

# Economics of Quality - The Basis of Innovative Development and Ensuring the Quality of Life

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## Abstract

In modern conditions innovation is the main determining factor for social and economic development of Russia. First of all this is because of globalization processes occurring in the world. In terms of economics, globalization is transformation of the world space into a single area where information, goods and services, capital move freely, where ideas and their carriers are disseminated without difficulty, encouraging the development of modern institutions and debugging mechanisms of their interaction. Formation of a single (common) international economic space inevitably leads to the formation of a single legal, cultural and information space. Such transformations result in the process of approaching of consumer preferences and the universalization of the range of the offered products all over the world (based on standardization), during which global products replace the local ones (created taking into account conditions and preferences of local consumers). Single information space of globalized economy stimulates acceleration and simplification of transfer of management technology and experience. All this contributes to the intensification of international competition, and consequently to deeper specialization and international division of labor, which cannot but cause the growth of production at both national and global levels.

**Keywords:** globalization, innovations, quality of life, competition, competitiveness, metrology, modernization, standardization, quality management, economics of quality

## 1. Introduction

Increased competition in the global economy encourages the development and dissemination of innovations. Indeed, in conditions of freedom of consumers' choice it is the quality of goods or services that is a key factor. At the same time the companies of transnational corporations may be in different countries, but since they belong to the same corporation, they act according to the same standards. And a consumer in one country can be sure that he or she will receive exactly the same goods and services as a consumer in other countries. Thus, globalization contributes to creating a single quality space. Therefore improvement of the quality in developing countries is an obvious positive feature, since the coming of transnational corporations to this country means in most cases acceleration of dissemination of new products and services, thereby stimulating economic development and improvement of life quality. Moreover, the free dissemination of information results in positive changes also in the social sphere, provision of the appropriate level of the community needs. And this is a necessary condition for the formation of society's demand for innovation.

Under conditions of open market economy quality that focuses on the study of the role of quality in economic systems becomes particularly important. Its application enables to solve the issues concerning reduction of production costs successfully, saving resources, technological processes stability, improvement of the technical level and product quality, increasing demand and production growth - that is, all that is impossible be done without the use of innovations that constantly brings new quality.

In modern conditions the innovations are the source of the main part of profits of enterprises and a necessary

condition for the prosperity of the state (Figure 1).

