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**RATING-BASED MANAGEMENT DECISIONS IN
FORMULATING THE COMPETITIVENESS POLICY OF A
REGION**

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Abstract

As a property of any subject of the market economy, competitiveness is determined by a set of qualities, and on the territorial level is achieved by activating factors defined by Porter's «diamond model» whose current research and the one of any foreign scientists «opened a new era of competition», connected factors of competitiveness with revolutionary changes of production technologies, digitization. Among these factors, the researchers shared the view that public administration - competitiveness policies and management decisions within them - is a priority. The development of management solutions at the level of efficiency, in line with the new era of competition, requires the development of methods while preserving models that have proved their practical relevance. At the territorial level, such models include competitiveness rankings, which cover evaluation objectives and have limited scope for regional competitiveness policy-making. The proposed algorithm for rating management decisions is based on the possibilities of rating models for assessing the economic competitiveness of Russian subjects, including the recognized methodology of AV RCI by the Russian AV Group. Management rating stages, structured scale of indicators, ranked series of risks of loss of competitive advantage, the combined use of remote and insider (face-to-face) information generation methods bring management decisions to a new level of efficiency. The decisions of this class in territorial management practice make it possible to form an active policy that corresponds to the concept of competitiveness and the shared understanding of competitive advantages.

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1. Introduction

As a basic characteristic of a market economy, competitiveness ensures sustained economic growth, increases the welfare of the population. Competition, understood as the «invisible hand» of the market, regulates relations arising at all levels of the economy and, according to Porter (2008), is determined by a competitive advantage, the concept of clusters and productivity in the context of national and regional competitiveness. Porter's works challenged classical approaches to national prosperity and competitiveness and was followed by a series of research that challenged, supported and expanded this view. Recently, a special issue of *Competitiveness Review* marked the twenty-fifth anniversary of this groundbreaking work, which confirmed the relevance of Porter's contribution and indicated directions for future research (Ketels & Keller, 2015). Despite its relevance, many years of discussions have contributed to improving Porter's initial view of the competitiveness of countries and regions. Such papers either clarified and reinforced some aspects of the model or introduced new topics for analysis. These new contributions imply that the new analysis of countries and regions benefits from the accumulated research and experience. At the same time, the past three decades have witnessed important changes in communications technology, digital inclusion, globalization and European integration. These changes affected the economy of the European Union as a whole and the economy of each member country, especially in terms of competitiveness (Ketels & Porter, 2018). Ketels (2013) presents a comprehensive review of competitiveness studies, which includes a new concept of competitiveness introduced by Delgado et al. (2014). This concept refers to fundamental competitiveness, which is aimed at determining the "expected level of output per person of working age" (Delgado et al., 2014, p. 1786). However, this concept precedes Porter's recent and current research (Porter & Heppelmann, 2014, 2017), which focuses on the transformational effect of Smart Connected Products (SCP) for competition, companies and relevance of the augmented reality strategy. The research by Porter and Heppelmann (2014, 2017) is particularly interesting because it directly extends Porter's previous contributions to competition (the five-power model) and the SCP-based companies (value chain analysis).

Despite criticism, Porter's (2008) original works, which emphasize the importance of productivity and innovation in order to guarantee a "high standard of living for citizens" (Hanafi et al., 2017, p. 335) are still relevant. In the context of the European Union, as Ketels (2013) shows, Porter's initial contribution can be useful in developing "smart specialization strategies". In addition, Porter's initial contribution is based on years of refinements based on empirical and theoretical findings that lead to a broader analysis with more factors influencing "local prosperity" (Ketels, 2013, p. 270). Efforts have also focused on identifying areas for policy action. Other relevant explanations relate to the new definition of competitiveness (Delgado et al., 2014) and the fact that regional competitiveness is not only supported by clusters. But they may be relevant in the context of a strategy for the region (Ketels, 2013). Despite the merits of previous literature, the researcher argues that recent literature on competitiveness highlights the importance of finding a concrete solution, which takes into account the "special circumstances at a given point in time", not the solutions that are on average true (Ketels & Porter, 2018) but do not work in certain situations. With regard to the competitiveness of regional economies, Ketels (2013) links it to regional policies or, more broadly, competitiveness policies, which are crucial for policy makers, as they transfer resources from richer and more competitive regions to less competitive ones. The author

emphasizes that competitiveness even in richer regions needs to be continually developed, given the complex interaction of conditions that affect economic performance.

