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Conceptual theories and ideologies of sustainable development of the Arctic in the era of changing technological paradigms

Y N Gladkiy¹, K Yu Eidemiller², E A Samylovskaya³ and M N Sosnina³

¹ Herzen State Pedagogical University of Russia, Saint Petersburg, Russia

² St. Petersburg State University, Saint Petersburg, Russia

³ Peter the Great Saint Petersburg Polytechnic University, Saint Petersburg, Russia

katerina-samylovskaya88@yandex.ru

Abstract. This study analyses conceptual theories and ideologies of sustainable development of the Arctic in the era of the 4th industrial revolution and the change of technological paradigms. It is based on the method of comparative analysis, as well as on axiomatic and empirical definitions based on the fundamentals of the civilization theory, reflecting the problems of changing technological paradigms, and the theory of innovation diffusion by the Swedish geographer T. Hagerstrand. The authors considered the prerequisites for changing the value development of countries, exemplifying it by the Arctic region. The paper touches upon main directions (concepts) of development of the “New North” (“New Arctic Region”) within the framework of the 7th technological paradigm, providing the analysis of the following: “Northern ideology”, “Metamodernism”, “Rethinking”, “Human development”, “Enlightened freedom of will”, “Bifurcation technocracy” and “Ultra-Scandinavianism”. As a result of the research, the authors came to the conclusion that the problem of sustainable development of the Arctic in the era of developing technological paradigms is multifaceted, and the chosen ways of this development are multidirectional. In the reference scenario, none of the adopted theories will be implemented solely on the basis of the underlying principles, since the Arctic region is currently facing pan-European challenges as well as regional and global ones, which will constantly interfere with the process and modify the given guidelines. An important corrective factor of this process is poorly controlled migration, which has brought to the region a large number of foreign cultural elements that own and carry an active civilization code, which is a challenge to the political and moral-ethical transformation of the region. However, for a whole range of cumulative reasons, the Arctic is now the stakeholder of high technologies, including theoretically oriented ones, being at the same time a testing ground for their development and improvement.

1. Introduction

Until the 10s of the 21st century, the problem of Arctic region country development had not had to bring any significant adjustments since the defeat of the Wehrmacht and the liberation of the Scandinavian territories from the ideology, ideals, and values that it had brought with it. Perhaps the last serious challenge for the region was the collapse of the USSR and the formation of the new Russian Federation in the regional administrative and territorial borders, as well as the emergence of three new states on the world's administrative and political map - Lithuania, Latvia, and Estonia, which had very specific and ambiguous roots of their identity [1]. It is the Baltic countries and the Baltic Sea region that were the first to experience almost the entire complex of spatial diffusion: from



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changes in the economic and social structure to accelerated integration into the number of European industrial centers attractive for migrants. For almost 20 years, the Arctic region has only been realizing and strengthening its position in the new geopolitical reality, similarly building and affirming its own identity. This was facilitated by the rise in global energy prices, which gave a boost to the development of micro-regions and entire countries, as well as a relatively balanced economic and social policy of elites in the region, not to mention the significant geographical remoteness of the region from probable (even within the European perceptions) theaters of war. However, the challenges of the 10s of the 21st century force to put forward completely new concepts of the Arctic's future development on completely different principles.

The first challenge is, of course, the spontaneous migration from the countries of the so-called “Islamic world” and diffusion processes it caused [2]. It is followed by new economic realities - the global financial crisis [3], the “shale revolution”, rapid development of technologies, etc. These are also threats of a politically conscious rejection of the centuries-old policy of neutrality by Sweden, which could possibly join NATO along with Finland, neighbor to Sweden and Russia. The problem of militarization [4] related to risk and security issues can also be attributed to this.

2. Prerequisites for a change or modification of the value development concept on the example of the Arctic region

Referring to the positive prerequisites of this process, it should be noted the breakthroughs in the humanitarian field and public discourse on its liberalization. This is especially true for those, for whom entire areas of society's life were previously undeservedly inaccessible due to certain restrictions. Rapid development of biomechanics, genetic programming, social engineering and their achievements in recent years are the indisputable challenges of our time and the objects of moral and ethical discussions. Public discussion assumes that soon, the upcoming achievements in the humanitarian field will raise a question about the new role of a human in this world. And this question is especially relevant for one of the most developed regions of the world, where these developments are most in demand due to its geographical, climatic, and historical realities. As a whole, all this gives a fundamentally different perception of the problem of the future, its transformation and rethinking of what did not require rethinking for objective reasons. The only axiom of the present is the principle of mathematical symbolic logic and the awareness that technological revolutions and changes in their ways enter the permanent phase of sustainable progress and threaten both people and the entire humanity with no conscious perception of the technological progress.