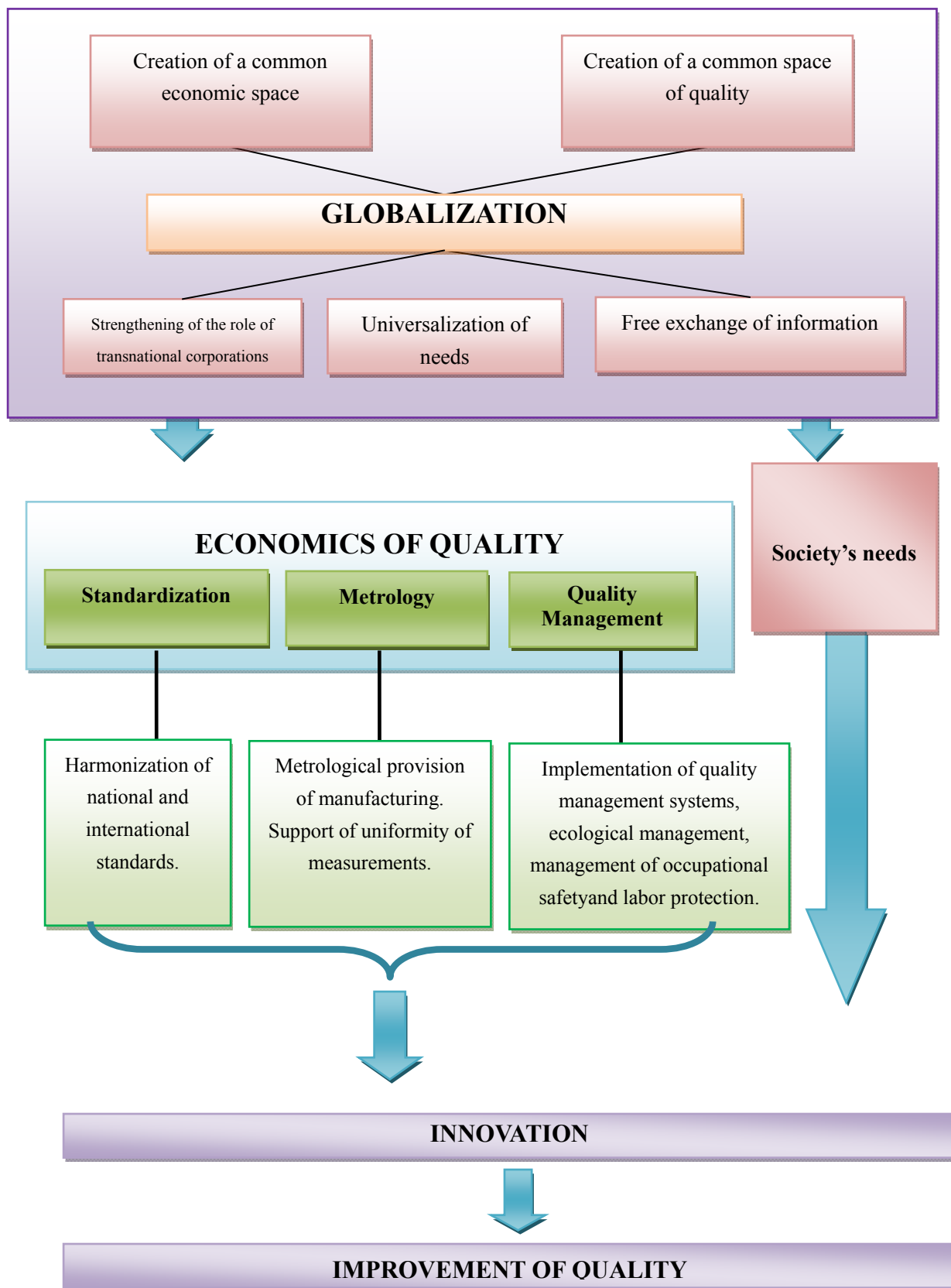


Figure 1. Impact of globalization on quality

For example, today's high rates of socio-economic development of Norway are related to the innovative method of production of oil and gas. Norwegian companies first in the world began to produce them at the ocean shelf in the Arctic region. Innovation first of all requires creating conditions that would make it possible to embody the scientific, technological and technical reserves existing in Russia into products and technologies with high competitiveness. It is necessary to form the strategy development of science and innovation sphere that will meet the needs of the economy, mechanisms of investment and stimulation of the innovation process. This strategy should be based on the national innovation policy.

The key provisions of such policy can include the necessity to fulfill the following conditions (Okrepilov & Kvint, 2013):

- Completeness of the approach and the concentration of resources;
- Taking into consideration the international experience;
- Expansion of integration role of the large companies as leaders in innovative development;
- Connection of academic and university science to the innovation system.

Modernization of the domestic economy is necessary to increase its competitiveness. The essence of modernization consists in the concentration of savings and investment in key sectors, chosen to be the driving forces of economic development and qualitative transformation of the entire economic system. This will make it possible to achieve competitive advantages, to form a new economy, free of monopoly and bureaucracy.

Today, the Russian economy faces serious challenges. For example, the Decree of V. V. Putin, the President of the Russian Federation, dated 7.05.2012 no. 596 "On the long-term national economic policy", provides, in particular, the creation and modernization of 25 million of high-performance jobs in 2020, an increase of investment volume up to at least 25 per cent of gross domestic product by 2015 and up to 27 percent - by 2018, increase of the share of high-technology and science-intensive economic sectors in the gross domestic product 1.3 times relative to the level of 2011 by 2018.

The strategy of innovative development of the Russian Federation for the period to 2020 can be listed among the most important documents. It provides for increase of the share of industrial production enterprises, implementing technological innovations, from 9.4 to 40 - 50%, increase of the share of export of Russian high-technology products in total world volume of export of high-technology goods from 0.25 to 2%, increase of the share of innovative products in total volume of industrial products from 4.9 to 25 - 35%, increase of the number of patents annually registered by Russian natural and legal persons in the patent offices of the European Union, the United States and Japan from 63 to 2.5 - 3 thousand.

Equally important goals are set also by St. Petersburg. Thus, the project of the state program "The development of industry, innovative activity and the agro-industrial complex in St. Petersburg", which is currently being discussed in the Government of the city, not only provides for retention of the leading role of industry in the economy of St. Petersburg (the share of the industry in the gross regional product in 2020 will be 27%), retention of positions of St. Petersburg as one of the leading industrial regions of the Russian Federation (with increase in volume of shipped industrial products in 2020 1.7 times compared to the year 2014), but also accelerated development of high-technology industry sector of St. Petersburg (in 2020 the share of high and medium technology (high level) sectors in the total volume of shipped products in the processing industry will increase up to 65%). Besides that, increase of innovative activity of enterprises, increasing the share of innovative products in the total output volume in the processing sectors in 2020 up to 20%.

The first steps to implement the goals of the Strategy have already been taken in Russia. Work on the formation of national research centers has been started. Infrastructure of innovative activity support is developing. Innovation clusters are supported and developed on a competitive basis (Leonidova, Golovchin, Solovyov, & Shabunova, 2014).

The basic elements of the system of development institutions in the sphere of innovation have been formed. Considerable work to improve the legal regime of innovative activity has been carried out – appropriate tax advantages have been introduced. A law, allowing the budgetary scientific and educational institutions to create small innovative enterprises, has been adopted and brought into effect. Customs regulation of export of innovative products is being improved (Khlebnikova, 2013).

One of the results of the implementation of measures of this kind was the increase of Russia's place in the Global Innovation Index, developed by the international business school INSEAD in 2007. In 2014, our country joined the ranks of 50 countries - the leaders in terms of the level of development of advanced technologies for the first

time (Figure 2).