Porter and Heppelmann (2014) consider the notion of competition in the light of new technological developments, arguing that SCP “opened a new era of competition” (p. 66), especially for manufacturing, which could lead to a trajectory of economic growth. SCP effects apply to the internal structure of companies, but also to the structure of the industry and the way companies compete. Thus, SCP creates new opportunities and threats mainly because (unlike previous IT-based competition) being an integral part of the product itself (Porter & Heppelmann, 2014, p. 67). The competitive position of each company will depend on the characteristics it chooses to include in the product, as these solutions are now mostly software-related, rather than based on expensive hardware parts (Porter & Heppelmann, 2017). In addition, new business models are enabled by information on how consumers use products. Another fundamental problem associated with the emergence of SCP concerns the boundaries of industries that change and “expand even beyond the product systems in the systems” (Porter & Heppelmann, 2014, p. 75). These changes, compared to SCP, create new internal mechanisms within firms which, according to Porter and Heppelmann (2017) believe that this is perhaps the most significant change in the manufacturing firm since the Second Industrial Revolution, which lasted for more than a century. In addition, data is at the center of all these changes and becomes a very important asset for companies, becoming a “key source of competitive advantage” (Porter & Heppelmann, 2017, p. 50).

Thus, exploring the genesis of the concept and evolution of the factors of competitiveness, Porter and Heppelmann (2017) showed that: (1) Competition is an element of the market mechanism, a process of interaction among economic agents in order to obtain additional marketing opportunities for products, to maximize profits; (2) Competitiveness is a “competitive” concept, property, defined by a set of qualities that allow to be successful any economic subject, including a region; (3) The competitiveness of a regional economy is a dynamic condition that needs to be constantly developed, taking into account the complex interaction of conditions and the potential of new drivers of growth; (4) The current competitive factors in regional economies are driven by revolutionary changes in production technologies and are linked to new management decisions that are transforming regional competitiveness policies; (5) Abandonment from ‘average’ correct solutions not working in certain situations (Ketels & Porter, 2018), the importance of finding a specific solution has made rating management decisions relevant to the competitive advantage of a region in the prevailing circumstances and time frames.

2. Problem Statement

The competitive approach to competitiveness has made it possible to include in the competitive advantages of a regional economy external and internal factors endowed with exclusive value (Table 1). In the composition of «forces» achieving high competitiveness, the place of these factors is determined by Porter’s model called the «diamond of competitiveness». According to this model, the factors of the external and internal environment a) determine the level of demand and, related to them, forms of behavior of firms and branches of regional specialization (corporate strategies, strategies of branch complexes), b) are based on «government» - competitiveness policy, management decisions within its composition along with «case» (historical trends in the development of the economy).

Table 1. Competitive factors of a regional economy

Factor	Features
	Environmental factors
Institutional environment	The capacity of a region to create an institutional environment that stimulates the activity of all economic actors, ensures sustained economic growth, produces internationally competitive goods and services, and improves the living standards of the population
Market environment	Institutional, economic and social situation of regional producers in domestic and external markets
Competitive environment	Ability of regional producers to sell their products, maximum ability to commercialize the region's products
	Internal factors
Adaptability	The ability of regions to adapt to changing conditions in terms of retaining or improving positions among rival regions
Productivity	Productivity of regional resources
Living standards	The ability of regions to generate high income and employment while maintaining markets open to domestic and international competition

Source: authors.

