

# Socio-Economic Systems' Competitiveness Assessment Method

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## Abstract

Globalization of modern economics forms new economic challenges in order to improve Russian regions' competitiveness. The regions' competitiveness significance grows substantially under conditions of the regions' historically formed economies' focus; current nature resources use potential and the advantages of the regions' geographic location for external economic cooperation. Considering these facts, current research suggests a new method of assessing the socio-economic systems' competitiveness. The authors suggest using the socio-economic system's competitiveness integral index as the basic competitiveness assessment means. This integral index comprises 4 indicators, defining the system's functionality, system, proactiveness, and organicity. It is suggested to form private competitiveness indices in long-term and short-term periods in order to assess the system's competitiveness dynamically. The private competitiveness index in short-term period comprises indicators, defining the functionality and system levels, and the private competitiveness index in long-term period comprises defining the proactiveness and organicity levels. Several economic magnitudes, interpreting the functionality, system, proactiveness, and organicity indicators are presumed for interpreting each of them. A broadened spectrum of economic magnitudes, used for interpreting the assessment indicators, facilitates the involvement of various statistic and empiric data.

**Keywords:** Adizes, competitiveness, region, regional economy, socio-economic system

## 1. Introduction

In terms of a long-term systemic crisis and general economic stagnation, competitiveness becomes especially important. The differences in regional reproduction potential level (natural resources, production capacities, work force, and transport system density) become evident in terms of a general economic crisis and overcoming its consequences.

All this makes the competitiveness a primary factor for Russian regions in terms of their successful socio-economic development and national economy reorganization. For a region, as a subject of competitive struggle, achieving competitiveness means, on the one hand, the possible development efficiency increase and, on the other - a right to take a deserved place in the federal government system and to promote the country's economic growth.

## 2. Background

A methodical approach to assessing different levels of socio-economic systems' (further-systems) competitiveness is viewed in the current research. The method's object universality gives the opportunity to apply it to the assessment of competitiveness of different enterprises, sectors, and regions.

To begin with, we would formulate critical remarks to the content of many methodic approaches to assessing regions' competitiveness.

First of all, each method offers a certain list of indicators, the number of which is always different (Camagni, 2002; Porter, 2003; Gardiner, Martin, & Tyler, 2004; Annoni & Kozovska, 2010; Bristow, 2012). When proving the necessity to use certain indices, the authors of assessment models have well-grounded reasons, as the necessity to use an index is based on a correlational connection between the indices' value and the extent to which the competitive advantages occur. This leads to formation of ungroundedly large number of indices in different methods, which doesn't allow formulating clearly the grounds for suggesting its increase in the regional

competitiveness assessment process. Secondly, an essential feature of most competitiveness assessment models is that the values of assessment indices significantly depend on the external environment conditions. For example, that's why these models - in terms of crisis - very often show a competitiveness level sustainable decline of the regions' economic activity. On the other hand, it is clear that when the changes in external environment affect all market participants equally, their competitiveness regarding each other in terms of stable internal conditions may remain the same (Hudson, 2006; Atkinson & Correa, 2007; Diamantopoulos, 2008; Huggins, Izushi, & Thompson, 2013). When the internal conditions within the producers of a certain product remain the same, the external environment changes may not change these producers' competitiveness ratio or the produced goods' ratio.

Thirdly, correlational dependences, that could be observed between the corresponding indexes and indicators, which is characteristic of all methodic approaches (for example, Huovari, Kangasharju, & Alanen, 2001; Begg, 2002; Huggins, 2003; Anholt, 2007; Wintjes & Hollanders, 2010).

The assessment of regional competitiveness is conducted by comparing the numeric values of the corresponding indicators. When making such comparisons of interrelated indicators and indices, the possibility of getting a deliberately incorrect result at the expense of overlaying several intercorrelating tendencies increases, especially when the assessing experts are offered to use a big number of indices and indicators in the assessment model.

Fourthly, the content of assessment methods is built on the basis of the following logic. The expert formulates exact indicators or indexes. The economic value (category) becomes an assessing indicator, if the socio-economic system competitiveness growth (including regional growth), in the expert's opinion, leads to the alternation of this indicator. Besides, the more intensive this interconnection is and the more intensively the competitiveness leads to greater economic category changes, the more the expert regards it as an assessment indicator.

Thus, in all assessment models, the cause-effect relation is built in accordance with the following logic: region's competitiveness growth *is the cause and the effect* of the indicators' alternation.

