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Management of the Economic Capacity of the Region on the Basis of Foresight (on the Example of Adygea, Russia)

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ABSTRACT

In connection with the aggravation of crisis phenomena in the economy of Russia caused by the events in Ukraine, the sanctions of the west, oil prices reduction and a decline in the ruble, a new approach to strategic planning is required. Foresight technology is the most appropriate one. The purpose of this article is to give a brief description of the foresight as a technology of foreseeing and identifying the most promising points of regional capacity, aimed at improving the competitiveness on the example of a particular region of the Russian Federation – the Republic of Adygea. The authors note that conducting the regional foresight project must be preceded by an analysis of economic, natural, innovative, and information-technological capacity of the region. The article reviews the methods for foresight, gives the characteristics of natural, economic, innovation and information-technological capacity of the Republic of Adygea. In the article the development problems of the region, uncertainty factors and trends of socio-economic changes in the republic have been identified. The implementation of the foresight project will allow to form the basis for social partnership of government, business and social community in order to better exploit opportunities and the implementation of the economic capacity of the region.

Keywords: Foresight, Forecasting, Anticipation, Socio-economic Development, Regional Capacity, Long-term Strategy, Uncertainty JEL Classifications: D81, O18

1. INTRODUCTION

Expanding opportunities of the strategic development of Russian regions is a prerequisite for the formation of a competitive economy of the country. Leadership position of the subjects of the Russian Federation are determined by their ability to actively integrate in the development processes, corresponding to the phase of formation of post-industrial society, as well as by the ability to produce new promising activities, consumption formats and lifestyles.

In today's economy the strategic decision-making takes place in an uncertain and challenging macroeconomic conditions and, therefore, requires new practical approaches to the assessment of the current regions capacity and identification of breakthrough areas in which a real socio-economic impact can be achieved (Galieva and Zhilina, 2015; Efimov et al., 2013).

Regional policy should be based on understanding of long-term trends in development of social, economic and technological capacity of the territory. The foresight technology is one of the most effective technologies with such opportunities, that allows to anticipate the possible development processes in the long-term (Krasnopolskaya and Mersiyanova, 2014; Zakharova and Avramenko, 2012).

International companies use foresight studies in order to identify the future corporate strategy. The foresight methodology is used in the regional development in order to prepare long-term regional concepts and identify promising directions of the region development. In addition, the foresight studies are recommended by the European Commission as a tool for promoting long-term thinking (Efimov and Lapteva, 2010).

An overall goal of the regional foresight is to make a valuable contribution to the strategy and development plans of the regions, municipalities, communities, as well as mobilize collective strategic actions (Kalyuzhnova and Verkhoturova, 2013; Zakharova and Avramenko, 2010). The systematic use of the regional foresight and related approaches in the public and private sector is becoming increasingly important, as the regions play a critical role in creating a unified research environment in Russia.

Theoretical and methodological aspects and problems of practical application of the foresight technology in the development of long-term development strategies of Russian regions were considered in the works of Sokolov, Tretyak, Kalyuzhnaya, Ageev, Voronov, Kovalchuk, and other authors. At the same time, it should be stated that when carrying out foresight studies more or less standard sequence of actions is not sufficiently reflected in the literature (Tretyak, 2008).

In this regard, the analysis of the practice and methodology of foresight, determination of possibilities of applying the foresight technology for development of long-term strategies of the region development acquire a particular relevance.

The purpose of this article is to give a brief description to the foresight as a technology of anticipation and identification of the most promising points in the regional capacity development aimed at improving the competitiveness on the example of a particular region of the Russian Federation – the Republic of Adygea.

2. METHODOLOGY

Foresight as a special practice of the future planning has been developing since 60s of XX century, constantly expanding the scope of application: Firstly, a technological foresight for large companies and branch ministries; then a social, regional, national foresight used for professional communities, authorities and governments.

Foresight is a specially organized process of systematic assessment of long-term development prospects of the region with the participation of business, academia, public authorities and civil society institutions. Foresight allows to estimate the possible specialization of a particular region and coordinate the projects development with key stakeholders as an inevitable part of the goal achievement (European Commission, 2009).

