

STRATEGIC PRIORITIES OF REGIONAL INNOVATION POTENTIAL DEVELOPMENT

Yulija Dovgal*

1. Introduction

Achieving significant advances in the development of the Ukrainian economy requires effective interaction between government, educational and research institutions, business, and community organizations. Their activity must be aimed at the enhancement of local factors of economic growth, mainly due to the innovative production. As the production and implementation of innovations were performed mainly at the level of the enterprise, then a centre of innovation activity should be determined as local unification – such as a region. Therefore modern regional development strategy should include the process of enhancing and strengthening of the potential and competitiveness of the region. And it can be realized through the development of region innovative potential, the expansion of innovative processes aimed at creating a functioning innovation system. Exactly that will help to create innovative products and will contribute to strengthening of competitive advantages of the region and the country as a whole.

2. Strategic priorities determination in development of regional innovation potential

Considering the region as a complicated socio-economic system is appropriate to assume that it functions within vector (multipurpose) criteria of its (efficiency) quality. From the perspective of a system analysis, it is impossible to reduce the operation of a complex system to a single criterion as the other system goals are in different conditions that arise in the process of its functioning, to demand the unconditional move them to the forefront. In the analysis the development strategy of regional innovative potential is suggested to coordinate all the available local strategies using the analytic hierarchy process (AHP). This quantitative method of system analysis is intended to ground the selection of optimal solutions in terms of substantial uncertainty and the presence of a large number of efficiency criteria to correspond the solution. An assessment of the importance of such criteria (the value of their influence on the decision-making process), is calculated to quantify the ratio of each of these significances. The criteria in this study are proposed to consider the strategic priorities of regional innovation potential [1; 2]. The method of analytic hierarchy process was chosen to justify strategic priorities because of its versatility in the analysis of complex problems and systems, and because of its ease of use. It is possible to use judgment regarding the status and prospects of the development of regional innovative potential of well-known scholars and professionals in this field, using them as expert conclusions. For the analysis and ranking of these estimates the most correct use is the analytic hierarchy process, as it enables to take into account expert opinions, which are expressed not only by qualitative factors but also quantitative. The selection of the strategic tasks of regional innovation potential development was conducted on the basis of the analysis of publications and reports of authorities, leading experts in the field of innovation development of Ukraine. Besides the data tasks correspond to a display direction of the National Development Strategy "Ukraine – 2015", the Strategy for Economic and Social Development of Ukraine "On European integration" for 2004–2015, the National Regional Development Strategy for the period up to 2015, as well as strategies for the development regions to 2015. The analysis allows to determine the following primary tasks [3; 4; 5]:

- improvement the competitiveness of the country and the region;
- the development of high technology branches;
- reduction of regional differentiation;

* © Yulija Dovgal; senior lecturer; department of finance and banking; Poltava National Technical Yuri Kondratyuk University; E-mail: <yul_dov@mail.ru>.

- ensuring the social stability of the state and regions;
- increase of the level of GDP;
- increase of revenues to the state and regional budgets;
- the growth of foreign investment;
- improving the standard of living and employment;
- the implementation of environmental programs.

Consequently, these objectives are the priorities in the development of regional innovative potential. That is innovation in the region should be directed first of all at achieving these priorities.

3. Assessment of priority strategic tasks

According to the methodology strategic planning and development of the region the prerequisite for the organization and implementation of the planning process is the involvement of representatives of various groups operating in the investigated territory and representing competing interests – central government, regional government, business leaders, investors, scientists and developers of innovation, the population of the region – and the establishment of their constructive partnership. These subjects of development (actors) present active forces that influence the decision of the assigned tasks. According to one of procedures for research planning in hierarchical systems, experts are given the opportunity to build a hierarchy, identification of actors, analysis of the actor’s goals, forming a hierarchy scenarios (based on subjective perceptions of social values to be pursued in the future) and their analysis [2]. The process of planning the development of regional innovative potential begins with the construction of the first hierarchy of the direct process, which includes five levels: the focus of the hierarchy, actors, actor’s goals, outcomes (contrasting scenarios) and generalized outcome (scenario). Future development of innovative potential of the region is taken as the focus of the hierarchy.