On the other hand, the grounding or the selection of solutions for increasing competitiveness is the most predictable and significant result of applying all assessment models to studying regional competitiveness. Assessing a region's competitiveness should not be an end in itself. The assessment should promote the solution for defining corresponding management activities, the implementation of which should lead to regional competitiveness growth. In this case, the conclusion's logic should contain the following cause-effect relation: management activities and, consequently, the change of the corresponding indicators is *the cause*, and the competitiveness growth is *the consequence*. It is obvious that this statement should generally determine the logic of competition management and assessment models.

In our opinion, this statement determines the substantial orientation of further specifications of the assessment indicators forming conditions in the competition assessment model of socio-economic systems (including regions). That's why, when forming a product's or subject's competitive assessment indicators, it is important to take into account that the process parameters for managing the production of this product are defined by their content.

### 3. Methodology and Materials

Methods of managing an organization, offered by a famous researcher and management consultant Ichak Adizes, are used as the methodological base for forming socio-economic systems competitiveness assessment indicators (Adizes, 2014).

According to Adizes's methodology, providing an organization's management effectiveness in long-term and short-term periods is the main condition for the organization's successful management (Adizes, 2008). We would like to describe the conditions for successful management, applying Adizes's methodological approach to socio-economic systems.

The system is effective, in case its product is produced by means of minimum financial, time and other types of resource support. The organization, which functions with smaller energy, human, financial and time costs is more effective than others. High profitability, low prime costs, and low process costs are all the features of an enterprise's high efficiency.

In order for the organization to be efficient in short-term and long-term periods, a system's or organization's management process should be targeted at implementing 4 main qualities: functionality, system, proactiveness and organicity.

A system is considered to be *efficient in short-term period*, if its *functionality* is provided during the management process. The management process is aimed at achieving results for which the system exists. Such result is the satisfaction of consumers' needs. The satisfaction of consumers' needs for certain products is the main function for which the system was created and for which it functions.

A system is considered to be *efficient in short-term period*, if its *system* is provided during the management process. In order to achieve it, the system management process should be targeted at providing systematization of all processes and building an effective management system, based on the application of administering procedures, budgeting, analysis, control, audit, monitoring and regulation, etc. All these procedures provide the system's effective functioning.

A system is considered to be *efficient in long-term period*, if its proactiveness is provided during the management process. In order to achieve it, the system management process should be targeted at constant initiation of changes in the organization, adjustment to new dangers and opportunities, and providing innovative activity. The products which the system plans to produce in long-term period should definitely possess competitive advantages. If the system strives at being competitive on the market in future, then it is necessary to create competitive products today. The management which is able to provide the system with quality proactiveness is considered to be entrepreneurial, i.e. based on initiative, strategic vision, use of innovative science and technology and so on.

A system is considered to be *efficient in long-term period*, if its organicity is provided during the management process. A system is considered to be organic when integrating dependences and links between its elements exist, allowing the system to adapt to the changes in the internal and external environment: some system's elements "help" other elements. In order to achieve it on micro-economic organizations level, the management should be targeted at disposing of irreplaceable people and at creating team cooperation, which can be provided by integrating the organization's inner environment and the integration of the organization and external environment as well. The system becomes organic on the macro-economic level (sector, region, country) as a result of system management integration cooperation between its elements and between these elements and system with the external environment.

It is worth mentioning that the organicity's quality can be observed by the example of territorial clusters' functioning, where territorial systems' effectiveness is directly provided by the integration processes, going on between organizations which form territorial clusters.

The methodology introduced by Adizes contains 4 system qualities for providing successful management. These qualities can be applied to different economic level systems, such as enterprises, sectorial complexes, regions and countries' economies.

Basing on the conducted analysis the conditions for providing successful management can be schematically represented in the table below (See Table 1).

On the other hand, competitiveness bases on the process of satisfying clients' needs by offering products, possessing competitive advantages. In this case, Adizes's methodology main principles can be applied at providing system's competitiveness.

Table 1. System's qualities, necessary for successful management

Time aspect	Successful system management aimed at providing:	
	productivity	effectiveness
Short-term period	functionality	system
Long-term period	proactiveness	organicity

It is worth saying that providing system's productivity and effectiveness in short-term and long-term periods is, according to Adizes, a condition for successful management aimed at clients' needs satisfaction. Successful clients' needs satisfaction is impossible without forming products produced by the system, competitive advantages, and without the system's competitiveness. Main conclusion algorithm can be drawn schematically (See Figure 1).