What prerequisites are there today for changing or reorienting the concept of value development exemplified by the Arctic region, if we take it for granted that the human being is a constant, and everything else is a modeled space or a testing ground for translating human capabilities? If we approach this question in brief, there are only three basic prerequisites.

Geography is determined by nature. Transformation of nature is no longer a part of the great plan and does not require excessive efforts with obviously “crippling” results, both for nature and for humans. The transformation of nature is part of the objective process of the [de]constructive human activity and it is relevant for almost every corner of the world, and in this sense the Arctic is not an exception [5]. Nature needs reasonable and creative exploitation, and a human in nature is something that, if he does not create balance in this system, is certainly responsible for it and the processes which occur in it.

Technologies form space. Technological progress, in addition to transforming the surrounding world, also creates a lot of new worlds as well as technological possibilities (creation of artificial intelligence and self-reproducing machines, integration of man with computers, or a significant abrupt increase in the capabilities of the human brain due to biotechnologies and biomechanics, etc.), to which humans have not invented a decent application, and humanity has not given proper assessment [6].

An individual (or humanity) goes beyond the limits. The synergy between the singularity of technology and a human allows both the individual and the whole humanity to discover a completely

different life, to rediscover the world and the space surrounding it - from the World Ocean, the Arctic, and the Antarctic to the nearest space [7]. However, one question still remains unresolved - the role of the individual and their personality, the identity of individuality in this process.

Within searching for an answer to this question the Scandinavian societies imagined what the “New North” could be like, and more precisely, what way it could go into the 7th technological paradigm. In today’s choice there are only seven directions: “Northern Ideology”, “Metamodernism”, “Rethinking”, “Human Development”, “Enlightened Freedom of Will”, “Bifurcation Technocracy”, and “Ultra-Scandinavianism”.

It should be noted that their peculiarity and successive connection with previous concepts, which until recently has had a “demand” in the region, can be traced. However, new technological paradigms dictate their own realities, which need to comply with. Let us consider each of these trends in more detail.

3. Main development trends of the “New Arctic Region” (“New North”)

3.1. “Northern ideology” / “Scandinavianism”

This ideology (also known as the “northern (Scandinavian) lifestyle”) emerged as a demanded social phenomenon in the 10-20s of the 19th century, and finally formed by the last quarter of the 19th century as the Northern Risorgimento. At that time, the ideology itself reflected the whole range of trends, from economics to culture and from literature to politics, enclosing and concentrating in itself, as if uniting all aspects of society's life. The main values of this ideology were equality, human rights, democracy, fight against corruption, high level of trust and happiness, as well as total humanism and justice in various areas, comprehensive Scandinavian societies and politics [8].

Most of all, it is visually reflected in the architecture, which has become a marker and a landmark of the whole era. Scandinavian design ideology was developed in the 1930s, when most of Europe and the Soviet Union used design as a tool to promote completely different ideologies, ideologies, and, consequently, values.

Nowadays, we can distinguish several propositions from this “Scandinavian northern ideology”: all prospects and significant growth are connected with the fact that a person is in the center of improvement and development. People should be in a primary position when we strive for a better society, a stronger economy, and whenever we introduce new technologies, people should still be in the lead.

Metamodernism declares almost the same thing, only from other views and positions.

3.2. “Metamodernism”

A concept that reflects changes and the state of culture from the early 1990s to the present day and has replaced the notion of postmodernism. The term was introduced in 2010 by Dutch scientists and philosophers T. Vermeulen and R. van den Akker in their essay “Notes on metamodernism” [9], which was later published on the website of the same-named project launched by them [10]. The term postmodernism is used as a synonym. However, this term was firstly created by M. Zavarzade in 1975, who used it to describe the genre of aesthetics and views that had appeared in American literary narratives since the middle of 1950s. [11].