The foresight methodology allows to predict, and, in some cases, form the future, taking into account all possible changes in such spheres as: Science and technology, economics, public administration, social and public relations and culture. Specifics of the foresight is that it contains three complementary areas of activity (Efimov and Lapteva, 2010):

- Anticipation of the future. Identification of the underlying trends in socio-economic development of the region. The foresight is aimed at identifying different long-term scenarios for the future, including zones of inevitable, possible and impossible future.
- Management of the future. The harmonization of views of key stakeholders on possible options for the future, selection of the most promising scenario, combination of strategic objectives and co-organization of the efforts of all stakeholders, the formation of a broad coalition for the future.
- Routing of the future. Development of the "road map" of the future, which presents future targets of the desired future, "points" of changes in the public discourse, priorities and tasks that need to be solved, the necessary administrative decisions, targeted research and developments. The road map allows making key changes providing the possibility for movement into the desired future.

The totality of foresight methods can be structured around three categories. The first category includes qualitative methods. They are often used to represent the meaning of events and observations. Such interpretations are usually based on certain attitudes, beliefs and knowledge that are quite difficult to track, because the methods give a great scope for creative and subjective thinking. This category also includes such methods as retrospective analysis, brainstorming, expert panels, futures workshops, simulation games, interviews, literature review, morphological analysis; questionnaires and surveys; SWOT analysis (Mikova and Sokolov, 2014).

The second category consists of semi-quantitative methods based on the use of mathematical calculations, for example, for a quantitative assessment of expert opinion. The database of the foresight study includes several methods: Structural analysis, Delphi-survey; key/critical technologies; multi-criteria analysis; quantitative scenarios (statutory minimum wage index), mapping technologies for road mapping.

The third category of foresight methods involves quantitative methods. They are often used for monitoring measurable variables, and the statistical methods are used for processing and analysis of "fixed parameters." These methods include modeling and simulation, bibliometrics and extrapolation of trends.

A variety of methods, the multiplicity and diversity of expert knowledge allow to "look beyond the horizon" and/or find the "gaps" – essentially new (lying outside the permitted existing ontologies of forecasts and models) possibilities of the future.

The set of methods used in foresight studies is chosen taking into account possible resource and time restrictions, the availability of experts of the required qualification, an access to information sources, etc.

The foresight process is considered as the interaction of four forces, which can be represented in the form of a quadrangle ("foresight diamond"): Cooperation, creativity, expertise, conclusiveness. These attributes are not mutually exclusive. In fact, they are often

intertwined and connected in different sequences and therefore can be considered as "genetic" components of the method.

The foresight consists of three stages:

The first stage (pre-foresight): At this stage, the characteristic of the conditions of the study is given, the external and internal environment of the region is analyzed, a comprehensive analysis of the economic, social, infrastructural, natural, technological capacity of the Republic of Adygea is carried out. At the same stage the uncertainty factors of the future are identified, the goals and objectives of the foresight are determined; parameters and indicators of the foresight study are established.

The foresight process is the second stage: At this stage, opinion polls are conducted in the republic, including an analysis of public opinion on the problems and prospects of the regional development; preferred futures; possible mechanisms of development of the republic (focus groups, expert sessions, mass opinion polls, etc.). At this stage, the expert knowledge about the problems and prospects of development of the republic is accumulated, the likelihood and significance of implementation of possible scenarios are estimated, and potential drivers of changes are identified (Delphi survey). The final documents are developed, for example, the road map for the regional development, including the targets of the desired future; priorities and tasks that need to be solved, a list of specific activities and the required management decisions.

Post-foresight is the third stage: This stage includes monitoring of changes in the future of the republic, monitoring the implementation of the selected scenarios of the process development, recording the actions of the authorities and citizens in the transition from one scenario to another, conducting repeated research stages, verification of anticipated events (Karasev et al., 2012).