In the competitiveness policy of the Russian subjects, management decisions are made based on certain conditions:

(1) The strong influence of federal policy, the dependence of regional policies on decisions taken at the federal level. As a result, the competitiveness of a region's economy cannot exceed the level of national competitiveness; when the national credit rating falls, for example, the regional rating also falls, the investment climate deteriorates.

(2) In the Russian subjects, certain traditional factors of competitiveness do not ensure a difference in regional development, unlike national competitiveness. Inclusive education, health care and transport infrastructure cannot become a region's defining competitive advantage.

(3) The competitiveness of enterprises localized in Russian subjects, manufactured goods and services form the uniqueness of a region and its economic «brand» and are partially negated by the federal strategy. The levelling-off of socio-economic development levels and the standardized requirements for economic diversification are trying to bring regions closer to a single (post-industrial, digital) pattern of competitiveness and limiting the possibilities for self-development. Under the prevailing conditions, ratings characterizing Russian subjects and making it possible to assess the likelihood of superiority in a competitive environment when compared with another entity have been widely used (Table 2).

Table 2. The position of the Samara Region in Russian ratings

Rating	2017	2019
RIA Rating – the rating of the socio-economic situation	13	11
AV RCI – the rating of regional competitiveness - the growth poles of Russia	14	12
The Rating of Innovative Development (National Research University – Higher School of Economics)		
innovative development	20	11
innovation	19	39
Socio-economic conditions of innovation	6	5
scientific and technological capacity	21	37
export activity	-	25
quality of innovation policies	39	10

Source: authors.

The ratings used have different information intensities, and the expert approach (choice of estimation parameters based on subjective expert opinion) and the remote method (construction of estimates based on public information) pose the problems of: (1) inconsistencies in expert ratings caused by subjectivity of experts; (2) computability in describing complex socio-economic objects of assessment, such as competitiveness. The consequence of these problems is the limited use of rating management decisions in shaping the competitiveness policy of Russian subjects, with a high need to take into account competitive advantages in forecasting competitiveness, strategic plans and programmes.

3. Research Questions

The research questions for this paper were: What is the content of the notion of «competitiveness» in new concepts, taking into account the trends of digitization, the role of management? What are the current factors of increasing regional competitiveness? What are the conditions for designing competitiveness policies of Russian subjects? What are the opportunities of widespread rating models in justifying management decisions in competitiveness policies? What are the limitations of rating management decisions and how to overcome them? How does the algorithmization of rating management decisions affect overcoming constraints? What are the possibilities of the insider (face-to-face) method in overcoming information constraints?

4. Purpose of the Study

The research is aimed at developing an algorithm for rating management decisions as a tool for shaping regional competitiveness policies. The proposed algorithm is based on the theoretical underpinnings of the new concepts justifying the role of digitization and public administration in increasing competitiveness. The algorithm takes into account the conditions for making management decisions and developing the competitiveness policy in the Russian subjects. Based upon the possibilities of widely used rating models, an orderly scale of target indicators of competitiveness of Russian subjects has been developed. Risks of loss of competitive advantage have been ranked. The complex use of remote and insider (face-to-face) methods of information formation in justification of rating decisions is justified. The proposed algorithm of rating management decisions makes it possible to bring target orientations and the practice of developing competitiveness policy in Russian regions to a higher level of efficiency.

5. Research Methods

The overcoming of constraints relates to: (1) the development of an algorithm for the adoption of rating management decisions, (2) the use of the insider (face-to-face) method, which provides access to internal information of rating management decisions, (along with remote). The algorithmization as a method of rating management decisions is intended to replace an expert with objective competitiveness parameters (Figure 1).

