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**Original Article: FUNDAMENTAL APPROACHES TO INTERNATIONAL  
COMPETITIVENESS FORECASTING**

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The article discusses various ways to analyze and predict the global competition level of different developing countries. The author also relates the concepts of global competition with interaction of innovative technology that is relevant and actual in the conditions of modern economic theory.

International competitiveness, The Global Competitive Index, The Global Innovation Index, innovation technologies, innovation potential, developing countries, national competitive advantages.

Nowadays the necessity of transition to innovation development strategy acquires global dimensions and becomes worldwide problem concerned with submission of scientific-technical information in the row of leading production factors and important economic resources. The creation and realization of innovation technologies predetermine the formalization competitive advantages system of different countries and regions in system of the international labor division. The modern conditions of world economy characterize the following trends, which determined direction of innovation development of different countries and regions:

- continued rise in endowment of information technologies to the creation of added value

- increase in the share of an intangible assets in the structure of the combined assets different companies

- amplification of global competitiveness, appearance new world centers of economic development in Asia and Latin America

- necessity of ecology factors influence on economic development of government

- prospective modern wave of technological changes affecting the use of new achievement in the area of biotechnology, computer science, nanotechnology including health care and other spheres [4].

The structure of the competitiveness of each country varies greatly because no one country can be competitive in all or even in most industries. Ultimately the country succeeds in certain industries, because their internal conditions are appropriate in the most dynamic and promising.

Factors determining the competitiveness of the country:

- the dynamism of the economy measured by indicators such as economic development, the position of the national currency, the volume of production of basic commodities in the calculation will scent the population, etc.;

- efficiency of industrial production:

– the dynamism of the market measured by indicators of the quality of goods, consumer spending will affect the population, etc.;

– state and development of the financial system estimated on the basis of the activities of commercial banks, securities market;

– human resources determined on the basis of the size and growth of the population and labor force, the unemployment rate, the level of qualification of labor, etc.;

– role of the state, assess the degree of impact of government regulation in the economy based on research level of taxation, the share of public sector in the national income, etc.;

– resources and infrastructure, which providing the country investigated various kinds of resources to the degree of infrastructure development;

– socio-political situation in the country - an indicator characterizing it, serve value of in-come and its distribution, industrial relations, etc. [1].

In modern economic literature the concept of "country competitiveness" boils down to the level of the state or to the level of major corporations, representing himself as a "business system that can conquer and hold a significant share of the market and can provide revenue growth and financial well-being. Most often the competitiveness of the countries considered "as the ability to create the conditions in the domestic and foreign markets. National competitiveness at the firm level implies the ability to make production at lower costs and higher quality. Therefore, the most important determinants of the competitiveness at the firm level are quality, cost (such as labor costs and cost of capital) and the price levels. For a country to be more competitive, the development of countries should be improved at the firm level with the help of firms' increasing performance [5].

National competitiveness at the industrial level is generally defined as the

ability of an industry to achieve the highest level of efficiency to meet challenges posed by foreign rivals. In this regard, the term of "efficiency" has an important position since maintaining this efficiency is also crucial for the competitiveness at the industrial level. In the perspective of competitiveness at the international level, a country should have the ability to increase the welfare and real in-come levels by producing goods and services under fair international market conditions. Although there are different theoretical approaches to the measurement of competitiveness, three well known indices such as Global Competitiveness Report prepared by World Economic Forum (WEF), The World Competitiveness Yearbook prepared by Institute for Management Development (IMD) and Business Competitiveness- Ease of Doing Business Report prepared by International Finance Corporation (IFC) are substantially prominent [6].

Also the national competitiveness was studied and estimated by WEF's annually published Global Competitiveness Report carries out respective computations of the competitiveness index by different indicators. Global Competitiveness Report focuses on economic welfare and increasing standards of living while making computations and rankings of the countries. Hence, indicators used in this yearbook are strongly regarded as the factors which are crucial for achieving high growth levels. In WEF's Global competitiveness Report (GCR) 2011-2012, 116 lowest level variables are used for 142 countries and then these 116 variables are grouped into 12 pillars. These 12 pillars are the sources of national competitiveness according to WEF's Global Competitiveness Report [12]. These 12 pillars are as follows: institution, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication and innovation.