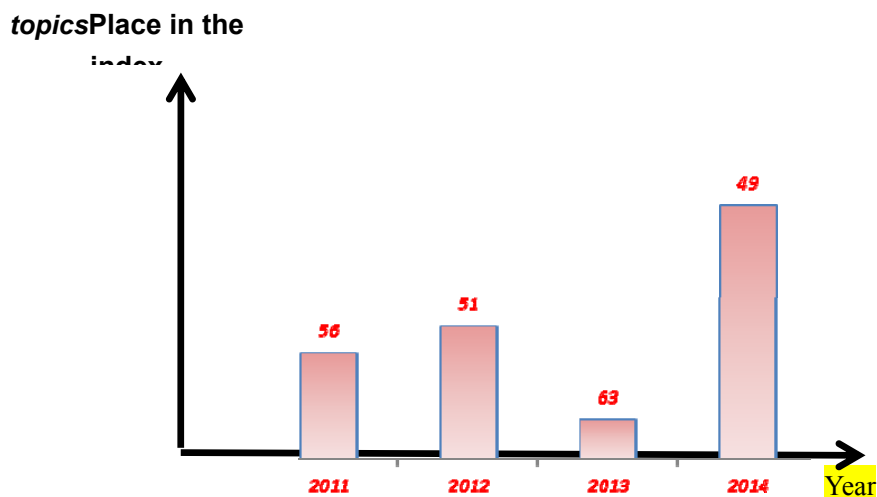


Figure 2. Position of Russia in the Global innovation index

It should be noted that currently the index is the most complete complex of indicators of innovative development in different countries of the world, because it is a cost-effect ratio which allows you to assess the effectiveness of efforts to promote innovation in a particular country objectively. It reflects not only the presence of the innovative capacity, but also the conditions for its implementation.

Nevertheless, today in Russia only 30% of innovative projects reach production. Only 9% of companies implement technological innovation (Figure 3).

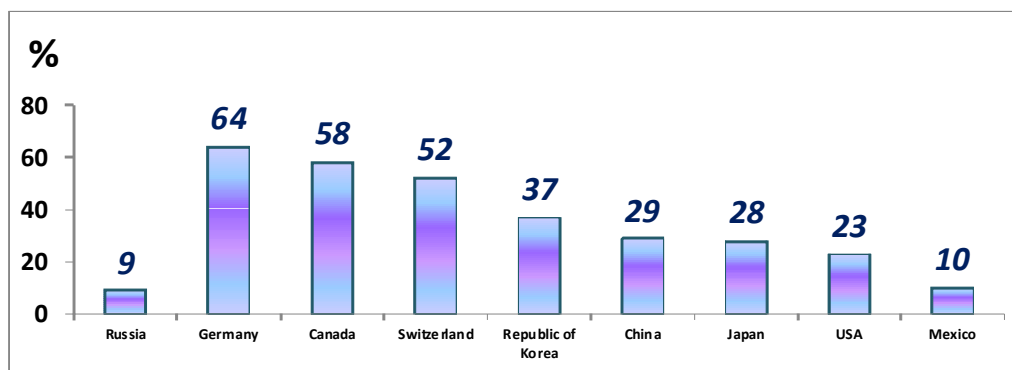


Figure 3. Relative share of organizations, implementing technological innovations in the total number of organizations

For comparison in Germany - 64%, in Canada - 58%. The share of innovative products in the total volume of production is only 5%. Expenditure relative share on the technological innovation is 2% (Davidyants and Ivashko, 2014).

However, the place that Russia occupies today in global innovation economy does not correspond to its capabilities. Thus, according to the number of scientists and engineers we pass ahead all the leading countries of the world, we have high enough share in the total number of patent applications (2.6%). However, the share of license income is only 0.08%. For comparison 92.4% of all patent applications fall to the share of the USA, Canada, the EU and Japan. In addition, there is a sharp disproportion in the development of Russia's innovation potential. Thus, the vast majority of scientific discoveries (75%) occur in several megalopolises of Russia (Moshkov, 2014).

The following reasons of such situation may be listed among others:

- Dissociation of scientific and industrial spheres (industrial enterprises, almost all joint-stock companies, research organizations, remain in state ownership);
- Limited investment opportunities of Russian companies;
- Uncertainty of economic policy;
- Unfavorable investment climate;
- Lack of effective mechanisms to support innovative activity;
- High dependence of production on import (it is faster and easier to introduce imported technologies).

In this regard, the data from the Institute for Statistical Studies and Economics of Knowledge of National Research University "Higher School of Economics" of Russia are worth quoting. In 2009, employers provided 42.6% of expenditures on researches and developments carried out by innovative scientific organizations, and the federal budget - 37.9%. In 2010 this ratio was 31.1% and 41.1%, respectively, and in 2012 - 25.4% and 46.5% (Materials for development of a strategy of St. Petersburg in the long term). That is, the expenditures of business for innovation are reduced, and state expenditures are increased. At the same time, as is known, the support of fundamental applied researches by means of decrease of share of the applied researches that shall be conducted at the expense of the business community is increased.

## 2. Method

As has been said, increasing of the investment attractiveness of Russia and the moving of the country to an innovative way of development is not possible without the most careful attention to the problems of quality, which today has turned from technical into socio-economic and began to concern all subjects of economic relationships at all stages of social reproduction. Therefore, to improve the quality level the efforts of individual professionals and companies are not enough. It is necessary to apply a systematic approach in all sectors of the economy, regardless of the form of ownership, nature of activities and size of the organization.

In terms of economy quality characterizes the relationship between manufactures and consumers. And the search for the optimum relationship between the required expenditures and gained effect shall be carried out using economic methods.