The main statement of this concept is that history can be viewed through a series of lenses and described and understood accordingly. One way to understand history is a shift from indigenous culture through traditional culture or pre-modernity to modernity, to reality - post-modernism or metamodernism.

The distinctive features of this ideology are the belief in progress, modern culture is looking for answers in science and facts (although religion still has its influence), gender and other equalities are fundamental values. Modern societies are usually democratic nation-states and are governed by principles that are equal for all people. An individual is the basic unit of society. However, it is this

hypothesis that pushes us to review the foundations, which are put into the basis of Novusordoseclorum practically before our eyes.

3.3. *"Rethinking" or the "Moral foundations theory"*

The main idea of rethinking is that the political spectrum we faced in the era of industrialization was a product in the interests of capital. Now, technologies and economies are changing, and consequently, we should treat politics differently. *We should rethink such concepts and definitions as: Caring / Harm; Justice / Fraud; Loyalty / Betrayal; Power / Subversion; Holiness / Degradation; Freedom / Oppression.* If we want to progress in any meaningful way, we should take into account our emotions and moral values whenever we try to make political decisions together.

This theory does not differ much from the above-mentioned one, but shifts the above-stated accents from the general to the specific. From human development to the problems of more serious and large-scale subjects of our time, such as society, communities, and corporations. And yet, it is noted that the main thing is still an individual, and human development is becoming an increasingly high priority.

3.4. *"Human development"*

The main theme of this theory is that people and technologies are developing rapidly. Our inner worlds become more complex with age, and it refers to the whole society (primarily), as well as to every individual. The complexity of our cultures increases and throughout our lives we all have the opportunity to become wiser.

This ideological model tells us what options should be offered to an individual (or by an individual) when it comes to personal development, what opportunities we have as members of society, when it comes to personal freedom or the lack of it, as well as what kind of cognitive requirements the culture imposes on us.

Postmodernism, with its concepts of cultural movement and the creation of new ones, is becoming a problem for many people and requires quite a lot of serious personal development and personal potential to adopt it. First of all, it is based on the saturation of the existing imperative culture within a person. The level of cultural complexity of the modern world requires not only comprehension, but also requires personal development from an individual, claims a complex inner world, the simplification of which can lead both an individual and the whole society to a disaster.

3.5. *"Enlightened freedom of will"*

The 7th technological paradigm is a paradigm of cognitive technologies. Cognitive and neurosciences show us that free will is an illusion. And many people cannot even understand who they are. One after another, modern cinematography produces blockbusters ("Blade Runner 2049", "Ghost in the Shell", "Artificial Intelligence", "Her", etc.) that somehow touch upon this very idea. As well as dystopias ("Gattaca", "In Time", "Elysium", etc.) which are based on anticipation of negative aspects of the technological progress, such as genetic programming, synthetic control and many others.

The guiding idea of this concept is that if we want to create a prospective future that matters to people, to all people, not just to the richest and not only in the First World, we should make more sensible, knowledge-based, enlightened decisions that will encourage us to break the mould and reject the patterns that force us to make and perceive decisions in the way we do now.

The necessary and sufficiently complex knowledge should reach the highest levels of political leaders, government, business managers, and decision makers in our societies. And they should also reach the "bottom level" of employees and civic activists, whose decisions are equally important, both at the local level and in the society as a whole. Ideally, in adapted formulations, they should reach out to the voters, who need to vote for people who can truly cope with the challenges of the 21st century.

3.6. *"Bifurcation technocracy"*

The theory of successful bifurcation technocracy is based on the principle that there is no such thing as “Economy “. There are limited resources and economic rules with structures, but the latter are of an anthropogenic nature and can change whenever we wish.

The invention of the tabulation has turned the relationship between politics and economy upside down - smaller minds suddenly have the computational power to process large numbers and create the false impression that they understand the subtler matters in the development of the society and the economy that they calculate, consider, and compute, i.e. in the aggregate, all that they operate with. And this state of affairs prevailing in the current reality is extremely dangerous, and the paradigm of such an approach is erroneous. This is confirmed by the quotes of the French writer and utilitarian philosopher-materialist C.A. Helvetius: “All mental operations are reduced to observation of similarities and differences, correspondences and discrepancies which various objects have among themselves and in relation to us. The infallibility of the mind depends on the greater or lesser degree of attention with which these observations are made. Knowledge of certain principles easily compensates for the ignorance of certain facts.”