3. RESULTS OF THE ANALYSIS OF NATURAL, ECONOMIC, INNOVATION AND INFORMATION - TECHNOLOGICAL CAPACITY OF THE REPUBLIC OF ADYGEA

Cherkess (Adygea) Autonomous Region was established in 1922 by separation from Krasnodar and Maikop departments of the Kuban-Black Sea region. On September 13, 1937 it was part of the Krasnodar Territory under the name of Adygea Autonomous Region. On October 5, 1990 Adygea Autonomous Republic was established. In 1991 Adygea received the status of the subject of the Russian Federation.

Currently, the Republic of Adygea is a part of the Southern Federal District of the Russian Federation. It is located in the north-western part of the Caucasus, on the left bank of the rivers Kuban and Laba; it covers an area of 7.8 thousand sq. km. Most of the land fund of the Republic of Adygea is occupied by the agricultural land and forests: Their area amounts to 3.43 thousand sq. km. and 2.38 thousand sq. km. respectively.

Natural conditions for the life of population are among the most favorable. The climate is temperate continental. Anthropogenic impact on the environment in the republic is incomparably lower than in other regions of the Russian Federation.

Mineral resources of Adygea are as follows: High-quality oil, molybdenum, tungsten, barite, lead, copper, zinc, phosphate, raw materials used for the production of construction materials – clay, sand, sand and gravel mixes, trim stones. Silver and gold can also be found.

In Adygea there is the Caucasus State Biosphere Reserve, four state nature reserves, nature monuments. The protected areas, declared a World Natural Heritage by UNESCO, occupy 14 percent of the territory of Adygea.

The Republic of Adygea has a developed transport infrastructure, which is integrated into the transport network of the South of Russia and represented by rail, road, air and pipeline means of transport. Maikop is the main transport hub (railway line, 5 motorways, and airport). The operational length of railways is 160 km. Loading of rail freight in Adygea amounted to 1272 thousand tons in 2010.

As of January 1, 2014 the population of the republic comprises 446.6 thousand people. Population density includes 56.6 people per 1 km², which is almost three times higher than a Russian average indicator.

The region's economy is actively developing. At the end of 2014 the Republic of Adygea ranked first among the regions of the Southern Federal District for the index of industrial production, the growth rate of residential commissioning, the growth rate of public catering and the volume index of paid services rendered to the population (Table 1).

The economic capacity of the region includes 7299 enterprises of different activities.

The dominant economic sector is agriculture. The favorable geographical position of Adygea and favorable soil and climatic conditions may contribute to its further development. Crop farming is the basis of the agricultural production; pig, sheep, poultry and pedigree breeding should also be noted. The republic ranks second in Russia, after the Krasnodar Territory, for the yield of grain – 39.3 centers per hectare. Adygea is among the top three among the subjects of the Southern Federal Region for the growth rate of production of milk and eggs, respectively; it takes the first and third places.

Industrial production relates mainly to food processing, woodworking, pulp and paper industries; there are also machine-building and metal-working enterprises. Over the years, the industrial complex of the republic demonstrates positive dynamics: The index of industrial production for 2010 amounts to 115.2%; for 2011 – 107.2%; for 2012 – 108.7%; for 2013 – 102.7%; for 2014 – 118.3% ("The Ministry of Economic Development and Trade of the Republic of Adygea" 2015).

Table 1: The rate of development of main economic branches of subjects of the Southern Federal district in 2014 (in percent (%) by 2013)

The subjects of the southern federal district	The index of production (for the full range	The index of agricultural production	index of investments	The amount of construction work	rate of residential		Public catering turnover	The volume index of paid services rendered
Danielia of Adecas	of enterprises)	101.2	in fixed assets	F	commissioning		117.0	to the population
Republic of Adygea	118.3	101.3	82	96.1	by 2.5 times	103.7	117.9	112.5
Republic of Kalmykia	100.9	111.6	110.7	196	109.2	105.5	99.4	97.9
Krasnodar region	102.6	102.7	72.8	67.3	120.3	106.6	110.8	106.7
Astrakhan region	101.5	101.4	80.7	76.7	102.8	103.7	108.3	100.5
Volgograd region	100.7	108.7	120.1	108.1	140	101	102.8	101.1
Rostov region	104.9	111.7	101.5	116.5	109	102.5	103.3	103.7

Adygea is one of the unique tourist regions of Russia. The republic attracts tourists in any season, allowing to develop all types of tourism. Currently in the sphere of tourism includes approximately 165 companies, including health resorts, hotel companies, sightseeing tour agencies, etc. The information-technological capacity of the Republic of Adygea is rapidly developing (Table 2).