Such methods are developed within the new scientific field - Economics of Quality.

**Economics of Quality** is a part of economic science that studies the correlation of the qualitative characteristics of objects or phenomena with economic indicators and covers all areas of economics with wide use of natural, social and technical disciplines (mathematics, physics, chemistry, sociology, psychology, science of law).

The Economics of Quality considers quality as a complex system of methods and tools applicable to the various functions and objects of management, providing the achievement of real financial and economic advantages (Belobragin, 2001).

The Economics of Quality is a unique phenomenon: being one of the branches of economic science, it is an integral part of all the other fields, drawing attention to the necessity to take into account the quality characteristics studied in any given aspect. It regards labor economics, economic statistics, regional and sector of the economy.

The Economics of Quality considers the entire system of economic relationships. Therefore, using its tools it is possible to find optimal solutions for any socio-economic problems at all hierarchical levels of government - from a company to the entire region and the international unions.

The Economics of Quality has already been formed as a integral scientific system, which has a large number of structural elements requiring a complex approach to their study and further improvement. They include: standardization, metrology, quality management, evaluation and confirmation of compliance of the level of quality with made requirements.

**Standardization** – is the establishment of standards, rules, and characteristics in order to ensure safety, technical and informational compatibility, safety and interchangeability of products, saving of all kinds of resources, to provide economic and social stability.

It creates the basis not only to gain economic effect, but also its consolidation and multiple replications (Economic advantages of standardization. International goal-oriented studies).

Studies conducted in foreign countries have shown that activities in the sphere of standardization have a great influence on the development of industry and business. During interaction of suppliers and customers standards

provide such economic advantages as reduction of expenses for business operations and assessment of market capability, increase of quality and competitiveness of products, removal of market barriers in trade.

In general, the following key advantages that can be taken by using the tools of standardization were found:

- Ensuring mutual serviceability or compatibility of the products;
- Ensuring a minimum level of quality that can be set in terms of functionality or safety of the products;
- Quick and timely providing of information.

As one of the main elements of technical regulation under conditions of the market economy standardization can provide contribution to economic growth, exceeding the corresponding indicators from the introduction of patents and licenses. So, as a result of researches conducted in some countries of the Asia-Pacific region it was found out that the effective application of technical non-tariff regulation makes it possible to increase the share of profit on average by 0.26% of GDP, while the profit from the tariff regulation does not exceed 0.14%. Most researches showed that the advantages of standardization can be considered as contribution to the gross profit of the company at the level of 0.15% - 5% of annual sales revenues (Androsenko, 2013).

The results of the researches conducted recently by experts of ISO and specialists of "Baltika" Brewing Company (Russia) have shown that the application of the standards along with a number of qualitative advantages makes it possible to save 5.8% of the costs of 5 main business processes: purchase, logistics, production, distribution and service.

According to ISO estimates, the total benefits from the use of standards in most cases range at the level of from 0.5 to 4% of the annual sales revenue of a company.

The works carried out in Germany, the UK, Canada, Australia, and France, have shown that standardization provides the growth of GDP and the growth of productivity almost by one third. In its turn, the researches conducted by Russian specialists have confirmed that the use of methods of standardization is one of the main factors having influence on the economic indicators (Table 1).

The following characteristic feature of modern innovations in standardization is worth emphasizing - the setting of requirements not only to indicators, but also to the processes including the management processes. Without the innovations in management innovations in other sectors of human activity become ineffective. Today, awareness of the necessity of standardization development as the most important factor in improving management efficiency exists at the international level.

Table 1. Assessment of standardization contribution to the GDP

Country	Year	Research period	Contribution to GDP, %
Australia (CIE)	2006	1962–2003	0.8
France (AFNOR)	2009	1950–2007	0.8
Germany (DIN)	2010	1960–2006	0.7
New Zealand (BERL)	2011	1978–2009	0.8
Russia	2013	1998–2012	0.92

As an example of such standards there can be given the international standard of ISO/TS 17582: 2014 "Quality management systems - Particular requirements for the application of ISO 9001:2008 for electoral organizations at all levels of government". This document regulates the elements of the election procedure. It contains technical conditions for registration of voters, political organizations and candidates, electoral logistics, voting, counting and announcing of the results, instruction of control and financing of campaigns, resolution of disagreements. The international standard of ISO 18091:2014 "Quality management systems - Guidelines for the application of ISO 9001:2008 in local government" (replacing the guidance document IWA 4: 2005 ("Quality management systems - Guidelines for the application of ISO 9001:2000 in local government")) is more significant. It is intended to facilitate the introduction of a quality management system in self-governing authorities.

The issues concerning the improving of the quality of work of self-governing authorities (SGA) are very important. SGA are direct participants of the society stabilization process. Their activities enable to develop all worthy initiatives of citizens, giving them an appropriate scale, on the other hand - to stop the unnecessary and often inadequate initiatives. The work conducted by them helps to form and keep confidence of the citizens to

state institutions (Ivanova, 2010).