When “Economy” dictates “Politics”, we reduce ourselves to a piece of the genetic mechanism (a gear of the system) and this prevents us from developing a prosperous society and a sensible future. The growing global community which creates sensible local societies and allows politics to be guided by dreams and hopes for a better future will only be possible again when the economy and economists take their proper place. Nevertheless, politicians and the general public should understand that economy is a choice, and what is complicated is that the choice is not limited to the economic models introduced by economists to all areas of human activity that generate, define, and preserve them [12].

3.7. “Ultra-Scandinavianism”

Ultra-Scandinavianism today is the newest, but similarly one of the oldest concepts, because it is based on the ideals from which Europe tries to disassociate itself by all means, since the law enforcement practice of their implementation was ostracized in the Nuremberg trials. This model offers an exaggerated version of the “Northern ideology”. Ultra-Scandinavianism is a kind of response of the internal Scandinavian political forces to a genuine and absolutely real threat of losing the traditional Scandinavian identity in the world of multiculturalism, postmodernism, and metamodernism within the next three generations. Its implementation in the modern world is possible in territories that have quite certain prerequisites for it. Due to their geographical location, historical character, and national identity, mainly island territories have a desire to implement this model. Those are Iceland, Greenland, the Aland, the Faeroe, the Orkney and the Shetland Islands. The concept implies rejection of all the above-mentioned concepts with conservation and preservation of the current way of life, without any revolutionary or evolutionary shocks. So far, this has been expressed in the form of non-participation or participation with limited and exclusive stipulations in international organizations and political unions. However, there are also prerequisites for a more decisive action - creating artificial conditions for the impossibility of migration to these territories from outside, banning production of non-traditional goods, wearing a certain type of clothing, as well as practice and construction of foreign cultural and foreign religious objects. In most cases, this applies, of course, to the most widespread and fastest-growing religion after Christianity (in Europe and the world) - Islam, but other communities of the widest range, from the Sikhs to the Orthodox, face the same problems. In support of the systematic materialization of this, let's call it the “island concept”, the events related to Britain's withdrawal from the EU also speak for themselves.

4. Conclusion

The issues of identity, choice of one's own path or a common pathway for entire communities reflect the present crisis. In addition to this problem, the Arctic region also faces a number of other challenges: the threat of war, uncontrolled migration, destruction of history and its cultural heritage. All this is complicated by the fact that it happens at one of the most critical moments for the humanity, during the rapid change of foundations, ways, and conditions of life. 40-50 years ago, it was

impossible to imagine what is common for us today. We are entering the era of NBICS - the convergence between bio-, info-, nano-, meta-, and cognitive technologies, which transforms the living and intellectual processes of our tomorrow. Why is this all so important? It is very important at least because democracy, politics, rule of law, human rights, market economy, capitalism, money making, banking, and even our schools and local communities are the products of the industrial age and its technologies, i.e. the 4-5th technological paradigms [13] - the era of hydrocarbons, computers, and telecommunications [14]. Nobody knows what the world economy will look like in the post-industrial age, in the age of NBICS technologies, i.e. in the era of the 6-7th technological paradigms (the era of nanotechnologies and metacognitive technologies), and also whether it will be able to survive in the new realities of the formation of the past, and if yes - in what conditions? Those are some more urgent and major questions of the present.

5. Findings

The above-listed concepts show, on the one hand, the complexity of the problem faced by the community of Nordic countries and, on the other hand, the multi-vector nature of the chosen pathways. It should also be noted that in the reference scenario, none of the theories will be implemented solely on the basis of the underlying propositions. At present, the Arctic region faces both pan-European challenges and regional and global challenges, which will constantly interfere with the process and modify the given guidelines. Today, the Arctic region is heavily influenced by the environment and the problems related to it, militarization of the region, as well as the projects aimed at making the Arctic region not only suitable for life and preserved for future generations, but also at unifying the space in it by approaching the common high living standards. It is unknown which principles will prevail in 10, 20, 30, or 50 years. Purely hypothetically, such countries of the New North as Estonia and Latvia should reach the level of the North-West of Russia in the near future, and subsequently approach the standards of Sweden and Norway.