For 2010-2013 the costs of information and communication technologies have increased by 4.7 times.

The number of organizations using ICT (except small businesses) has increased from 515 to 531 units, the number of personal computers has increased by 2,205 units (by 15%), during the same time period.

4. PROBLEMS OF DEVELOPMENT OF THE REPUBLIC OF ADYGEA

Despite the positive trend of development of the region as a whole, currently the Republic of Adygea has a number of acute problems.

 The lack of development of the innovative capacity of the republic

Currently in Adygea there are only 9 organizations engaged in research and development, including 3 research organizations, 2 universities, 1 pilot plant and 3 other organizations. The total number of employees of these companies amounts to 326 people (excluding research and teaching staff of universities, performing scientific research and development along with their teaching activities).

The underdeveloped innovation infrastructure is one of the key problems: In the republic an innovation-technological center, a technological cluster or technopark have not been established yet. In addition, the region has not implemented any large-scale innovative project that could significantly increase the volume of the gross regional product.

2. Problems in the social sphere

Although in recent years the number of pre-school children is growing, in the Republic there is an acute shortage of places in municipal kindergartens. Thus, the coverage of children by preschool educational institutions in the Republic of Adygea is 55.7% of the number of children of appropriate age (for comparison: On average across Russia this indicator is equal to 63%, in the Southern Federal District – 58.4%).

Table 2: Dynamics of indicators of information-technological development of the Republic of Adygea in 2010-2013

Indicators	2010	2011	2012	2013
The number of organizations				
using ICT, units	515	522	454	531
The number of personal				
computers, units	14,657	15,275	14,172	16,862
The number of personal				
computers with an access to				
global information networks	6,044	7,334	8,175	9,702
Costs of ICT, million rubles	225.7	244.8	309.1	1,052.3

ICT: Information and communication technologies

Another important problem of the social sphere is the lack of staffing and low-skilled workers of educational medical institutions.

Another pressing issue in the region is weak adaptation of the social infrastructure to the needs of disabled people.

3. Low living standards

Per capita income is one of the most important indicators of living standards (Shewhart, 2013). In 2013, per capita income of the regions of the Southern Federal District ranged from 11,311 rubles (in the Republic of Kalmykia) up to 25,777 rubles (in the Krasnodar region). On average in Russia this indicator amounted to 25,928 rubles, in the Southern Federal District – 21,842 rubles. In the Republic of Adygea per capita income in 2013 amounted to 18,512 rubles per month (Russian Regions, Socio-Economic Indicators 2014). According to this indicator, the region takes the 61st place among 83 Russian regions.

The high unemployment rate is one of the most challenging socio-economic problems in the Republic of Adygea at this stage of its development. Despite a steady decrease in this indicator in recent years, the unemployment rate in the region in 2013 amounted to 7.9%, which is much higher than a similar indicator in Russia on average (5.5%) and in the Southern Federal District (6.5%).

4. Demographic problems

The Republic is a region with a high population load: 1 thousand people of working age account for 740 people of unemployable age (in Russia on average dependency ratio in 2013 amounted to 687 people, in the Southern Federal District – 711 people).

The determining factor of the demographic development of Adygea is a natural population decline: By the end of 2013 this indicator was 0.6, while in Russia on average there is a

natural increase by 0.2. The mortality rate in the region (13.1) is higher than the birth rate (12.5). At the same time, in the Russian Federation the inverse dynamics can be observed: The number of births per 1000 people (13.2) exceeds the death rate (13.0).

