

# Methodological Approaches to the Goals of Russian Economic Development in Digitalisation

Lyudmila Babkina

North-Western Institute of Management, Branch of the Russian Presidential Academy of National Economy and Public Administration under the President of the Russian Federation

Saint Petersburg, Russia  
lnbabkina\_6@mail.ru

Oksana Skotarenko

Murmansk Arctic State University  
Murmansk, Russia  
Military Academy of Logistical Support named after General of the Army A. V. Khrulyov  
Saint Petersburg, Russia  
ksen-13@mail.ru

Yurij Nikitin

Military Academy of Logistical Support named after General of the Army A. V. Khrulyov  
Saint Petersburg, Russia  
nikitin\_gpa@mail.ru

**Abstract**—The article analyses the presence of main methodological approaches in establishment of the national programme for a digital economy. The Russian Federation needs a digital economy because information and computer technologies are developing both in all sectors of services and production and in systems of national, municipal, and market management on the macro and micro levels. Establishing a digital economy as a single system will therefore require a theoretical framework, primarily methodological approaches. An important one is the programme goal approach where any national programme, including the “Digital economy of the Russian Federation”, is a way to achieve higher-level goals of socioeconomic development. It should also contain lower-level goals as sub-programmes of its implementation. The analysis has shown that this rule is observed. The programme contains two sub-programmes, and each goal in that hierarchy has its criteria expressed as quantitative indicators. The complex-based methodological approach helps to identify and further implement two complexes of national and government programmes divided by their “influence level” on the national programme in question into direct-action and indirect-action programmes. The process-based methodological approach is present as annual projected and planned reporting indicators: implementation criteria for the goals to be achieved, analysed, and adjusted in case of failure. The analysis has shown that the systemic methodological approach as the main one for establishment of a unified digital economy requires a better implementation. The situational methodological approach helps to create a system for adjusting the implementation criteria of national programmes and projects depending on their results and changing conditions of socioeconomic development influenced by various macro-level and micro-level factors. It is not present and therefore should be implemented.

**Keywords:** *methodological approach, digitalisation, national programme, government projects, hierarchy, set, criteria, rate of changes*

## I. INTRODUCTION

Among Russian authors who study the issues of digitalisation of the Russian economy, we can note the following: Belous, A. P. [1], Bodrunov, S. D., Plotnikov, V. A. [2], Charykova, O. G., Markova, E. S. [3]; Frolov, D. P., Lavrentieva, A. V. [4]; Kelchevskaya N. R., Shirinkina, E. V. [5], Babkin, A. V., Bepalova, S. V., Senetskaya, L. B., Skotarenko, O. V. [6].

The issues of digitalisation of economy were studied in works by international authors: F. Gault [7]; E. Horváth, S. Klinkmüller [8]; D. Huo, Y. Chen, K. Hung, R. Ouyang, B. Sun, Y. Cai [9]; G. Popescu, F. Cristian Ciurlău [10]; A. Ramaiah [11]; V. Russo [12]; D. Selvaratnam, Z. Embong, K. Keliwon [13]; P. Xie, J. Wu, H. Du [14]; Z. Yin, X. Gong, P. Guo, T. Wu [15]; L. Zhang, S. Chen [16]

The influence of digitalisation on industrial economies was studied in works by O. Budzinski, A. Stöhr [17] M. Kooshki [18].

The experience of digitalisation of economic processes on the level of the economic agent is described in works by [19] H. Pasandideh [19]; A. Willems, M. Kamau [20].

The legislative changes in the international and European law on digital economy were studied by A. Ting, S. Gray [21]; C. Trenta [22].

The goal of the study is to identify the implementation degree of the main methodological approaches in building the set of national programmes and government projects influencing the creation of a digital economy in the Russian Federation.

## II. METHODS

The method of the study is analysing whether the programme goal, complex-based, process-based, systemic, and situational methodological approaches are present. It also uses the methods of statistical, horizontal and vertical analysis of quantitative indicators as criteria of achieving a goal.