It is possible to form the socio-economic systems competitiveness assessment model and consequently clarify the assessment indicators formation process based on management prerequisites.

The significant feature of the suggested approach to assessing socio-economic systems' competitiveness is that a list of possible assessment indicators should be formed on the basis of a common complex solution, which is *successful system management condition*.

In order to provide system's competitiveness (as a consequence), this system's management should be productive and effective in short-term and long-term periods and be aimed at implementing functionality, system, proactiveness, and organicity (as the cause). It is evident that in this case competitiveness assessment indicators should prove it.

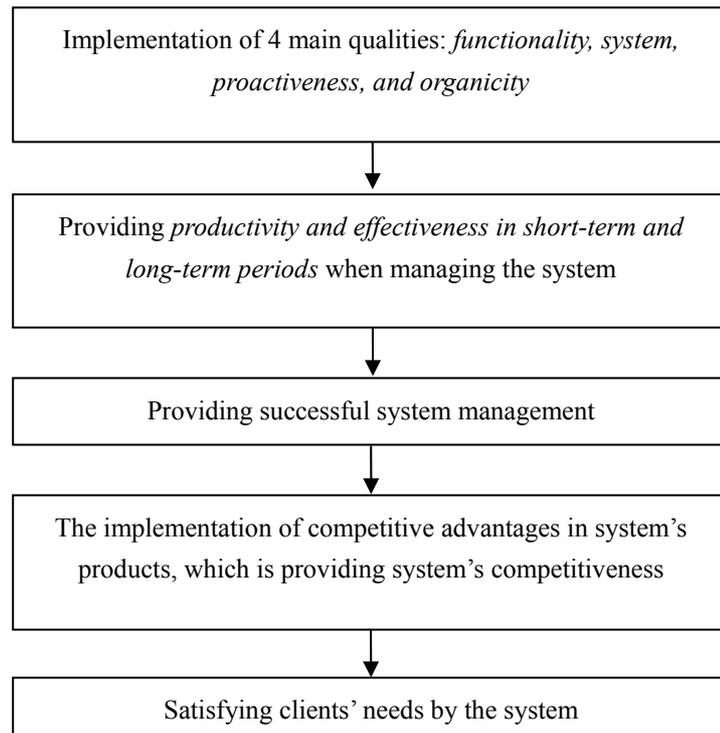


Figure 1. The algorithm of providing the system's competitiveness by its managing

#### 4. Results

Based on this algorithm, we suggest using *integral competitiveness index* in order to assess socio-economic system's competitiveness. This index comprises 4 indicators, determining the system's level of functionality, system, proactiveness, and organicity.