Another important innovative direction of development of standardization is the development of standardized indexes (indicators) of development of the region, which could assess the development of the regions in terms of sustainable development. Unfortunately, a common indicators calculation method has not been developed yet. However, some steps have already been taken in this direction. At the beginning of 2012 in Russia a new technical committee of ISO/TC 268 "Sustainable development in communities" was established. The main objectives of the TC are to develop criteria for assessment of the activity of management authorities of communities and to create the community management systems. The community means the administrative and territorial unit, the purpose of which is to provide safety and favorable conditions of human life, to limit the negative impact of business and other activities on the environment and to provide the protection and rational use of natural resources to the benefit of present and future generations. That is, community means a municipal unit, as well as a city and a region.

Understanding that improving of the sustainability of regional development is an actual problem also exists in our country. The national TC 115 "Sustainable development of the administrative-territorial entities" – a "mirror" committee to the ISO/TC 268 - has been established in Russia. That is, its objectives are the similar. The structure of the TC 115 consists of two sub-committees (PC1 and PC2), in accordance with the main aspects of the work, i.e. their objectives are to develop the methodology of systematic approach to quality management in the administrative-territorial units (ATU) and to develop efficiency indicators and methods of assessment of activities. Within the TC the works aimed at establishment of national standards, specifying of terminology and formation of a common conceptual framework, the development of management authorities work efficiency indicators system and methods of introduction of quality management mechanism in them. At present, the national standard "Quality management systems - Guidelines for the application of ISO 9001:2008 in the state executive authorities" is at the final phase of the discussion. In particular, the use of process and system approach to control the quality of public services is concretized; the terminological apparatus is specified in the project.

Unfortunately, inactive participation of business structures in these processes is the distinctive feature of the modern standardization in our country (Figure 4).

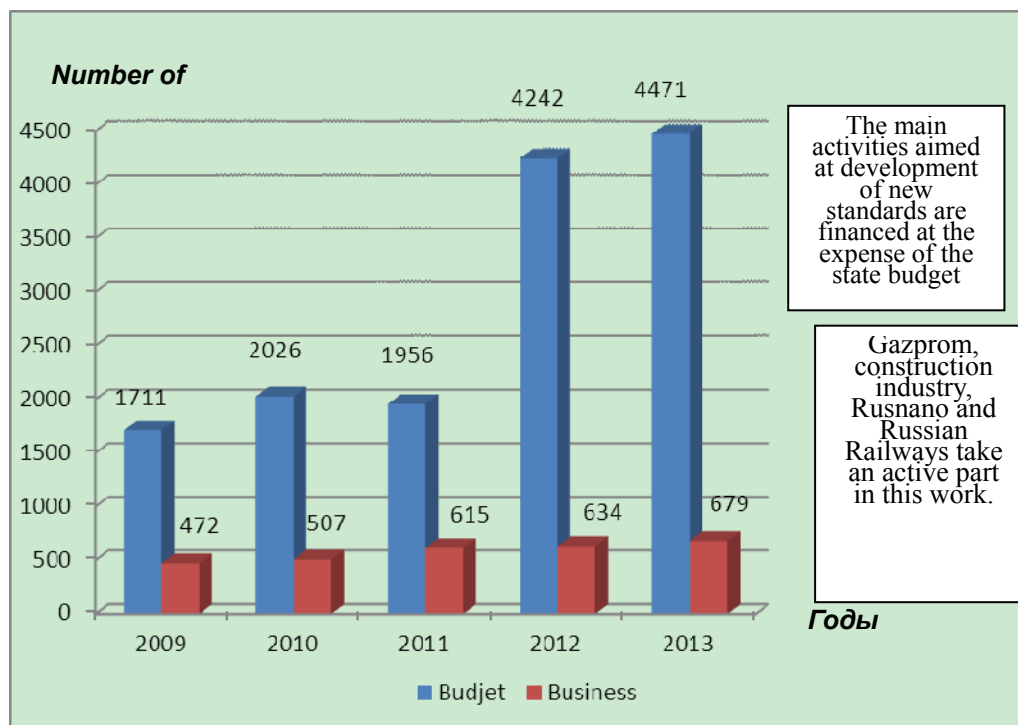


Figure 4. Participation of business in the development of the standards

The vast majority of entrepreneurs do not see any benefit in the financing of standardization work, despite the fact that its economic advantages are unquestionable. Only a small number of major companies, such as, for example, Gazprom, some large construction companies, "Rusnano" and Russian Railways take active part in

developing and improving of standards. Without a doubt, this reflects the general trend of disinterest of the domestic business in innovation.

But the development and introduction of international standards become especially actual for domestic companies especially today, taking into account Russia's entry into the WTO. The company's ability to provide the necessary amount of products is one of the key factors for successive competitive struggle in the world markets.

Another key element of the Economics of Quality is the metrology, which covers all the operations required to determine the value of any particular variable, and provides uniformity of measurements.

The science of measurement and the methods providing uniformity of measurements are one of the most important conditions for improving the efficiency and quality of work virtually in all spheres of human life and activity today (Figure 5).