The World Competitiveness Yearbook annually published by Institute for Management Development (IMD) divides the variables used for the computing the national competitiveness into four groups and then these four groups are sub-divided into 5 sub-factors, which can be out-lined as the following figure.

The World Competitiveness Yearbook annually published by Institute for Management Development (IMD) divides the variables used for the computing the national competitiveness into four groups and then these four groups are sub-divided into 5 sub-factors, which can be out-lined as the following Table 1. [12]

Business Competitiveness - Ease of Doing Business Report prepared by International Finance Corporation (IFC) is also a source of computing the national competitiveness. According to Ease of Doing Business Report, 9 indicators are taken into account in the computation of the score values of the countries for 183 economies [10]. These indicators are: starting a business, dealing with construction permits, registering property, getting credit, protection investors, paying taxes, trading across borders, enforcing contracts and closing a business.

In looking at national competitiveness, Porter defined the competitive advantage of a nation as its capacity to entice firms (both local and foreign) to use the country as a platform from which to conduct business. He introduced what has become known as the 'diamond of national competitiveness' with four 'facets' determining the competitive strengths and weaknesses of countries and their major sectors. They are:

- the existence of resources (e.g. human resources and research and information infra-structures);
- a business environment that invests in innovation;
- a demanding local market;
- the presence of supporting industries [7].

In many developing countries, resources may be the only part of the 'diamond' where

strategy-makers see an opportunity to raise competitiveness, and thereby improve performance, in the short term. This should not deter the strategy-maker from taking action in a concerted manner to improve the overall business environment.

World Economic Forum 1986 estimates by 8 groups of aggregated factors: the domestic economic potential, foreign economic relations, government regulation, monetary system, infra-structure, control system, scientific and technical potential and labor resources. Performance measures stage of development of the country's competitiveness:

- level of development of the economy and its growth rate;
- labor force (the proportion of the active population, labor productivity, wages, personal income);
- R & D expenditure, % of GDP (growth rate of expenses, education expenses, number of patents);
- export (the country's share in world exports, the export growth rate, the share of labor-intensive and raw material industries, capital-intensive, high-tech industries, the share of services in GDP);
- investment (share of domestic investment,% of GDP: investment abroad,% of GDP: foreign investment, % of total investment, the share of taxes in GDP) [9].

The World Bank estimates the country's competitiveness on the 9 criteria (the amount may reach a maximum of 100 points): political risk (refund), the economic outlook, external debt, debt due to the default or debt restructuring, access to bank resources, access to capital markets, forfeiting the provision of services.

The country's competitiveness is calculated as follows:

$$(Kn) = Ip + Ie + If + Id + Ic + Ia + Is + Is + Is + Ifa = 100 \text{ points,} \quad (1)$$

The honored Scholar RF, Fatkhutdinov estimated the competitiveness of the country by the formula:

$$C = Bi * Ki = 1,0, \quad (2)$$

where  $b_i$  -  $i$  competitive significance factor ( $i = 1, 0$ );

$K_i$  - competitiveness factor ( $K_j = P_i / P_{ni}$ );

$P_i$  - the absolute value;

$P_{ni}$  - normative value of the factor) [7].

Performance measures competitiveness of the country:

- expenses from the state budget on R & D (% of GDP);

- expenses from the state budget on human development (education, health, social services) as % of GDP;

- stability of the political system in the country, the scores;

- GDP per capita, USD.;

- life expectancy;

- efficient use of resources;

- export as % of GDP;

- country's place in the world reserves of natural resources per capita.

- inflation, %;

- country place on the specific weight of 250 of the largest competitive companies in the world [12].

