploratory, geological surveying, as a rule, work there. All the remaining geologic expeditions end in the local center — Magadan. All the available qualified personnel concentrate there. Intellectual support of mining and industrial development reveals that the center-peripheral model replaces the former “uniform”: all the knowledge concentrates in a large scientific and educational center, and the former intellectual service functions of the “peripheral” centers and specialized geological settlements are washed away.

It turns out that the “harder” and forcedly smarter (more unique and experimental) is the new development project, the more concentrated is its spatial configuration. It provides new technological solutions, modular assembly, rotational methods and work organization, the use of advanced practices and technology from around the world. And the more typical the project is, the more routine and the more traditional the distribution of its means of production and labor resources is. Often it is the old mono-production town or local administrative center. Experience shows that hybrid schemes can also be implemented. The new project on intellectual stuffing relies on the already existing base but gives it a more rational character due to the placement of a high-tech service, new construction and transport sites, etc. (Rosneft “Vankor” project in Igarka and Gazprom project “Novyi Port” in Novyi Port).

The modern development of the resources in the North and the Arctic makes two realities closely coexist. It is the former industrial one, reproduced in new projects launched by the old algorithm and the new post-industrial one that has already generated an entirely new approach, associated with the intellectualization and laws most clearly manifested in the new shelf projects developed without the influence of inheritance factors.

Resource corporations as the local and global integrators in the new development

Transnational companies [12, McCann et al.] and resource corporations of Russia are a vivid and substantive embodiment of the globalization, that is, the simultaneous operation of the effects of localization and globalization in developing the North and the Arctic areas. On the one hand, companies receive their main resource product from the fields of the North and the Arctic, form localized production clusters there, and form the core of the local production system (the so-called “towns and areas of presence”), actively contacting domestic small production and technology companies, service, transport and logistics and other economic structures. On the other hand, they carry out the delivery and promotion of the ultimate resource to the global markets.

In the North and Arctic Russia, more than a dozen resource corporations are operating. The activities of many of them are global; i.e., they are TNCs. If we use the share of the primary resource product mined, then the most “Arctic” among them are Gazprom, Norilsk Nickel, and Novatek. Each of these companies has more than 90% of the production volume confined to the Arctic.

If before, the specific territorial configuration of the new development process was determined by the decisions of the central departments and regional super-organizations, now it is an integral part of the spatial structure of resource corporations. Their spatial “handwriting” forms new territorial development structures (departmental roads and winter roads, locations for rotational camps, heliports, aircraft platforms; external, input and internal supply and training bases). It is created not only under the influence of the deployment of deposits but also the internal institutional and organizational structure of the company [13, Dunning]. Already established is the network of resettlement of the territory of presence with its account: e.g., Igarka. It became basic for the “Vankor” project and the village of Novyi Port — to Gazpromneft. The assimilation process “manifests” as it were, reveals what is deeply hidden inside the company — e.g., the hierarchy of the internal decision-making process.

In turn, the formed territorial structure of the corporation determines the incentives for technological and economic innovation (whether they arise or not before it).

Let us consider the use the experience of the oil and gas companies of Khanty-Mansiysk Autonomous Okrug — Ugra: how the location / spatial structure of corporate development and the internal management structure of these companies are linked (Fig. 1).

At one extreme we see Surgutneftegaz, which until recently had the most consistent territorial structure of field sites, mainly in the Surgut area. And it was naturally combined with the unprecedented centralization of the entire decision-making process. Surgutneftegaz has a small headquarters in Surgut. It does not have local development bases that would play the role of “jump” sites to the nearest industrial plots, could participate in testing new drilling methods, impact on the reservoir and other experiments. On the one hand, this centralization provides the necessary speed of decision making without bureaucratic red tape or individual decision making. On the other hand, it also significantly limits the company in innovation.