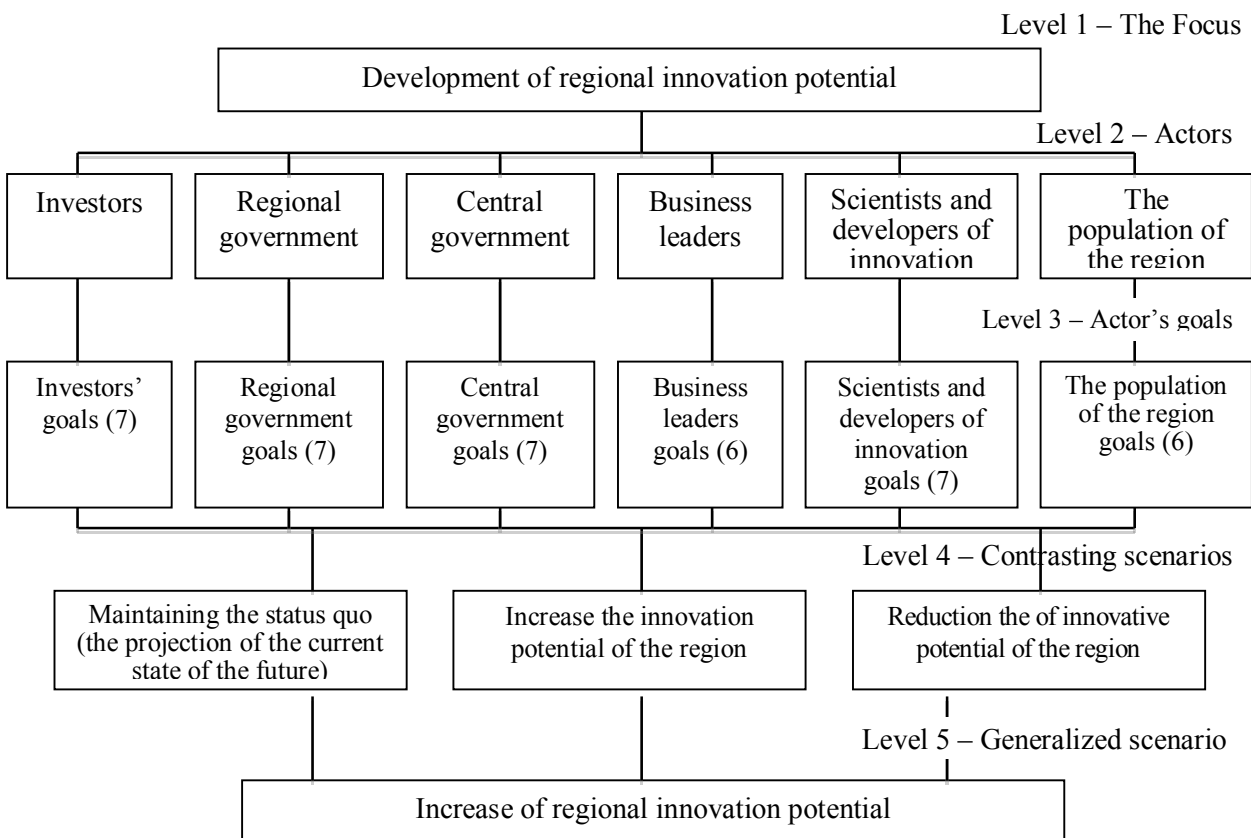


Fig. 1. The hierarchy of planning future development of regional innovation potential

Source: compiled by the author

From the point of view of the authors, the use of the subjects of their policies leads to the development of contrasting scenarios: 1) maintaining the status quo (the projection of the current

state of the future), and 2) increasing the innovation potential of the region, and 3) reducing innovative potential of the region. The generalized scenario – the state of the problem of innovation potential of the region – integrates some contrasting scenarios to assess the impact of planning decisions, the consequences of subjects. Thus, our analysis provides an opportunity to present the planning process in direct order as hierarchical system shown in Figure 1. Algorithm researches the problem of regional innovative potential development management on the basis of the usage of a hierarchy, which can be represented by the following generic steps.