Rapid transformation of the socio-cultural and political space of the Arctic region virtually leaves this issue open and the process itself permanent. Weakly controlled migration brought to the region a fairly large number of foreign cultural elements that own and carry an active civilizational code - Islam. There is almost no area of public life left in the Arctic region where it does not find its manifestation one way or another. All the spread values have religious, national, ideological, cultural, and daily life features that sometimes conflict with the declared and propagandized Islam. The introduction of Sharia, for example, is felt today in the political field of the Arctic countries, expressed in the Halalization of the economy and finance, and is reflected in education and culture, health care, lifestyle, and its positioning in the public space, as well as in the field of services and fashion. However, the degree of introduction and the degree of distinction in all societies and communities of the Arctic are so differentiated that they do not represent a single picture. Nowadays the only unifying factor is the natural and artificial boundaries, primarily geographical and administrative-political borders.

Today, one can speak, if not of a parallel society in the “New North” region, then of formation of the “stranger image” concept. This “image” is layered one on top of the other; and it is, to some extent, hierarchical - this stranger can be either from the other side of the Baltic Sea (Scandinavia and Baltoscandia) or from the other side of the mountain (the Swede and the Danes versus the Norwegian and the Finn), or simply a “Black Viking”. Representatives of this latter community have threatening lines of internal faults inside them. This is manifested in clothing styles (Indo-Pakistani, Arabic, Moroccan, Turkish, and Somali), in forming and transforming a new space around them, but understandable to them, both in terms of style of architecture (Neo-Scandinavian, Moorish, Persian, Arabic, and Turkish), or virtual - cinema (Arabic and Turkish), and in practical terms. This applies to the establishment of production sites, but more often to the distribution of halal foodstuffs and industrial production (Turkey, SDR, North Africa, Pakistan, Bangladesh, Indonesia, Malaysia, etc.), business (Bosnian, Arab, Turkish, and Somalian), and sports, which in turn are supported by weakly controlled or overtly dubious organizations.

Another line of the tectonic fault within all these societies and communities concerns the attitude towards women. Women, even born on the European continent, are affected by the rhizome, ignorant, and no longer relevant in this continuum (time and place) styles, which can be extrapolated to all other women who do not belong to these ethnicities or subethnicities. The European academic literature includes references to the status of women in these communities, the vicious and reprehensible practices of female circumcision, the so-called “Pharaoh's seals”, domestic and predominantly Islamic education and its rejection for girls, their universal minimized socialization and cultural adaptation, and social segregation (by Muslims against non-Muslims). All this by itself is already a challenge to the political and moral-ethical transformation of communes, societies, communities, and the Arctic region as a whole [15].

Of course, it is necessary to mention that the Arctic issue is not limited to the Scandinavian one, but Scandinavia is the leading “engine” of the Arctic processes, and even the modest states of the region, such as Iceland, have a proportion of the solution for the Arctic problematics, which is only slightly inferior to the leaders of the “Arctic Five”. And this process is interdependent, understandable, and justified - Denmark is the largest country in Europe due to its Arctic dominion in the Western Hemisphere of Earth, Norway is famous for its travelers, pioneers, and discoverers, and Finland with Sweden for their technologies and projects for the future of the Arctic and Scandinavian countries in the world of prosperity of sustainable development.

As we have described above, the Arctic region due to a whole set of reasons is now also the most interested consumer of high technologies, including theoretically oriented ones, and at the same time - a testing ground for their development and improvement. Throughout history, when new technologies changed the means of production and communication, they transformed societies and cultures. It is to be expected that because of the development of NBICS technologies, societies around the world will face transformation that can be as radical as the transformation from the Neolithic to the Paleolithic age, or from pre-scientific agricultural society to the industrial age, and this will primarily affect highly organized regions such as the New North and the First World societies. Such changes redefine the very structures and activities of economy, governance, sovereignty of nation-states, balance of power, environment, human condition, religion, etc. However, this time, these major changes will not take place within centuries, as it was the case with the transition from, for example, the Bronze Age to the Iron Age, or with the transition from the First Industrial Revolution (1st technological paradigm - 1772) to the 2nd technological paradigm - the era of steam (1825). This can happen within one or two generations. What we can see is under way now.