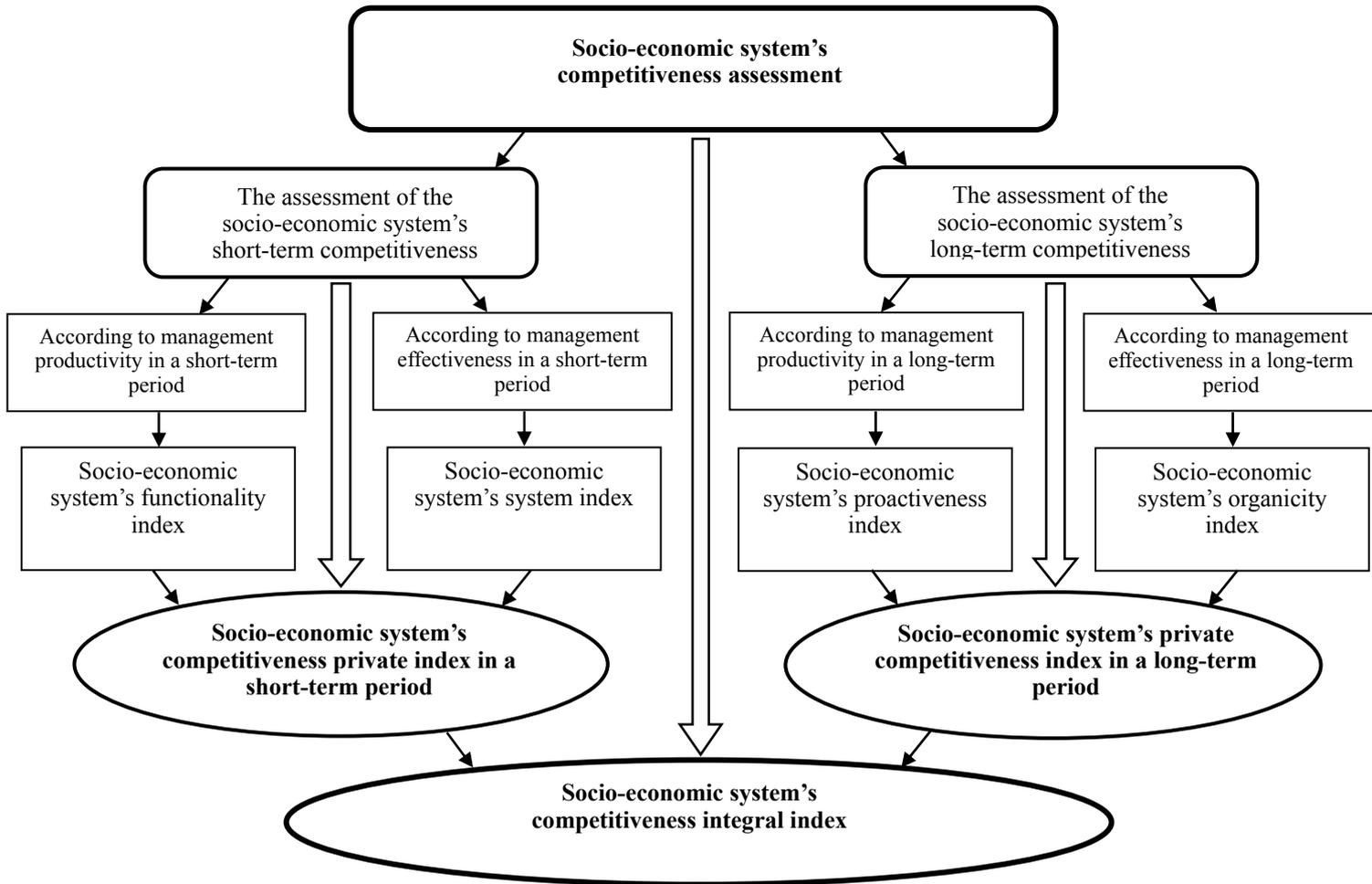


Figure 2. Socio-economic system's integral index formation algorithm

*Private competitiveness indices in short-term and long-term periods* are represented in the current article for the analysis and socio-economic systems' assessment to be well-grounded. Indeed, the system at the same time can demonstrate high economic rates in the current period and may not continue its efforts in the long-term period. For example, the system can fully use its production opportunities and can at the same do nothing to develop these opportunities. In this case, private competitiveness index can in the long-term period have improper value, unlike the short-term competitiveness index.

Competitiveness private index in the long-term period bases on 2 indicators which define proactiveness level and socio-economic system's organicity.

The authors of the research suggest calculating the integral and private competitiveness indices as geometric means from certain indicators intersection, forming these indexes (See Figure 2). Private competitiveness indexes will be calculated as square roots from paired intersection and the integral index will be calculated as the fourth root from 4 indices' intersection or as a square root from the intersection of 2 private indices.

We would like to draw attention to some of the characteristic features of the assessment indicators approach suggested.

First of all, one of the evident advantages of such approach is that various variants of economic values, aimed at interpreting the content of the indicator, are presumed in the content of each of the 4 assessment indicators. On the other hand, the fact that only four assessment indicators are suggested in the framework of the assessment model is regarded as a condition, initially *limiting a groundlessly big number of assessment indicators*. It is worth underlining that socio-economic systems' competitiveness is suggested to be assessed with respect to 4 indicators and to the use of the geometric means.

On the other hand, the fact that in the framework of each of the 4 indicators' common methodological definition several economic magnitudes can be presumed, and each of the magnitudes interprets each of the 4 indicators, *is presented as the assessment model's variable quality, aimed at providing this methodology invariant application to different level socio-economic systems*. In other words, the opportunity to select diverse economic magnitudes, interpreting the functionality, system, proactiveness and organicity assessment indicators, makes this approach a universal tool for assessing the socio-economic systems' competitiveness, presuming the adaptation to various application conditions and primarily to the characteristics of systems is assessed.

In fact, in order to make certain enterprises', sectors' and region's competitiveness comparative assessment, it is considered appropriate to use different economic magnitudes. At the same time, the maximum correspondence of the economic magnitudes to methodological content of competitiveness assessment indicators is the main condition.