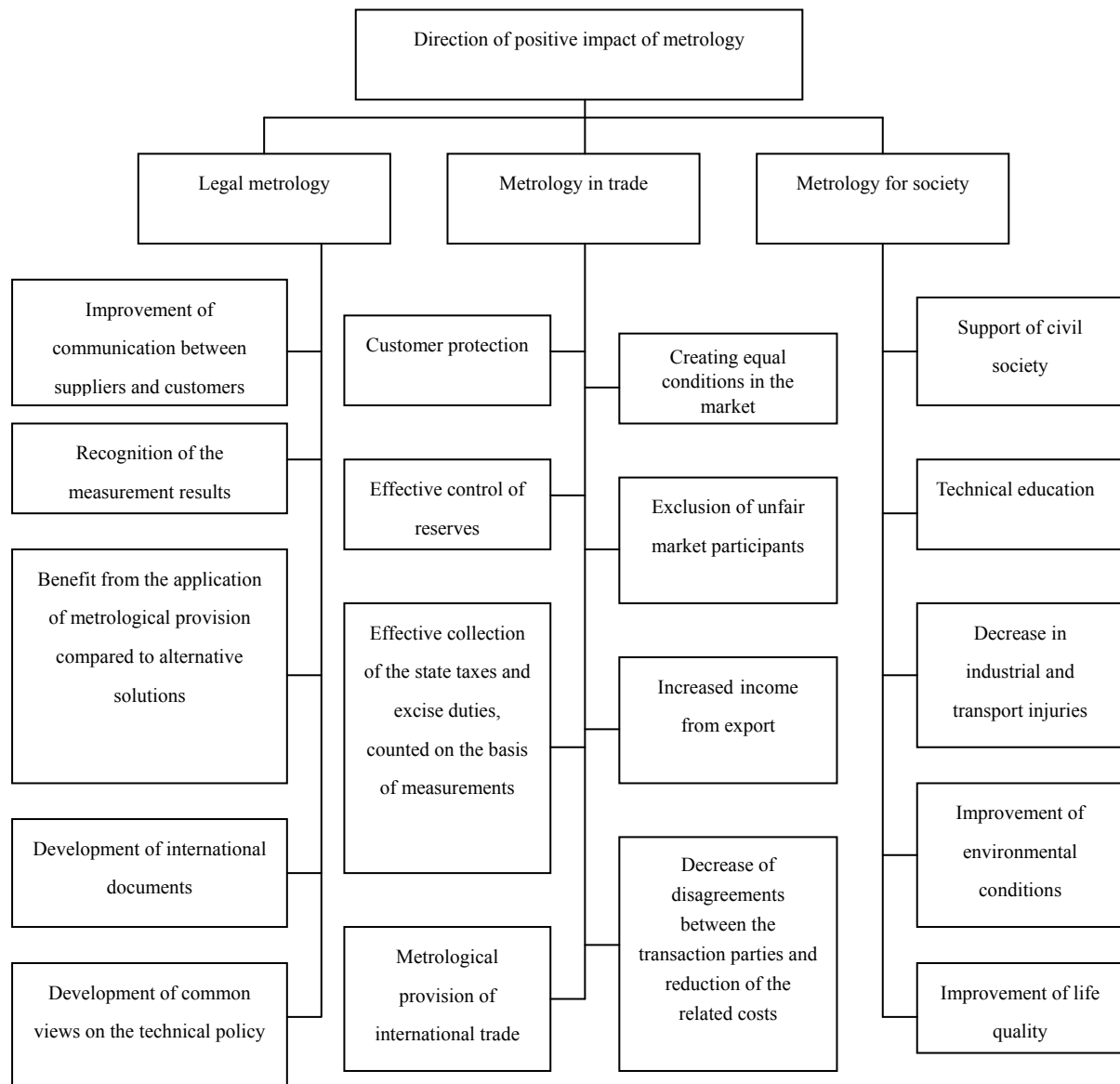


Figure 5. Spheres of activity, in which metrology provides achievement of economic advantages

On the basis of measurements the information about the status of industrial, economic and social processes is obtained.

Measurement information serves as the basis for making decisions about the quality of products. Only the accuracy of the results of measurements ensures correctness of the decisions made at all levels of government.



Effective cooperation with other countries in various spheres (space exploration, environmental protection, medicine and others.), the further development of trade relations requires mutual confidence in the measurement information, which is the basis for mutual payments in commercial transactions. Creating a common approach to the measurement ensures mutual understanding, mutual recognition of results of measurement and test of products in the international system of trade.

In all the leading countries of the world very close attention is paid to the development of metrology at the state level, much work is performed to improve the measurement capabilities. In the production process the metrology, on the one hand, is a source of additional expenses, which reduces the price competitiveness of products. On the other hand, it is impossible to produce any goods, especially high-tech without metrology. Therefore, the state of affairs in the sphere of metrology and measurement capabilities depends on the level of economic and social development of the country.

The researches conducted in many countries around the world confirm direct technical and economic benefits of investments in metrology.

Our researches have shown that investments in the development of measurement systems have a direct impact on the quality of products, resulting in GDP growth by 0.8 - 1.5% (Granberg, 2007).

Obtained expert appraisals show that a correct and fully executed measurement gives a significant economic effect in the benefits-cost ratio of 3: 1.

According to calibration and measurement capabilities of national metrology institutes of our country included in the database of the International Bureau of Weights and Measures, Russia comes second after the United States. Our country holds the stable position of one of the leading countries in the sphere of provision of uniformity and accuracy of measurements (Figure 6).