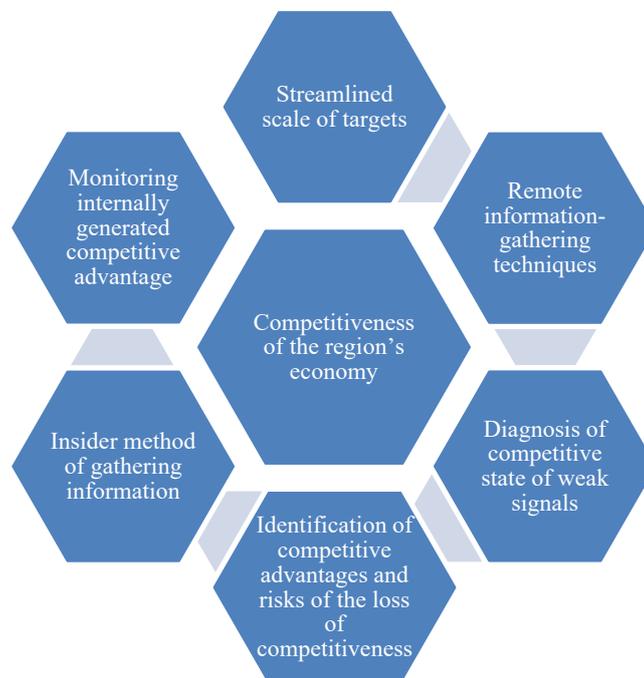


Figure 1. The algorithm for rating management decisions in substantiation of competitiveness policy of Russian subjects

Source: authors.

In the presented algorithm, the ordered scale of targets, based on the unified classification of competitive advantages of Russian subjects and complex assessments, including risk assessments of their realization, creates a hierarchical structure of objectives, reduces the proportion of expert evaluations. The decomposition and interrelationships of goals reflect the interests of different target audiences, such as the State, households, businesses (investors) interested in increasing the region's competitiveness. Access to information is the technological basis for rating management decisions. The public information remote method uses time series of statistical indicators, financial (accounting) statements of business units. The insider (face-to-face) method involves access to internal information: reports of the executive authorities of Russian subjects, project, programme and forecast documents of strategic planning. Integrated remote and insider methods create a complete system for diagnosing the level of competitiveness of a Russian subject. In the above-mentioned system, the remote method is oriented towards the evaluation of external factors, performs diagnostics based on weak signals, allows the identification of competitive risks on the basis of early, inaccurate indicators. As the threat is reported gradually in a highly uncertain and unstructured environment, a possible source of change is identified by the insider method (internal environmental assessment-oriented). Thus, the state of competitiveness of the economy of Russian subjects, which is the subject of rating management decisions that make it possible to formulate a competitiveness policy (strategic response to changes), to form forecasts, project and software tools for its realization (operational, tactical, emergency response to changes).

6. Findings

6.1. The ordered scale of competitiveness targets of the economy of Russian subjects

In a rating management decision-making algorithm, an ordered scale of targets serves to establish equality relations between the qualitative characteristics of a phenomenon («competitiveness») and quantitative (variables) estimates of its level. The values of the variables are given in descending order - from the maximum possible positive to the worst. Since a number of variables in an ordered scale represent the relative position of the actor, but not the difference between them, the qualitative characteristics should be integral, combining the level of competitiveness with the risks of its reduction or loss (Table 3).

Table 3. The ordered scale of competitiveness targets of a Russian subject

Variables	Qualitative elements of	
	Competitiveness	risk
1A	high level	minimum risk
1B	high level	moderate risk
1C	high level	high risk
2A	average level	minimum risk
2B	average level	moderate risk
2C	average level	high risk
3A1	low level	minimum risk
3A2	insignificant level	minimum risk
3B1	low level	moderate risk
3C1	low level	high risk

Source: authors.

There is a certain consensus on the qualitative characteristics of the competitiveness of the Russian subjects at the level of rating organizations. The general position is presented in the method of calculation of the competitiveness index of regions - growth poles of Russia (AV RCI), whose developer is the Consortium Leontievsky Center - AV Group. The value of the AV RCI technique consists in a model that allows to synchronize external and internal competitive factors of a Russian subject. The quantification of the mix of factors (natural resources, human capital, markets, innovation and information, investment, real and financial capital, institutions, economic space) are accessible on the websites of the state statistical bodies of the Russian Federation and can be formed remotely. The use of AV RCI methodology allows to distinguish «growth poles» of the Russian economy, to form the policy of competitiveness at the federal level. In shaping the competitiveness policy of the Russian subjects, the presented methodology has a number of limitations. Since the AV RCI index model does not include a mechanism for assessing competitiveness risks and does not involve the use of an insider (face-to-face) method of information collection, for the development of rating management decisions at the level of a region, it is necessary to propose directions of improvement of the model.