The study methodology is presented as the following sequence of stages:

- At the first stage, we set the goal of this study.
- At the second stage, we collected a set of information that included the following national programmes: “Digital economy of the Russian Federation” [23]; “Economic development and innovative economy” [24], “Development of education” [25], “Foreign policy activities” [26], “Scientific and technological development of Russia” [27], as well as the following federal projects: “Regulatory control of digital environment” [28], “Human resources for a digital economy”, “Digital literacy of the public” [23], “Stimulating innovation” [24], “Export of services” [29], “Labour productivity and employment support” [30].
- At the third stage, we studied the quantitative changes in indicator criteria of implementation of national programmes and federal projects and identified the annual rate of change for those criteria.
- At the fourth stage, we identified the implementation degree of the programme goal, complex-based, process-based, systemic, and situational methodological approaches in the existing hierarchy of national programmes and federal projects aimed at creating a digital economy in Russia.
- At the fifth stage, we made conclusions based on the study findings.

## III. FINDINGS AND DISCUSSION

The Decree of the President of the Russian Federation of 7 May 2018 On national goals and strategic objectives in development of the Russian Federation until 2024 set forth certain main activities of the Russian government (29 September 2018, No 8028p – Cl. 13). In line with the activities, a national programme called “Digital Economy of the Russian Federation” was developed, its description being approved on 7 June 2019 at a session of the Executive Committee of the Council on Strategic Development and National Projects attached to the President of the Russian Federation (Protocol 7).

In accordance with the rule of dividing goals into sub-goals, the programme includes two sub-programmes called the

“Regulatory control of digital environment” and “Human resources for a digital economy” federal projects.

Thus, we can say that the methodology of digitalising economic processes is based on a programme goal approach. Its essence is in building a hierarchical set of long-term goals. There is a main strategic development goal, or a goal-as-requirement, which is applied nationwide and can be expressed as raising the living standards of the Russian people. The President’s Decree sets a time limit of five years. To reach the goal, there are goals as conditions aimed at achievement of the main strategic goal. They are called strategic activities. There, the national programme “Digital economy of the Russian Federation” should be viewed as a goal-as-condition and the two federal projects – “Regulatory control of digital environment” and “Human resources for a digital economy” – as sub-programmes aimed at implementation of the aforementioned programme.

In accordance with the said methodological approach, we have to formulate two more subordinate levels of the hierarchy: goals-as-plans and specific activities, which, in their turn, help to implement the federal projects. There should be at least four such goals-as-plans and eight specific activities.

Apart from goals and specific activities, the goal-oriented hierarchy should also include both goal achievement criteria and results of specific activities. For the main strategic goal, goals-as-conditions, and goals-as-programmes, the criteria are indicators where the quantitative values are estimates. For the plans and specific activities, the criteria are planned values, not probabilistic variables, and they have to be reached within the range of variation from 0% to 10%.

Consequently, the planned results can be overachieved by 10% but no more than that.

For example, the number of graduates of the professional education system who have competencies in digital economy is an implementation criterion for the federal project “Human resources for a digital economy” as a goal-as-programme in the goal-oriented model. The quantitative values of the indicator are set on a yearly basis from 2019 to 2024, from 250,000 to 800,000 people, with the annual rate of increase equal to 20 %, 33 %, 25 %, 30 %, and 23 % respectively.

Taken as a whole, the increase from 2019 to 2024 will be 220%, or 550,000 graduates of the professional education system who have competencies in digital economy. This, however, does not show the level of educational establishments training people for digital economy – secondary or higher.

The second indicator is the number of professionals, including heads of organisations and representatives of executive authorities, retrained to receive competencies in digital economy, to be raised from 30,000 to 270,000 people. Thus, the increase will be 240,000 people, or 80 %, and the federal project is aimed at a higher increase in the number of professionals than professionally trained graduates.