Step 1. Definition of the actors' influence on the development of innovative potential of a region. That is, the future impact of strategies of regional innovation potential. It is based on the matrix of pairwise comparisons of the actors of the objective hierarchy.

Step 2. Determination of the actors' objectives importance. The matrix of pairwise comparisons is built for goals of each individual actor. It allows to calculate the weight of each target, their consistency and to identify common goals for different actors.

Step 3. Further essentiality relative to goals of focus is defined. For this priority actor's goals multiplies by the weight of the goal (the number of targets subject is divided by the total number of the goals of all actors). The resulting ranks of actor's goals are multiplied by the actor's priority. The resulting vector is normalized for priority purposes. They unite the same objectives of different actors by summing their priorities. Analyses of the 40 targets development of the regional innovation potential provided an opportunity to identify 17 ones that are the most influential, which in total reach 91% of the influence. To further simplify the analysis, it is advisable to use only those 17 most influential goals of actors (Tab. 1).

Tab. 1. Weight goals actors about the focus

Actors	Goals	Weight goals about the focus
Investors	Profit opportunities	17,96900%
	Minimization of investment risks	10,71600%
	Enhancing capitalization	7,36700%
	Expansion in production volumes	3,89000%
	Release of new production	2,21900%
	Improving the quality of products	1,59100%
Regional government	Increasing the region's competitiveness	2,02100%
	Increasing GRP	4,10300%
Central government	Increasing the country's competitiveness	2,88500%
	Increasing GDP	5,14900%
	Increasing budget revenues	16,75900%
	Rising external investments	7,35100%
	Providing social stability of the country	1,30300%
Business leader	Attracting investments	1,96700%
	Provision of financial stability	1,08100%
Scientists, developers of innovation	Material welfare	3,57400%
	Social protection	1,05300%

Step 4. It is necessary to determine the share of each of the contrasting scenarios regarding each of the seventeen most important objectives of the actors. For each goal, the consistency index (CI) and consistency ratio (CR) need to be estimated. In the AHP the pairwise comparisons in a judgment matrix are considered to be adequately consistent if the corresponding consistency ratio (CR) is less than 10% [1]. If the CR value is greater than 0,10, then it is a good idea to study the problem further and re-evaluate the pairwise comparisons.

Step 5. Next, to define the structure of a generalized scenario. For getting the weight of scenarios

relative to the focus hierarchy one should multiply a matrix, which consists of vectors priorities scenarios for weight vector purposes. In our study, we obtain the following results (tab. 2).

Tab. 2. Weight of scenarios relative to the focus hierarchy

Contrasting scenarios	Weight of scenario
Maintaining the status quo (the projection of the current state of the future)	19,82%
The increase of regional innovative potential	64,88%
Reduction of regional innovative potential	6,30%

Thus, the most preferred is the scenario “The increase of regional innovative potential” – 64,88%. Less desirable, but possible scenario is the “Maintaining the status quo” – 19,82%. Step 6. The consequences of making the most of the possible scenarios are determined and generalized the scenario evaluation. Each scenario separately, and a generalized scenario can be quantitatively assessed set of criteria. The value of the criterion for the scenario defined relative to the current state. For this purpose in our research we will assess scenarios from the point of view of the two actors – regional government and investor. Further development of a generalized scenario is considered from the point of view of the most relevant and influential actors. Efficiency criteria in this scenario are the goals of investors and regional authorities (tab. 3).