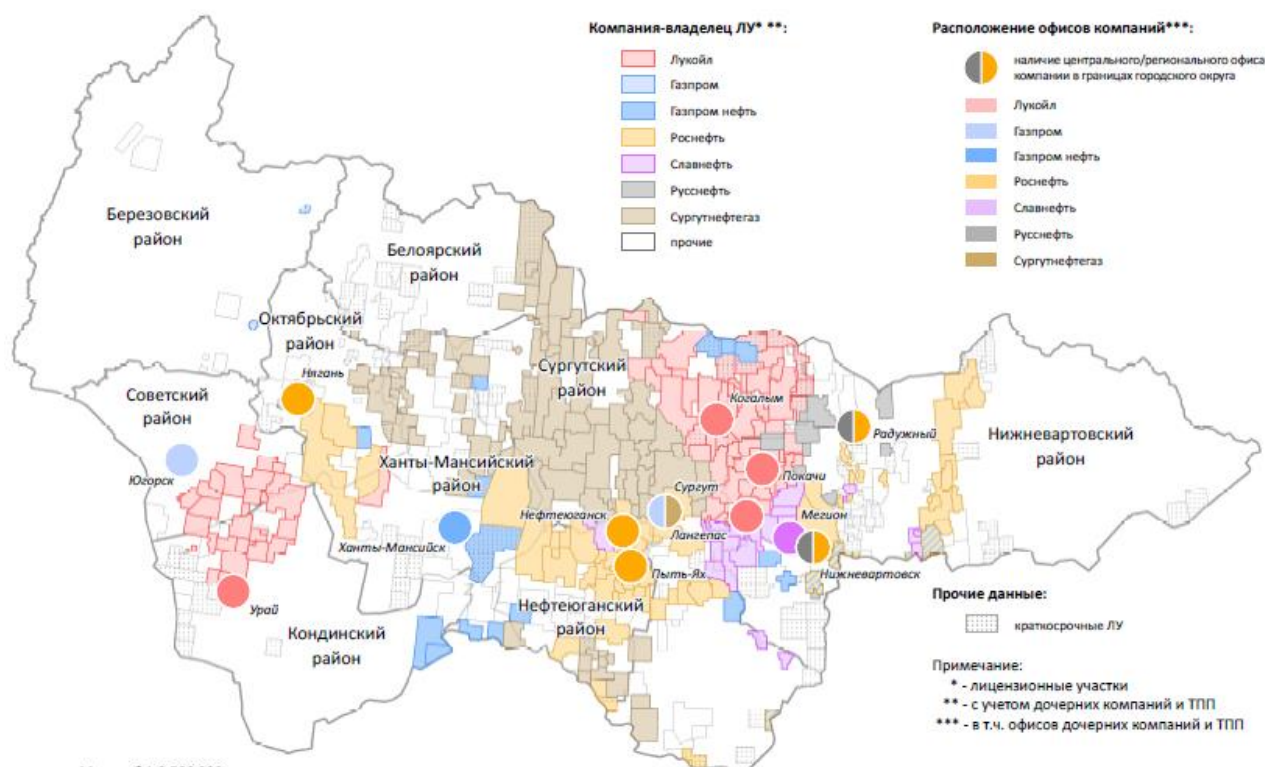


Fig. 1. Corporate space of Ugra (by Cand. Sci. (Geogr.) Goncharov R.V.).

Each color stands for a separate license owner, for example Rosneft or Gazprom.

Colored circles show presence of central or regional offices of some enterprise within a city district.

At the other extreme — Gazpromneft with a very fragmented, territorial structure of the commercial areas of the new district or new development areas in different geological conditions areas. And such a territorial structure corresponds with a substantial decentralization of the decision-making process in the company. Therefore, the headquarters structure of the company is geographically dispersed. In Khanty-Mansiysk, they placed a representative office of the company, established due to its metropolitan nature and the proximity of several small deposits of the Khanty-Mansiysk district — Megion and Nizhnevartovsk with small areas of the company nearby. The system of local bases allows the Gazpromneft to gain a foothold quickly, to root in the district, and it can potentially ensure the development of new fields and schemes for their development — even before the experimental production in some nearby areas.

Gazpromneft came to the district for mainly distributed natural assets. Therefore, it had to be an innovator, develop those areas of new development than the other companies, because of the complexity of working conditions. The more fragmented the spatial structure of a company is, the more heterogeneous the exploration and production conditions are, the more demanded are production, technology, and innovations.

Between these “poles” are Lukoil and Rosneft, with their peculiarities of a new oil industry development. The spatial structure of the Lukoil mining has always been relatively evenly distributed across several centers, and the very name of the company meant its ideology and philosophy: e.g., Langepas-Urai-Kogalym = Lukoil.