Calculations of national economic competitiveness in the international practice become a daily reality, and the attention to them of the international community is constantly growing. In modern Russia, it is important to recognize the need to regulate the economy. Porter noted that "governments should set the correct corresponding goal - to achieve high productivity, since it is based on national prosperity. They should seek to ensure that truly defines productivity to pro-mote development, to work with full dedication and competition, and not to be tempted by such things like subsidies, large-scale program of international cooperation or temporary protection, which they often offer: these measures are often lower productivity. The state's role should be to encourage domestic industry to develop, rather than offering assistance to enable the industry not develop"

While competitiveness is almost always incorrectly equated with productivity,

innovation is usually defined more accurately, although usually too narrowly. Many see innovation as only technological in nature, resulting in shiny new products like Apple's iPad or Boeing's 787 Dreamliner. Still others believe innovation pertains only to the research and development (R&D) activity occurring at universities, national laboratories, and corporations. While this is all true, it is much too limiting in scope.

The Organization for Economic Cooperation and Development properly defines innovation more broadly as "the implementation of a new or significantly improved product (that is, a physical good or service), process, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations. Innovations can arise at many different points in the development process, including conception, R&D, transfer (the shift of the "technology" to the production organization), production and deployment or marketplace usage [8].

According to various policy documents competitiveness is interpreted in different ways, which can lead to ambiguity when justifying the development of economic systems. It follows from the definitions of the available options their framework is quite broad. At the same time it is possible to identify the social orientation of theoretical definitions of competitiveness (ensuring the growth and preservation for the citizens of high standards of living, ensuring a high level of income and employment, an increase in per capita GDP growth).

The success of policy of increasing the competitiveness of the national economy in many ways depends on the stage of economic development. The subdivision into three stages of development is the basis of theory of competitiveness proposed by the World Economic Forum

There are three broad stages of economic development. The national competitiveness strategy should have a different orientation at each stage.

Resource-driven stage. At the most basic level of economic development, competitive advantage is determined by resources, such as low-cost labour and access to natural resources. Many developing countries, and most least developed countries, are mired in this stage. The export mix is extremely narrow and typically limited to low value-added products. Dependence on international business intermediaries is high, and margins are low and susceptible to swings in prices and terms of trade. Technology is assimilated through imports, imitation and foreign direct investment (FDI). In this stage, strategy-makers should design strategies to attract capital investment and to invest the proceeds of economic growth into the wider determinants of national competitiveness, specifically health, education and infrastructure.

Investment-driven stage. One level up is the investment-driven stage, where countries begin to develop competitive advantage by improving their efficiencies and developing increasingly sophisticated products. Improvements are made to imported technologies; there is extensive joint venturing and heavy investment in trade-related infrastructure (roads, telecommunications and ports). The focus of the national export strategy at this second stage should be on further improving the business environment through revisions in regulatory arrangements (customs, taxation and company law). Strategy should assist prospective exporting firms to extend their capabilities within the international value chain. As production shifts from commodities towards manufacturing, sector-level strategy should seek to support greater value-addition nationally within the value chain. While promotion of FDI should, of course, continue to be a strategic priority, strategy-makers should focus increasingly on encouraging in-country business alliances

Innovation-driven stage. At the final stage in the competitiveness process, the innovation-driven stage, the country's

competitive advantage lies in its ability to innovate and produce products and services at the frontier of global technology. Strategy should focus on technological diffusion and on establishing an increasingly efficient national environment for innovation. The emphasis should be on supporting institutions and extending incentives that reinforce innovation within the business sector. Companies should be encouraged to compete on the basis of unique strategies. The development of service export capacities should be a priority objective. Although substantial gains technological innovations can be obtained by improving institutions, building infrastructure, reducing macroeconomic instability, or improving human capital, all these factors eventually seem to run into diminishing returns. The same is true for the efficiency of the labor, financial and goods markets [10].

In the long run, standards of living can be largely enhanced by technological innovation. Technological breakthroughs have been at the basis of many of the productivity gains that our economies have historically experienced. These range from the industrial revolution in the 18th century and the invention of the steam engine and the generation of electricity to the more recent digital revolution [Rogers, Everett]. The latter is transforming not only the way things are being done, but also opening a wider range of new possibilities in terms of products and services.