Assessment model's variability facilitates its application, when because of the limited access to official statistical data, the search for economic magnitudes, interpreting corresponding competitiveness assessment indicators, faces problems.

Next we would like to consider the competitiveness assessment indicators' content. We will analyze socio-economic systems' functionality, system, proactiveness, and organicity indicators' content and consider possible economic magnitudes which could interpret these indicators (See Table 2).

Table 2. The content of the indicators for the formation of the systems' competitiveness indices

Name of the indicator	Methodological content of the assessment indicator	Economic magnitudes, Interpreting the indicator's content
Functionality indicator	Productivity in a short-term period – clients' needs satisfaction.	The volume of production sold. Organizations' turnover. The organization's turnover with respect to their kind of economic activity.
System indicator	Effectiveness in a short-term period – resource provision economic effectiveness.	Gross value added with respect to the number of employed. Gross regional product with respect to the number of population.
Proactiveness indicator	Providing innovation activity, Introducing changes, the adjustment to new dangers and opportunities.	The volume of innovative production. The volume of scientific research financing. Fixed capital investments.
Organicity indicator	Providing integration cooperation and partnership. The level of cooperation interdependence.	The number of enterprises' employees. The number of enterprises and organizations with respect to the kind of economic activity. The number of enterprises and organizations in the region.

The system indicator should reflect the socio-economic system's effectiveness in a short-term period, which, first of all, means its economic effectiveness in using various resources and factors in the production process.

The proactiveness indicator should reflect the socio-economic system's productivity in a long-term period, which primarily means providing innovative activity and introducing changes, aimed at adjusting the system to new dangers and opportunities.

The organicity indicator should reflect the socio-economic system's effectiveness in a long-term period, which primarily means providing integration cooperation and partnership within the socio-economic system and the cooperation between the elements of this system.

The system's integrity, primarily viewed as the interconnection between its elements, increases the system's adaptability to the internal and external environment changes and, consequently, provides system-wide competitive advantages in future. The system's high adaptability qualities allow it to provide different content of competitive advantages in its products – the one which is innovative and which attracts consumers. These

advantages can be of a consumer, cost, and innovative character. When two systems function with the same result, only the system which is more differentiated and more internally and externally interconnected will have a higher level of organicity and will have a greater number of internal elements. It is evident that a system's high structural differentiation will facilitate the minimization of the crisis adverse impact. The economic magnitudes which are more preferable for interpreting this indicator can be the number of enterprises' employees, the number of enterprises with respect to the kind of their activity, and the total number of enterprises and organizations in a region.

In this connection, the socio-economic system's competitiveness private index, calculated as the geometric mean's intersection of the proactiveness and organicity indicators, reflects the system's ability for the proactive provision of innovative advantages and integrative unity of the system's elements.

The socio-economic system's competitiveness integral index reflects all 4 indicators. The comparison of socio-economic systems according to this index can give the opportunity to make an integral assessment of the systems' competitiveness.

## 5. Conclusion

1. In order to provide the system's competitiveness, it is necessary for the system's management to be productive and effective in short-term and long-term periods; it should be aimed at implementing the functionality, system, proactiveness, and organicity qualities. In order to assess systems' competitiveness, it is suggested to use the integral socio-economic system's index, comprising 4 indicators, defining functionality, system, proactiveness, and organicity of the system.
2. In order to make the analysis of the socio-economic systems' competitiveness in various time perspectives, it is suggested to form private competitiveness indices in long-term and short-term periods, each consisting of 2 indicator. Private competitiveness index in a short-term period consists of indicators, defining the levels of functionality and system and in a long-term period - the levels of proactiveness and organicity.
3. The evident advantage of the suggested approach is that in the framework of all 4 indicators several economic magnitudes are presumed. These magnitudes are aimed at interpreting the content of an indicator to some extent. On the one hand, the fact that only 4 indicators are suggested in the framework of the assessment model is viewed as a condition, initially limiting an ungroundedly great number of assessment indicators. On the other hand, the fact that several economic magnitudes are presumed in the framework of each of the 4 indicators' general methodological definition is viewed as the assessment model's variable quality, aimed at providing the methodology's invariant application to different level socio-economic systems. An extended spectrum of economic magnitudes, used for interpreting assessment indicators, significantly facilitates the involvement of statistic and empiric information of various kinds.

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