5. Energy-deficiency of the region

The Republic of Adygea is one of the most energy-deficient regions of the Russian Federation. This circumstance is a factor impeding the development of the productive capacities of the Republic of Adygea and increase in the revenues of the Republican budget of the Republic of Adygea. For example, in 2012, taking into account the total electricity consumption of 1 billion 192 million kilowatt-hours, the Republic of Adygea generated only 65 million kilowatt-hours. When considering the average price of electricity in the retail market, we can imagine the amount of revenue that the Republican budget of the Republic of Adygea loses every year (Resolution of the Cabinet of Ministers of the Republic of Adygea No. 289 2013). The high energy consumption of manufactured goods affects the cost of the output products, and consequently the competitiveness of these products on product markets. The lower the energy capacity of the products, the higher its competitiveness.

The regional energy system becomes outdated. Thus, at the end of 2013, depreciation of fixed assets in the production and electricity, gas and water distribution in the Republic of Adygea amounted to 61.2% (in Russia on average this indicator is 39.2%, in the Southern Federal District – 33.7%).

5. THE UNCERTAINTY FACTORS OF THE FUTURE

Despite the development capacity, the region's prospects remain uncertain. This uncertainty is caused by two important external factors:

1. The global situation of uncertainty

An increase in the global public debt, the economic problems in Europe and slowdown in Chinese economic growth – these are the signs of destabilization of the world economy (The International Monetary Fund 2014); "slate" and "methane" revolution could lead to a redistribution of global commodity markets.

Increased geopolitical tensions could be long-term, hindering reconstruction in the directly affected countries and weakening confidence in other countries. At the same time, the exacerbation of these tensions can lead to a sharp increase in oil prices, lower asset prices, and additional economic hardships.

The risks associated with the financial market, include a reversal of recent contraction of spread upon the risk and volatility as a result of a larger increase in long-term rates of the USA than expected, — which also would lead to tighter financial conditions for emerging markets. Long-term stagnation and low potential growth in developed economy countries remain a major medium-term risk due to low and uneven growth in these countries, despite very low interest rates and easing of other factors hampering the economic revival. In some major

emerging markets, the negative effects of supply constraints on the economic growth may be more prolonged.

Tightening of foreign policy could lead to new foreign and economic tensions. Certainly, all this will have an impact on the economic and social situation in Russia, in the Southern Federal District and the Republic of Adygea.

2. Complex socio-economic and political situation in Russia A key characteristic of the socio-economic and political development of Russia in 2014 was the alignment or mutual superposition of several crises. In this case, we mean not a crisis in one strict sense (for example, in the economic sense), but a number of trends and events, each of which goes beyond the scope of sustainable, inertial trend and substantially complicates the adoption of economic and political decisions (Mau, 2015; Shewhart, 2013).

There are the following crises and problems that emerged in the present time in Russia:

- Continuation of the global structural crisis, leading to profound changes in the economy and politics of the leading countries, the emergence of new geopolitical and geo-economic balances;
- Worsening of the geopolitical situation, which is partly due to the significantly increased foreign policy activity of Russia;
- Foreign policy shock from sanctions against Russia;
- External economic shock due to the fall in oil prices as the main source of the state budget of the Russian Federation;
- The emergence of a currency crisis as a result of the double foreign policy shock (fall in oil prices and financial sanctions);
- Cyclical crisis, caused by the fall in investment activity.
 The combination and superposition of these crises
 complicates Russia's economic development and
 imposes special requirements for its economic policy. It
 is important to apply a balanced analysis of the negative
 trends and problems associated with them, as well as
 understanding of the positive elements that can be used
 to counteract the crisis.
- a. Deceleration of economic growth in Russia, which began in 2012. In 2015, the growth rate may become negative. The economic downturn is not such a significant problem, if it is short-term. However, the prolonged recession and the associated risks of inadequate anti-crisis economic policy could be dangerous for the Russian economy.
- b. The structural problems of the Russian economy may lead to a further destabilization of the national currency.
- c. Increased political uncertainty will reduce the business and investment activity.
- d. Prohibition on access of Russian companies to the capital markets of countries that officially announced anti-Russian sanctions (USA, EU, Canada, Japan) have a negative effect on the ability to attract loans and place shares abroad.