Today, Kogalym-Langepas form a virtually unified single zone of oil-field activity of the company, and Urai marks the second major area of oil industries of Lukoil on the border of the So-

viet and Kondinsky districts. Now the company is expanding within the framework of “linking” license areas into a single area, filling in the existing free spaces. The company has a relatively diversified structure of representative offices in the towns of its presence: Langepas, Urai, Kogalym, and Pokachi. It reflects a lower degree of centralization in managerial decision making compared to Surgutneftegaz.

Unlike Surgutneftegaz and Lukoil, Rosneft does not have large contiguous areas of commercial activity anywhere in the district: it now has five small territories. The first one is near the border areas of the Oktyabrskiy and Khanty-Mansiysk territories, right to Nyagan and in the direction to Khanty-Mansiysk (there are still opportunities for internal clamping / wedging of the sections due to “voids” and “cavities”). The second — on the borders of the Khanty-Mansiysk, Nefteyugansk and Surgut territories (there are also small opportunities for internal closure / wedging of the plots). The third one — near Nizhnevartovsk (Samotlor). The fourth — in the Nizhnevartovsk district in the form of a vertical “wall” — a narrow chain of licensed sites from north to south along the entire length of the territory. And the last one — tiny license areas in the south of Nefteyugansk district, on the border with the Tyumen Oblast.

The structure of offices in the district is extremely diversified, but not at the expense of some features of modern decentralized management. Since the company was formed as the assembly of assets of Yukos, TNK and British Petroleum, each had its offices in the district's oil towns, and Rosneft inherited all of them in Nyagan, Nefteyugansk, Pytyakh, Nizhnevartovsk, and Raduzhny.

Lukoil in the Nenets Autonomous District is a key player that provides about a third of the oil produced there. It has several geographically dispersed supporting blocks of closed sections (Fig. 2). That is, the situation of the territorial structure of the company in Ugra is repeated to a certain degree. On the other hand, Rosneft has both separate blocks of large and small license areas located in the east of the NAD.