The number of rows in the System of metrological comparisons, registered in the database of the BIPM as of the 2nd quarter of 2014

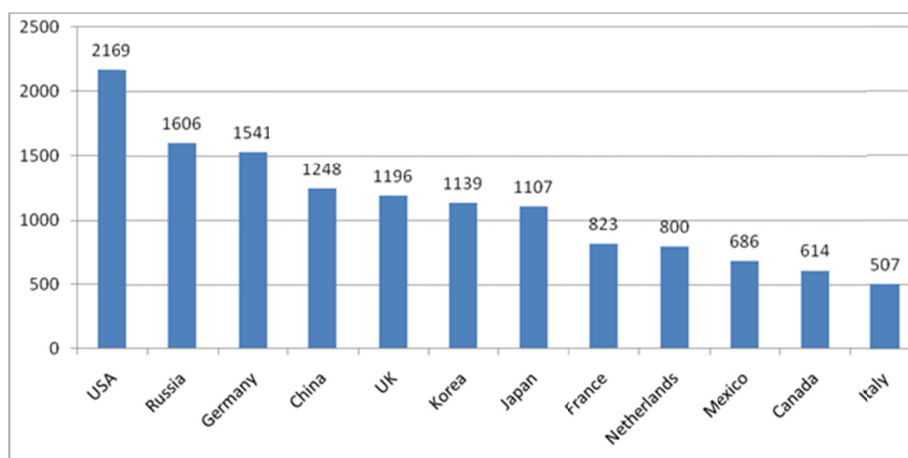


Figure 6. Calibration and measurement capabilities of Russia and other countries

Every day in our country millions of measurements are performed and more than 2 million people are engaged in the measurements due to their professional activities. The assessments show that the share of the expenditures for measurements is 5-10% of the expenditures for social labor, and in the sectors of industries producing complex technologies it reaches 20-30%. The cost of these works in Russia is estimated around 2% of GDP. In developed countries this indicator reaches 4.6% of GDP (Aganbegian, 2010).

Development of activities in the sphere of metrology, the expansion of measurement capabilities of Russia obviously favours the removal of technical barriers in the trade with foreign countries, related to the problems of confidence in the measurements, as well as increase of the competitiveness of domestic products in the international market.

The strategic importance of metrology for our economy and especially for the industry, on which movement to innovative development primarily depends, is evident in the process of Russia's accession to the World Trade Organization, as well as strengthening of cooperation within the Customs Union.

### 3. Results

Improvement of life quality, globalization of economic processes, the development of international trade, increase in defense and security of the state, environmental protection, imposes higher requirements for measurements and assurance of uniformity of measurements.

Analysis of the measurements uniformity providing system carried out in the framework of the development of the "Strategy for ensuring the uniformity of measurements up to 2015" (Russia) showed that the systemic problem of ensuring of uniformity of measurements is caused by the following factors:

- Lack of a mechanism of forecasting the society's needs for measurements;
- Obsolescence of the standard base, the legal and normative-technical base;
- Underdeveloped system of monitoring and analyzing of the structure and volume of the measuring instruments used in the country;
- Lack of qualified personnel;
- Decline in efficiency of the state metrological supervision.

The third key element of the Economics of Quality is **management of quality** which is now considered as a tool for innovative development of economics at all levels of management: company, region, state as a whole.

Management of quality provides a guarantee of profit receiving, reduction of costs and terms of manufacturing and sales of products, as well as provides the stability and reliability of any economic activity, increases its efficiency.

Management model of any economic entity shall be based today on the system approach, which is widely used in various industries, as well as in the fields of activity.

Today, the models based on the principles of total quality management (TQM) are most popular.

This methodology is implemented through the management systems based on international standards of ISO 9000, models of regional quality premiums and criteria of various regional competitions of goods and services.

Macroeconomic analysis conducted at the Massachusetts Institute of Technology, showed that the total increment of the gross domestic product in the United States by improving the quality thanks to the theory of TQM, which is the basis of ISO 9001 is 7% per year, and this indicator will remain for the next 10-15 years.

The quality management system according to ISO 9001 standard is the most common in the world. This standard has been used since 1987. Currently, more than 1 million organizations in different industry sectors and spheres of activity in 184 countries around the world work according to this standard (Figure 7).