Innovation is particularly important for economies as they approach the frontiers of knowledge and the possibility of generating more value by only integrating and adapting exogenous technologies tends to disappear [3]. Although less-advanced countries can still improve their productivity by adopting existing technologies or making incremental improvements in other areas, for those that have reached the innovation stage of development this is no longer sufficient for increasing productivity [Easley, D.; Kleinberg, J.]. Firms in these countries must design and develop cutting-

edge products and processes to maintain a competitive edge and move toward higher value-added activities. This progression requires an environment that is conducive to innovative activity and supported by both the public and the private sectors. In particular, it means sufficient investment in research and development (R&D), especially by the private sector; the presence of high-quality scientific research institutions that can generate the basic knowledge needed to build the new technologies; extensive collaboration in research and technological developments between universities and industry; and the protection of intellectual property, in addition to high levels of competition and access to venture capital and financing that are analyzed in other pillars of the Index. In light of the recent sluggish recovery and rising fiscal pressures faced by advanced economies, it is important that public and private sectors resist pressures to cut back on the R&D spending that will be so critical for sustainable growth going into the future.

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Table 1

Factors of national competitiveness according to the World Competitiveness Yearbook 2013 [12]

Sub-factor	Indicators
Economic performance	<ol style="list-style-type: none"> <li>1. Domestic economy.</li> <li>2. International economy.</li> <li>3. International investment.</li> <li>4. Employment.</li> <li>5. Prices.</li> </ol>
Government efficiency	<ol style="list-style-type: none"> <li>1. Public finance.</li> <li>2. Fiscal policy.</li> <li>3. Institutional framework.</li> <li>4. Business legislation.</li> <li>5. Social framework.</li> </ol>
Business efficiency	<ol style="list-style-type: none"> <li>1. Productivity and efficiency.</li> <li>2. Labor market.</li> <li>3. Finance.</li> <li>4. Management practices.</li> <li>5. Attitudes and values.</li> </ol>
Infrastructure	<ol style="list-style-type: none"> <li>1. Basic infrastructure.</li> <li>2. Technological infrastructure.</li> <li>3. Scientific infrastructure.</li> <li>4. Health and environment.</li> <li>5. Education.</li> </ol>

Table 2

## The indicators of The World Bank estimation [2]

Indicator	Component element	Evaluation criteria	Comment
Political risk (P)	Nonpayment of loans, financial liabilities, dividends; The possibility of non-payment for the supply of goods (services). The impossibility of repatriate of invested capital.	max = 25 points	If the risk the lower, than the rating assessment is higher.
Economic perspectives (E)	Development forecast for a given year. Forecast for the next year.	max = 25 points	
Foreign debt, / F / F = A + (x 10) - (C x 10)	A - the ratio of total debt to GDP of the country. B - The ratio of debt to total exports. C - Balance of payments current account to GDP ratio.	max = 10 points	If the numerical value of the formula is lower, than the rating is higher
Default Debt, (D)	Execution (default) or financial liabilities or postponement of the payment the whole debt	max = 10 points	The maximum score is obtained of the country, who had no payments; 0 points - who noncompliance or rescheduled
Credit Rating (solvency rating on credit debt, (C)		max = 10 points	Most solvent firms get maximum points. Based on the data of the leading companies in the world ranking iMoodys, StandartSPoof's, Fitsh).
Access to bank resources, (A)	The ratio of private, long-term, unsecured loans to GDP	max = 10 points	Source assessments «Global Development Finance»
Access to long - term financial resources, (S)	Availability of resources in the capital market without problems.	max = 5 points	
	Availability of resources in the capital market without problems in 95% of cases.	max = 4 points	
	Access does not make special problems.	max = 3 points	
Access to middle-term fi-nancial resources, (S)	Access is possible depending on the situation on the capital market.	max = 2 points	
Access to short-term fi-nancial re-	Access is not excluded in certain circumstances.	max = 1 point	



sources, (S)	Access is not possible at all.	max = 0 points	
Forfeiting access to services, (FA)	Access without risk	max = 5 points	Sources: Morgan Crenfell, Trade Finance, Standard Bank, Department of Mc Kinsy (Moscow).