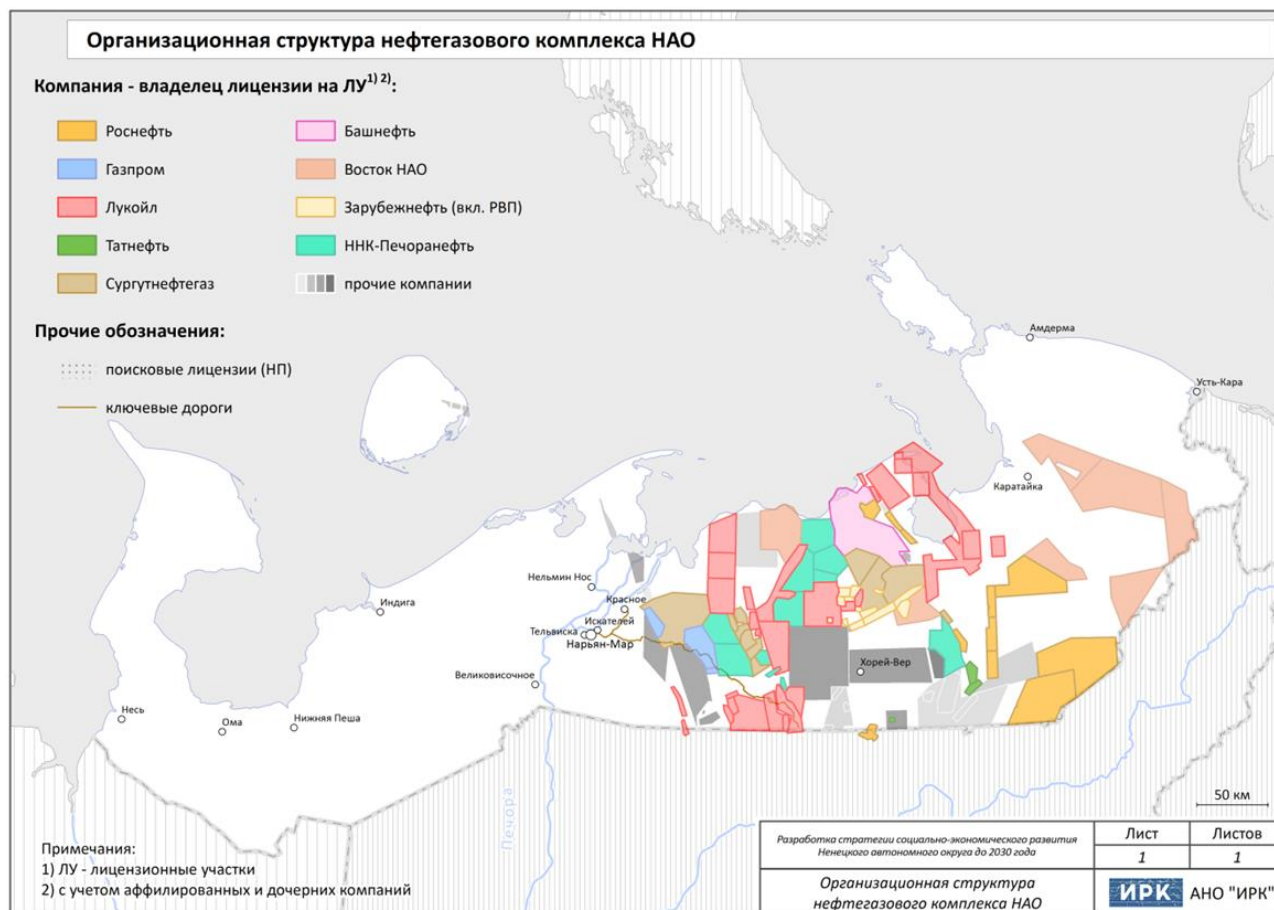


Fig. 2. Corporate space of the NAD (by Cand. Sci. (Geogr.) Goncharov R.V.).
Each color stands for a separate license owner, for example Rosneft or Gazprom.

A new problem, unknown in the Soviet period of development, is the interaction of neighboring resource companies in the area of presence. E.g., it is the communication of Lukoil and Gazpromneft regarding the development of offshore and alien hydrocarbon deposits in the Varandey area in the Nenets Autonomous District. Another example is the interaction of Lukoil and Rosneft regarding the transportation of oil to the markets by the northern or southern route in the Nenets Autonomous District, or it is the interaction of Surgutneftegaz and Alrosa regarding the choice of the base for the development of Talakansky place of birth — Lensk or Mirny. Practice shows that the formation of overlapping transport infrastructure (pipeline, road, and communication) is wasteful from the perspective of the territory's interests, but it often takes place. It is easily explained by the desire of companies to retain control and reduce the risks of uncertainty when communicating with any other resource corporation operating in the same area.

In the past 15 years, resource corporations in Russia have launched several completely new projects in the North and the Arctic. E.g., it is the construction and operation of the Prirazlomnaya platform for the extraction of hydrocarbons on the shelf of the Pechora Sea. Another example is the Varandey terminal for the shipment of oil from the nearby fields and the southern regions of the Timan-Pechora province. It is essential to mention the development of the Novo-Portovskoye field, the oil and gas fields of Evenkia, the pilot development of coal in the Taimyr basin, and the

Pavlovskoye lead-zinc ore deposit at Novaya Zemlya. One more exciting project is an industrial complex from the Yamal LNG plant and seaport in the village of Sabetta and others. These new development projects combine the global conjuncture of commodity markets and local mining and are significantly different from the previous Soviet megaprojects (Table 5). The main novelty is to turn them into innovative learning platforms, accumulating new experience and knowledge. Experience and knowledge gained in the pilot project, then "scaled" on projects-clones. All the fastening elements of the new development process are especially deployed to ensure the effectiveness of this experimental search. The Prirazlomnaya project became an innovative platform for developing new technologies for offshore oil production for Gazpromneft; the Yamal LNG project in Sabetta first relied on experimental flights of gas carriers that later became regular; experimental transit flights along the Northern Sea Route have been carried out over the years to develop the necessary competencies and best practices amendments to existing technical regulations and legal regulation of intercontinental high-latitude navigation, etc.