6.2. Risks in the ordered scale of competitiveness targets of the economy of Russian subjects

The risks of competitiveness are the probabilities in which the competitive advantages of a Russian region will be lost and/or «weaknesses» of social and economic development will be secured, the measures of preventing «threats» (according to a SWOT-matrix) will not be formed. Since the risks are probabilistic and caused by the uncertainty of conditions, the reduction of the level of uncertainty is possible by means of decomposition of the competitiveness index of a Russian region, the identification of its positions with high ranking (competitive advantage), low ranked positions («weaknesses»), spheres with high threat level (Table 4).

Table 4. Risks in the ordered scale of competitiveness targets of the economy of the Samara Region

Risks of loss of competitive advantage	Rank	Risks of fixing «weaknesses»	Rank
Education	3	Safety	43
Innovation and information	4	Social services	56
Technology	7	Ecology	56
Natural resources	7	Forest resources	56
Space, real capital	7	Risks of implementation of «threats»	Rank
Entrepreneurship	8	Health	75
Size and structure of markets	9	Federal level assistance	74
Public infrastructure	9		
Investments, financial capital	9		
Creditworthiness	9		
Domestic market	10		

Source: authors.

Ranking of risks according to the scale «minimum risk», «moderate risk», «high risk» is carried out in accordance with the rank of entry of a subject of the Russian Federation into the TOP-40group, in the group of regions ranked 41-70, in the group ranked 71-85.

6.3. The insider (face-to-face) method of generating information in support of rating management decisions

The insider (face-to-face) method as a system for collecting, systematizing, generalizing internal information ensures the development and implementation of rating management decisions and is based on standard reporting by the executive authorities of Russian subjects within the regional component of national projects and public programmes being implemented and strategic development plans. The insider method, which focuses on the assessment of factors in the internal environment, provides rapid information on the monitoring of competitive advantages, early identification of possible sources of their changes (Table 5).

Table 5. Composition of insider (face-to-face) information on the competitiveness of the Samara Region

Strategic planning documents (socio-economic development projections; the Strategy for the Socio-Economic Development of the Samara Region until 2030)	
Competitive growth priorities:	economic development social development technological development human capital investment activity foreign economic activity
National projects Documents of the regional component of federal projects	
In the direction of economic development:	Small and medium-sized entrepreneurship and support for individual entrepreneurial initiative Productivity and employment support Comprehensive plan for the extension of backbone infrastructure
In the direction of social development:	Demography Culture Safe and quality are expensive Housing and the urban environment Ecology Science
In the direction of technological development:	Digital economy
Towards human capital development:	Health care Education
Towards foreign economic activity:	International Cooperation and Export State programmes for integrated socio-economic development and competitiveness Reports on the implementation of State programmes

Source: authors.

Prioritized strategic planning documents contain targets for competitiveness growth, and reports contain their level of achievement, identified deviations with reasons and constraints, proposals. In assessing the factors of the domestic environment, the forecast of socio-economic development forms the basis for characterizing the alternatives, the possible options for increasing competitiveness under the prevailing conditions of environmental factors. The socio-economic development strategy details the possible alternatives in the scenarios, quantifying the impact of the implementation of the base scenario, the innovation development scenario, on the growth of the competitiveness of a regional economy. The documents of the federal projects as part of the national project design «relate» factors of the internal environment to the advantages of the institutional, market, competitive environment of the national

economy. The possibilities offered to the subject by instruments of federal assistance within the framework of state support. The state programmes carry out the tasks of rapid response to deviations from the targets and are the informational basis of rating management decisions in narrow spheres, in tasks requiring changes in management tactics, new solutions and approaches.