Tab. 3. Integral estimation of generalized scenario

№	Changing the state (criteria for efficiency evaluation)	Scenarios and its weight			Generalized scenario	Weighted criteria value for generalized scenarios
		The status quo	The increase of regional innovative potential	Reduction of regional innovative potential		
Integral estimation of generalized scenario for investors						
1.1	Profit opportunities	2	6	-8	3,784978	1,416
1.2	Minimization of investment risks	1	4	-4	2,541285	0,651
1.3	Enhancing capitalization	1	4	-6	2,415251	0,425
1.4	Expansion in production volumes	2	4	-2	2,865488	0,238
1.5	Improving the quality of products	2	8	-6	5,208604	0,276
1.6	Output of new production	1	8	-6	5,010435	0,190
1.7	Solving social and ecological problems	1	3	-2	2,018523	0,042
Integral estimation					23,84456	3,238
Integral estimation of generalized scenario for regional government						
1.1	Increasing the region’s competitiveness	2	8	-6	5,2086	0,859
1.2	The development of knowledge-based industries	1	8	-7	4,94742	0,148
1.3	Increasing GRP	2	6	-6	3,91101	1,310
1.4	Increasing employment of the region	2	4	-4	2,73945	0,192
1.5	Increasing regional budget revenues	2	6	-6	3,91101	1,271
1.6	Providing social stability of the region	1	4	-2	2,66732	0,152
1.7	The implementation of environmental programs	1	3	-2	2,01852	0,038
Integral estimation					25,4033	3,971

The results of the analysis, presented in Table 3, enable to make the conclusion about possible courses of development of the innovation system in the region. As it is seen from the analysis the state of innovation potential of the region in the future improve to some extent. This will be based on a significant increase of income of investors. On this basis, the risk of investment reduces and the capitalization of the investor's capital increases. Besides it slightly expand production and increases product quality. This also will lead to a significant increase in gross regional product and increase of revenues to the regional budget. The development of the innovation system in the region will enhance its competitiveness. To a lesser extent this will affect the increase in employment in the region provide its social stability. There will be a slight development of knowledge-intensive industries. The same positive changes, but very insignificant will occur for purposes of other investors and regional authorities.

4. Conclusions

The analysis conducted in the first direct planning has enabled to achieve the direct planning goal – designing the future state of the system, based on current trends. Thus the trends in the current state of the investor and the region are identified, as well as the condition of innovation potential of the region. The analysis demonstrated a positive trend, but in a very small extend, that does not give the possibility to improve significantly the innovation system in the region. Defined in the study of strategic priorities require further development and improve the innovative potential of the region. And, in general strengthen of the competitive advantages of the region and the country as a whole will improve the welfare of the population. Thus there is a need for the next phase of the analytic hierarchy – the reverse of the planning process. It will provide an opportunity to identify the best policy actors, the means of achieving goals, and to identify various problems that may arise in implementing different policies and different scenarios.

References

1. Saaty T. L. *The Analytic Hierarchy Process* / T. L Saaty. – McGraw-Hill, 1980.
2. Андрейчиков А. В. Анализ, синтез, планирование решений в экономике / А. В. Андрейчиков, О. Н. Андрейчикова. – М: Финансы и статистика, 2001. – 368 с.
3. Україна – 2015: Національна стратегія розвитку. – Київ-2008: Український форум [Електронний ресурс]. – Режим доступу: <http://semynozhenko.com.ua/content/files/Ukraine-2015%20big.pdf>.
4. Про Стратегію економічного та соціального розвитку України «Шляхом європейської інтеграції» на 2004–2015 роки // Офіційний вісник України. – 2004 р. – № 18. – С. 17.
5. Про затвердження Державної стратегії регіонального розвитку на період до 2015 року // Офіційний вісник України. – 2006. – № 30. – С. 36.

Summary

Strategic priorities of the development of regional innovative potential are examined and defined in the article. The analysis of the objectives of the innovation potential of the region using the analytic hierarchy process is conducted by the author. Assessment of priority strategic tasks in the development of regional innovative potential is made.

Key words: region, strategic planning, regional innovation potential; analytic hierarchy process; development of region innovative potential.

UD classification: 332.145: 303.732.4