All this is a general new pattern that has emerged and exists in the form of experimentation, testing and fumbling rooted in modern development. The development space is "selected" sometimes in such a way as to ensure savings on training, savings on the rapid acquisition of experience, new knowledge and mining practices in unprecedentedly new and challenging conditions: drilling on the shelf, horizontal drilling on land, super deep drilling in promising Paleozoic strata, extraction of gold from ore by modern technological methods. E.g., means of heap leaching, previously impossible precisely because of difficulties in preventing the danger of spreading cyanides, and now due to the extreme localization of the development technologically, it is possible and environmentally safe.

Table 5

Comparison of typical projects of the industrial and post-industrial era

	Industrial development projects	Projects
Nature of the resource project	The project is immersed in the context of the local/regional economic area of new development, connected with its objects by a permanent ground road network (a single regional TPK-industrial district)	Post-industrial development
	TPK-shaped combination of projects among themselves on a vast area of new development	The project is an enclave island isolated from the outside world, a platform, a localized site, which is connected to the outside world by seasonal routes (localized cluster)
Nature of the infrastructure project	Consolidation of infrastructure projects (highway)	Inside the localized site of the project, the entire integration cycle of extraction and processing is located
Spatial system	The ideology of tight conjugation of the production, transport and energy subsystems in the district / regional circuit	The "preciseness" of infrastructure projects and the possibility of separate combinatorics of each site with the environment and its territorial structures
Actors	State Super Organizations	The network of platforms: the ideology of replication of piloted found advanced technological, organizational, institutional practices for other analog projects

		(clones)
Placement	Stationary single-industry city	TNK
Support system	The hierarchical system of supporting development bases — rear, outpost, local	Shift camp
Communication with suppliers and consumers	Monopoly supplier and monopoly consumer of project products domestically (vertical integration)	A network of equal bases of supply, training, transport
Production Strategy of Key Actor Development	Uniform resource products the entire life cycle of the project	Dozens of suppliers and consumers from around the world (network)

Previously, the state-funded area, the front, the route of new development, and now a corporation-funded pilot project and a clone project that perceives the best practices of the pioneer project, as we see in the examples of Yamal LNG-Arctic-LNG-2. It is curious that similar logic can be observed in the implementation of current infrastructure projects: they are now always divided into sections, and each section exists as a separate and autonomous (modular) project, which can be separately combined with the existing road network.

E.g., in such a “divisional” logic, a project for the construction of the Northern Latitudinal Railway is being implemented, which will connect the Obskaya station of the Northern Railway with the Korotchaevo station of the Sverdlovsk Railway. The highway will include the Obskaya-Salekhard railway section, the Salekhard-Nadym section, the combined crossings of the Ob and Nadym rivers, and the Nadym-Pangody, Pangody-Novy Urengoy, New Urengoy — Korotchaevo⁵ railway sections to be completed.

The more complex and intelligent is the new project, the more it relies on external development bases. In the former industrial model performed mainly supply-distribution functions, and now their intelligence services are very significant: in addition to the traditional staffing, supply means of production, building materials, etc. And the number of such external support bases becomes multiply large: “What to do with the base for offshore projects? Mining in the Arctic requires a powerful infrastructure — the two bases are not enough. It should be a whole set of supply bases, meteorological, and research stations,” — said A. Shishkin, Vice-President of Rosneft.⁶

Sometimes such bases are human-made, like artificial islands in the Kola Bay, where the Center for the Construction of Large Offshore structures of the NovaTEK affiliated company Kola Shipyard will be located. The company will manufacture marine complexes for the extraction, storage, and shipment of liquefied natural gas in the Murmansk Oblast, as well as repair and maintenance of marine equipment⁷. After manufacturing and assembling modular gas liquefaction production lines on an exclusive platform, it will be transported to the Gulf of Ob, where only communications should be connected, and commissioning works for the Arctic -LNG-2 project⁸.

⁵ URL: <https://www.kommersant.ru/doc/3156565> (Accessed: 20 February 2019).

⁶ https://www.korabel.ru/news/comments/chto_nuzhno_arktike_ot_flota.html (Accessed: 14 December 2018).

⁷ <http://24ri.ru/down/open/v-barencevom-more-sozdadut-chetyre-iskusstvennyh-ostrova.html> (Accessed: 14 December 2018).