The authors believe that sources of «emergency response» should be included in the practice of taking rating management decisions formed on the basis of insider information of strategic planning. Experience of overcoming the consequences of coronarisis in Russian subjects has increased the role of thematic reports, such as «Barometer of well-being of the economy of the Samara region» (Samara State University of Economics, 2020). The monitoring presented in this thematic report of the status of selected fields of activity at risk due to the threat of new coronavirus infection, has made it possible to justify the choice of response methods under conditions of high speed of development of pandemic situation, and to reduce risks of loss of competitive advantage of the economy of the Samara region.

7. Conclusion

The key findings of the evaluation:

- the dynamism and current factors of regional economic competitiveness caused by revolutionary changes in production technologies call for new management solutions that transform regional competitiveness policies;

- the rating management solutions proposed in the paper are related to the need to reject solutions that are averaging in nature, do not work in situations due to the peculiarities of competitive advantages and risks of their loss in a Russian subject;

- theoretical basis of rating management decisions are factors of external and internal environment of a region, topical for the growth of its competitiveness, systematized on the basis of Porterian «diamond of competitiveness», as well as the conditions for the formation and implementation of a competitiveness policy in a Russian subject;

- the rating models currently in use have limitations in management decision-making due to the expert approach to rating formation and the information base created by the predominant remote method;

- overcoming these restrictions is linked to algorithmization, an insider (face-to-face) method of forming an information base;

- the authors have justified the algorithm of taking rating management decisions, the ordered scale of the target indicators of competitiveness of the economy of the Russian Federation, the ranking risks of loss of competitiveness, the system of internal information formed by insider (face-to-face) method on the basis of standard reporting and thematic reports by the executive authorities of a Russian subject;

- in territorial management practice, the proposed algorithm and the insider method enable to develop a competitiveness policy at a higher level of efficiency, which corresponds with: a) an ‘adversarial’ understanding of competitiveness; b) the joint presentation of competitive advantages.

In our research, the possibilities of the algorithm of taking rating management decisions in managing the growth of competitiveness of the economy of the Samara Region were presented, due to the practical limitations related to the scope of work in other subjects of the Russian Federation of the obtained data. However, it is sufficient for a positive evaluation of this group of decisions, which is confirmed by the logic

of the study, identified competitiveness risks, possibilities of internal information sources. Future studies may include expanding the scope of the use of the presented management decisions.

References

- Delgado, M., Porter, M. E., & Stern, S. (2014). Clusters, convergence, and economic performance. *Research Policy*, 43(10), 1785-1799.
- Hanafi, M., Wibisono, D., Mangkusubroto, K., Siallagan, M., & Badriyah, M. J. (2017). Modelling competitive advantage of nation: A literature review. *Competitiveness Review*, 27(4), 335-365.
- Ketels, C. (2013). Recent research on competitiveness and clusters: What are the implications for regional policy? *Cambridge Journal of Regions, Economy and Society*, 6(2), 269-284.
- Ketels, C., & Keller, M.K. (2015). 25 years of "the competitive advantage of nations". *Competitiveness Review*, 25(5), 1-4.
- Ketels, C., & Porter, M. E. (2018). *Towards a new approach for upgrading Europe's competitiveness*. Harvard Business School.
- Porter, M. E. (2008). *On competition*. Harvard Business School.
- Porter, M. E., & Heppelmann, J. E. (2014). How smart, connected products are transforming competition. *Harvard Business Review*, 92(11), 64-88.
- Porter, M. E., & Heppelmann, J. E. (2017). Why every organization needs an augmented reality strategy. *Harvard Business Review*, 95(6), 46-57.
- Samara State University of Economics (2020). Barometer of well-being of the economy of the Samara region http://si.sseu.ru/sites/default/files/2020/07/barometr_samochnuvstviya_03.07.2020_kratkaya.pdf