Within and between countries, we see indicators of this current transition. These indicators include poverty of the working person, a lack of confidentiality due to abuse of metadata, problems related to safe and sustainable energy systems, problems of international taxation of corporations, rapidly growing and mostly speculative financial market, increased consumption of psychotropic pharmaceuticals, radically transforming (decreasing) labor market, which happens mainly due to automation and digitization processes. The latter refers not only to workers (from the so-called proletariat to engineers operating CNC machines), but also to jobs (of maintenance and technical staff) across the entire range of the hierarchy. Even more alarming indicator is the number of people in the West who are attracted to the archaic character (fundamentalist ideology and nationalist movements) in search of simple responses to complex changes.

The components of this critical transformation from the industrial to the NBICS era are specific and clear and can be divided into five main groups (areas): a) digital economy, b) middle-class and nation-state erosion, c) globalization of the entire world (from accessible transport accessibility to the mass emergence of “new humans” (from mixed marriages)), d) futurology or descriptions that we use to comprehend the world, and e) transparency. It is necessary to pay special attention to the fact that these five areas do not fit the traditional categorization: technologies, economy, environment, legislation, or cultural background, etc.; their interaction creates a global transition to a new technological paradigm, to a new world.

References

- [1] Novikova I N and Mezhevich N M 2017 Some historic prerequisites for the formation of modern political regimes in the Baltic countries *The future of the Baltic regions: threats and opportunities. Coll. of Articles on the Materials of the plenary reports of the International Scientific Conf. 2017* 4-14
- [2] Gladkiy Yu N *et al* 2017 Islamic Diffusion in the Baltics *The Fruit of European Multiculturalism Baltic Region* **9** (3) 33
- [3] Didenko N *et al* 2018 Models of the impact the global crisis has on the world economy *Coll. of Articles on the Materials of the International Multidisciplinary Scientific GeoConference Surveying Geology and Mining Ecology Management, SGEM* **18** (5.3) 585-592
- [4] Hudolei K K 2017 The Baltic Sea Region in the conditions of the aggravation of the international situation *The Baltic Sea region* **8** (1) 7-25
- [5] Hagerstrand T and Buttimer A 1995 *A look at the political geography of environmental management* (Dublin: University College) 35–58
- [6] Didenko N I *et al* 2018 Innovative and technological potential of the region and its impact on the social sector development *Coll. of Articles on the Materials of the International Conference on Information Networking* April 19, 2018 611-615
- [7] Gladkiy Yu N *et al* 1990 *The horizons of the ecumene Mind experiences the world* (Leningrad: Lenizdat) 271
- [8] Andersen L R and Bjorkman T 2017 *The Nordic Secret: A European story of beauty and freedom* (Stockholm: fri tanke) 512
- [9] Vermeulen T and R van den Akker 2010 Notes on metamodernism *Journal of Aesthetics & Culture* **2** Available from: <http://www.emerymartin.net/FE503/Week10/Notes%20on%20Metamodernism.pdf> [Accessed 13th March 2019]
- [10] Vermeulen T and R van den Akker *Notes on metamodernism* Available from: <http://www.metamodernism.com/> [Accessed 13th March 2019]
- [11] Zavarzadeh M 1975 The Apocalyptic Fact and the Eclipse of Fiction in Recent American Prose Narratives *Journal of American Studies* **9** (1) 69-83
- [12] Didenko N I *et al* The analysis of convergence - divergence in the development of innovative and technological processes in the countries of the Arctic Council. *Coll. of Articles on the Materials of the International Conference on Information Networking*. April 19, 2018 626-631
- [13] Sadovnichiy V A *et al* 2012 *Modeling and forecasting the world dynamics* (Moscow: ISPI RAN) 359
- [14] Glaziev S Y *et al* 1992 *Evolution of technical and economic systems: opportunities and boundaries of centralized regulation* (Moscow: Nauka) 207
- [15] Eidemiller K Yu *et al* 2018 Islamic diffusion of Nordic countries: Sweden *IOP Conference Series: Earth and Environmental Science* **180** DOI:10.1088/1755-1315/180/1/012005 Available from: <http://iopscience.iop.org/article/10.1088/1755-1315/180/1/012005/pdf> [Accessed 1th September 2018]