⁸ <https://thebarentsobserver.com/ru/promyshlennost-i-energiya/2017/08/novatek-prolivaet-svet-na-novyy-krupnyy-arkticheskiy-proekt> (Accessed: 14 December 2018).

In Soviet times, many more open fields with a complex genesis that required an individual (“experimental”) approach to working out became projects only now. E.g., the Novoportovskoye oil and gas field was discovered as far back as 1964. Due to its “capricious” (inhomogeneous, heterogeneous) nature, where Soviet production plants did not fit well, they were determined to get a saving effect on the scale of production of a homogeneous oil fluid or gas mixture of the gas-oil or gas condensate fields, and a complex of local oil lenses, not very clearly associated with each other, with the presence of a powerful gas deposit⁹. Its operation began half a century later, only in 2014. We have dozens of such examples throughout the Russian North.

Another feature of the Novoportov project was the “strange,” “anti-Soviet” (for significant variability) scheme for exporting the extracted products: in summer and autumn along the Northern Sea Route, in winter along winter roads to Pyuta station, then by rail. But for the company “Gazpromneft-Yamal,” it was the most economical. For the same reason, the corporation abandoned the idea of building an autonomous local development base but decided to form it practically right next to the village of Novyi Port.

Conclusion

An ambitious attempt has been made to create a new theory of economic development on three primary sources: The Soviet development school, the European school of regional science, and the North American school of the frontier. The tradition of linking the development process with the placement of productive forces is taken from the Soviet school. The European regional science gave us the idea that any social process in the regions is a subject to general laws in the spirit of the new theory of economic growth and researchers cannot be free from it. Extremely wide in the range of areas in which it manifests itself, the theory of endogenous economic growth provides a methodological substantiation of the process of localizing the development and obtaining effects on localization in the space of new economic development.

It directly implies the adequacy of the theory of localized growth poles for understanding the new economic effects arising here. The suitability of the cluster approach for the study of material and institutional relations occurred within the “island” areas of the new economic development. A sharp unevenness (according to the center-peripheral algorithm) of the development of the areas where poles of new development exist. The need to search for places of application of the agglomeration effect (where and how it arises) at the sites of new development (e.g., in rotational settlements). The North American frontier theory contains an idea of the innovative search for new opportunities for economic development in the newly developed territory. It is understood in the Schumpeterian sense — as creative destruction with the creation of a revolutionary new.

For the first time, ideas were formulated that in the development school of the last Soviet

⁹ Perspektivy zapolyar'ya: «Gazprom» nachal peredachu neftyanyh aktivov “Gazprom nefti”. [Perspectives of the polar region: Gazprom began transferring the oil assets of Gazprom Neft] URL: <https://www.gazprom-neft.ru/press-center/sibneft-online/archive/2010-february/1104400/> (Accessed: 14 december 2018). [In Russian]

decades, in fact, there were two approaches: economic and geographical, and the development space was understood and analyzed as diversified-relational (i.e., internally heterogeneous), and economic, in which, for the convenience of econometric modeling, the area was perceived as homogeneous-abstract, homogeneous (as a point).

A comparison was made for the nature of the development process then and now. And it was concluded that today there are fundamentally different economic effects than in the Soviet industrial time. In general, modern economic development is characterized by a substantially higher spatial unevenness, center-peripherality, multifactorial. The unique role of TNC-resource corporations is agents of glocalization. The heterogeneity of time in the stages of the development process (expressed significantly weaker in the planned administrative-command model of the new development) and the enormous role of project management (project financing, project legislation, tailored for a specific project of a new resource development). The peculiarity of modern development is that it implies the coexistence of two schemes — mastering from a clean sheet and on the foundation of the recent infrastructure development, which has different effects and regularities on territorial structures, development cycles, etc.

Using the example of new development projects that combine the global conjuncture and local production processes, we considered their “new” nature and the differences from the Soviet megaprojects. The experimental, training and spatially localized nature of the pilot project revealed. The effects of cascading from the pilot project to the “clone projects” is visible. Using the properties and configurations of the space for saving on experience is observed. Multiplicity (polycentricity) of the supply and training bases for new projects is usual now.

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