Apart from that, staff training will be done for the government programme “Economic development and

innovative economy”. The goal achievement criterion is an indicator showing the number of professionals retrained to receive competencies in digital economy as part of additional education. The indicator is also a goal achievement criterion for the government programme and federal project. By 2024, 1,270,000 people will have been trained for the government programme and federal project, which will ensure the rate of increase of 452% compared with 2019. The changes in indicator values are shown in Fig. 1.

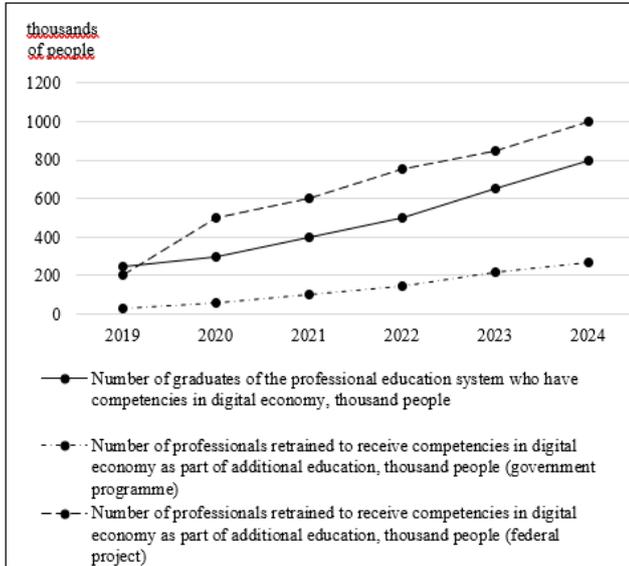


Fig. 1. Indicators of the federal project “Human resources for digital economy” [23]

As we can see from Figure 1, the main focus will be on increasing the number of professionals retrained to receive competencies in digital economy as part of additional education under the federal project.

The next criterion is an indicator to be achieved by the end of 2019 in the government programme “Information society” [23] equal to 75% compared with 2024: digital literacy of Russian people, which has to reach 60% in 2024. However, the programme does not state a population category out of the three: pre-working age, working age, post-working age.

In general, by 2024 the share of digital literacy will have increased by 15 percentage points, or a factor of 1.25, which means a literacy increase of 25%.

Only one federal project – “Human resources for digital economy” – is aimed at achieving this goal. Another criterion of it is the percentage of digitally-literate people having core competencies for a digital economy, equal to 27% in 2019 and 40% in 2024, which means an increase by 13 percentage points, or a factor of 1.5, thereby making the increase equal to 48 %.

In accordance with the division rule, it is necessary to create (at least) a second federal project, capable of adding 35% to digital literacy of the public by 2024. The cumulative

percentage will be 75% as a result of implementation of two federal projects.

A criterion in the national programme “Scientific and technological development of Russia” [27] is the share of tasks in national knowledge tests using digital resources (tools, sources, means, services, or technologies) for professional or everyday activities, to change from 0 in 2019 to 100 in 2024.

The second methodological approach is the complex-based approach partially used for setting goals and implementation criteria in the federal project “Human resources for digital economy” as a sub-programme in the national programme “Digital Economy of the Russian Federation”. For example, staff training is included in the following state programmes: “Development of education” [25] at the secondary and vocational levels of education and “Foreign policy activities” of the Ministry of Foreign Affairs [26] and “Scientific and technological development of Russia” [27] implemented by the Ministry of Science and Higher Education in higher education establishments and scientific organisations.

These three government programmes should be viewed, in our opinion, as the first complex. The second complex includes the national programme “Digital economy of the Russian Federation” and the government programmes: “Information society” [24] and “Development of science and technology”. They do not affect any achievements in the national programme “Digital economy” but contain indicators describing the level of competency in a digital economy. These programmes are concurrent strategies of development.

The process-based methodological approach is presented as annual projected, and therefore planned, reporting indicators: achievement criteria for the aforesaid national (government) programme and federal project goals.

However, an important, systemic methodological approach is not fully represented in the two complexes of goals both affecting and not affecting the end results of digital economy development.