At the same time, a number of positive trends should be identified in the macroeconomic situation, which may contribute to the Russian economy development:

a. A "fiscal rule" allowed to save a balanced budget;

- b. Low public debt of the Russian Federation, especially denominated in foreign currency;
- Availability of substantial foreign exchange reserves of the Government and the Central Bank of the Russian Federation;
- d. Relatively low level of unemployment as a factor of social stability in the country.

6. RECOMMENDATIONS FOR THE CONDUCT OF FORESIGHT IN THE REPUBLIC OF ADYGEA

Currently in the Republic of Adygea a socio-economic development strategy, developed by scientists and practitioners, has been adopted until 2025. But the next crisis breaks all primary data and basic parameters, which are the basis for the implementation of the Strategy, and they begin to change so much that the implementation of this Strategy becomes unreal. A new approach to strategic planning is needed. The foresight technology is the most acceptable approach, which has been used for 30 years in west countries and in some regions of Russia; for example, in Bashkortostan it has been applied for more than 10 years.

The goals of the foresight:

- Discussion of the future of the Republic of Adygea till 2035;
- Drawing up 3-5 alternative scenarios for development of the region.

The main objectives of regional foresight project:

- Identification of the key trends affecting the development of the region in the future 20 years, the identification of bifurcation points and critical situations;
- Definition of industrial priorities of economic development, drivers and key subjects of changes, breakthrough projects in each area of the economy.

As a part of the foresight project it is planned to implement the following measures:

- The conduct of thematic expert sessions on the following aspects: The economy of the region; management of the region; socio-cultural space; infrastructure of the republic;
- The conduct of the foresight session on formation of a future image of the Republic of Adygea till 2035.

A key technological objective of the foresight session is to provide a high intensity and efficiency of participants' communication.

The foresight session consists of an introductory foresight and a number of operating stages, each of which includes three mandatory procedures (Efimov et al., 2013):

- General affirmation setting the field of meanings and specific problem description;
- Group communication of members, including the problematization of a breakthrough and a new vision;
- Formation of a new space of meanings, ideas and suggestions.

The first event is an introductory foresight. Key actions include expert reports on the current situation and the future of the republic, an overview of case studies on the regional foresight.

Stage 1: Trend mapping: The key action is an individual work, special creative and analytical procedures in groups (up to 20 persons) and small groups (3-5 people). Trend maps, the product of this stage, are the main trends correlated with the time scale, which, according to participants, will determine the situation of the Republic of Adygea in the long run up to 2035.

Stage 2: Scenario planning: This procedure involves the development of more comprehensive visions of the future, each of which is specified in the form of a specific scenario. In the foresight technology scenario planning is projective and cannot be reduced to the traditional forecast scenarios as a combination of a number of external and internal factors.

Stage 3: Development of project ideas and solutions: The final part of the foresight session involves specification of the vision of the long-term future of the city in accordance with the selected trends and baseline scenarios, selected by the participants of the foresight session. Participants develop project ideas and management solutions that will contribute to the implementation of the specific scenario. Results of the third stage of work comprise packages of project ideas and management solutions for the implementation of each basic scenario for the development of the Republic of Adygea till 2035.

The result of these activities should be a "future map" of the Republic of Adygea, which includes project changes made for the implementation of the existing capacity and achievement of the desired image of the future of the region.

7. CONCLUSION

Each region is unique and needs its own development strategy, taking into account the specificity of the territory, as well as existing processes and development trends. The task of each regional foresight is directly related to solution of the long-term problems of the region and fulfillment of its capacity (innovation, economic, technological capacity, etc.) in order to solve these problems.

The foresight will bring an opportunity to develop the economy of the Republic of Adygea on the basis of the growth of its innovative component, taking into account global trends and experiences, features of its own scientific, technological and industrial base, with clearly defined priorities.

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