The systemic approach means that the Russian national economy is a system that functions in the changing circumstances of an external international environment and contains three systems: a controlling system, a controlled system, and an information system presented as units: input, data processing, output, and feedback, all connected by information streams.

Changes in the external international environment are foreseen and considered, which is followed by specific actions to eliminate or make use of them and prevent negative impacts or limit the damage.

Inputs of the controlling system should include any resource support needed for development of a digital economy in Russia: human resources, inventories, finances, information, and fixed assets. The current national programme only provides for human resources and lacks the other four items. The state programme “Development of education” is aimed at human resource capacity while “Scientific and technological development of Russia” is designed to create fixed assets.

Thus, the national programme “Digital economy of the Russian Federation” does not yet provide for development of inventory, information, financial, and fixed asset support, which makes it impossible to achieve a systemic effect because these types of resource support are not provided to the required scope and quality.

Besides, the indicators describing the outputs of the economic system only include productivity increase at mid-size and large enterprises of core non-commodity sectors of the economy, with an annual increase rate of 1.4% in 2019, 2% in 2020, 3.1% in 2021, 3.6% in 2022, 4.1% in 2023, and 5.04% in 2024, which means that the overall productivity increase at those enterprises will be 3.64% over the five years.

The number of mid-size and large enterprises of core non-commodity sectors of the economy is as follows: a) enterprises included in implementation of the national project – from 958 in 2019 to 10,000 2024, which means an increase by a factor of 10.44, or by 944 %; b) enterprises using the support measures – from 60 in 2019 to 4854 in 2024, which means an increase by a factor of 80.9. As a result, the share of the enterprises using the support measures changes as follows: 6.25% in 2019, 28.27% in 2020, 32.73% in 2021, 38.3% in 2022, 43.31% in 2023, and 48.54% in 2024. Consequently, almost a half of those enterprises in those sectors will use the support measures provided by the national project “Stimulating innovation” as a sub-programme in the government programme “Economic development and innovative economy”.

Besides, for the enterprises in question, the endpoint criterion is the increase of labour productivity in comparison with the labour productivity in Russia as a whole and will change from 0.1 percentage points in 2019 to 1.8 percentage points in 2024. Consequently, the overall labour productivity increase in Russia will change from 1.3% in 2019 to 3.24% in 2024, making an annual average of 0.39% over the five years. The share of the enterprises where the labour productivity increase is consistent with the target values will rise from 60% in 2019 to 95% in 2024, with an increase rate of 20 % in 2020 compared with 2019, 10% in 2021 compared with 2020, and 5% in 2022 compared with 2021. The process is expected to stagnate later on.

These two indicators are the criteria that characterise the outputs of the economic system. They are related to the national project “Labour productivity and employment support” [30].

The government programme “Development of international economic activities” [26] is governed by goal achievement criteria, such as the scope of export of services in general and by sector: transport, business travel, telecommunications, IT, construction, industrial production, finance and insurance, services to individuals, culture and recreation. The results of this government programme will also reflect the degree of economic development and digitalisation. In particular, they are related to the following government programmes: “Development of culture and tourism” and “Development of the transport system”.

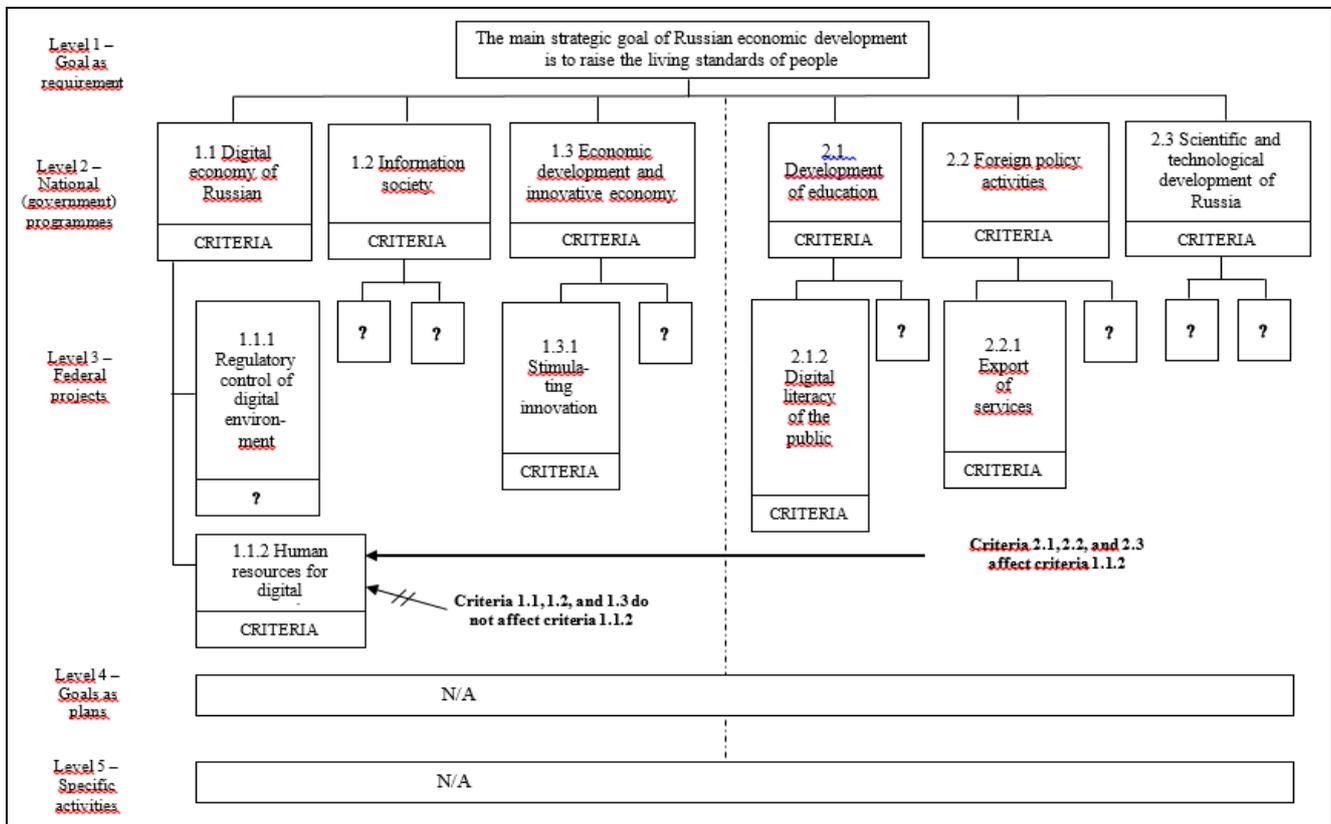


Fig. 2. Hierarchical set of national (government) programmes and federal projects

In our view, the systemic methodological approach provides for a scope of necessary and competitive services both for exporting abroad and for domestic use.

The situational methodological approach, in its turn, provides an opportunity to vary the end results within the set limits of each goal achievement criterion. This methodological approach is absent from the programmes and projects under consideration.

The hierarchical set of the existing Russian national programmes and federal projects aimed at implementing the programmes until 2024 is shown in Fig. 2.

As we can see from Figure 2, the hierarchical set requires improving in compliance with the methodological approaches.

#### IV. CONCLUSIONS

The findings show that for a successful implementation of the national programme “Digital economy in the Russian Federation”, it is necessary to solve the following problems:

- identify the level of the educational establishments that train staff for a digital economy in the federal project “Human resources for a digital economy”;
- create federal projects for all of the remaining types of support for the programme “Digital economy in the Russian Federation”, such as inventory, information, finances, and fixed assets;
- include a classification by working age into the national programme “Information society”;
- use the suggested methodological approaches for a further development of the hierarchical set of national programmes and federal projects.

This study suggests further correction of the identified flaws, which will help to implement the national programmes and federal projects more efficiently in creating a digital economy in Russia.

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