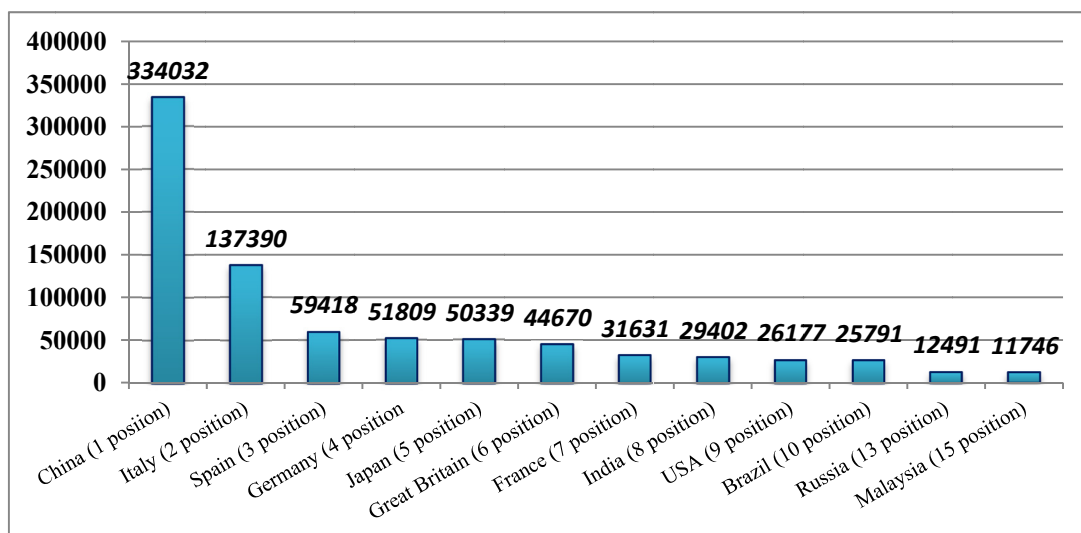


Figure 7. Number of issued certificates for quality management system complying to ISO 9001 in the world (total 1,101,272 certificates in 184 countries, according to the ISO Survey of Certifications 2012)

More than 30-years positive experience of introduction of such systems at the level of company indicates their high efficiency. The results of numerous surveys show that the systems provide improved customer satisfaction, standardization (and thus adjustment) of business processes, creating of favorable conditions for introduction of other management systems - environmental protection, health care, security, provision of labor safety and others.

In the course of our scientific research conducted by us in the field of Economics of Quality, the evidence was obtained that the methods of quality management, based on the general principles of management, unified requirements of international standards are a universal mechanism for increasing the effectiveness of any management object activity and adjustment of its activity.

This served as the basis for the dissemination of experience concerning the introduction of management systems on the other, higher levels of management - municipal, regional, and even the federal (national).

The precondition for such actions are features typical for the modern quality management:

- universality of construction, when a common scheme and structure are used for different spheres of human activity;
- universality of use, when uniform methods of quality management in accordance with the principle of "Quality has no limits" are used in any form of human activity for companies and organizations of any size and any form of ownership in any economic and political system, covering the whole economic space.

#### 4. Discussion

The tendency to introduce the quality systems in such sectors of economics as government, social services and education, observed today, serves as confirmation of the universality of quality management methods. As noted by the Professor Hans-Dietrich Segecci, ex-president of the European Organization for Quality (EOQ), the quality management principles, which are generally closely connected to the history, culture, political and economic systems are very diverse. At the same time, the applied methods of quality management have a common basis and are based on a common approach.

Today Russia has already had successful experience of introduction of quality management systems in the regions at the municipal level, at the level of ministries.

Thus, in the Ministry of Economic Development of the Russian Federation the department of e-Government works on the basis of the ISO system. The systems have been actively introduced in the central administrative office and regional bodies of the Federal Antimonopoly Service since 2012. The results are that at the present time, possibilities of its dissemination to the entire system of executive power in Russia are being considered. The systems have been also introduced in a number of regional and municipal units - in Shakhty, in the Chuvash Republic, Kaliningrad region and Yaroslavl.

The unique experience of quality management in a various socio-economic systems let us understand when studying the quality issues it is necessary to consider the entire system of economic relations, to develop and explore processes of management of all the activities of a company, to pay attention to such aspects as finances, resources, human factor, etc. This shall concern the search of optimal solutions of socio-economic problems at all hierarchical levels of management, which is noted by many modern Russian researchers (Granberg, 2007; Aganbegian, 2010; Makarov, 2009; Tatarkin, 2001).

On the basis thereof, we have proposed a project of multi-level system of quality management, which is now being tested in the Northwestern Federal District of the Russian Federation, the results of which are presented in the appropriate documents (Innovative St. Petersburg; Report of Human Development, Report of Human Potential Development in the Russian Federation ).

This system is a combination of the organizational structure, work methods, processes and resources required to implement impacts on quality by means of operational measures at 3 interrelated and interdependent levels:

- Microlevel – a company, a corporation;
- Meso-level – a city, a sector, a region;
- Macrolevel – a country as a whole.

The system is a universal mechanism that can be effectively used at any level of management. The core of the system at all levels of management is a cycle of PDSA (Plan-Do-Check-Act-planning-action-checking-adjustment).

It should be emphasized that improvement of life quality is the strategic goal of the system that arises from its essence. Moreover, at each level of management improvement of life quality is not only a goal but also a major

criterion in the development of measures necessary for its achievement, as noted in various reports (Okrepilov, 2012, 2014).

Our researches show that the methodology and theory of quality management used to arrange activity of companies and organizations can be applied to improve sustainable development of territories.

Determination of directions, in which it is possible to improve the quality, is an important point in improving the sustainability of development. Based on the essence of the concept of "sustainable development" and the principles of Total Quality Management such directions can be as follows: *the process of management itself, environmental development, economic development, social development*.

As a result of analysis of the projects of standards in the field of sustainable development, it was determined that in each direction the same algorithm of actions shall be implemented, namely:

- Identification of needs and expectations of parties interested;
- Identification of existing and possible risks, development of measures to counter them;
- Creation of development programs, including target system;
- Identification of processes;
- Development of measures for the implementation of development programs, including the definition the persons who will take them and terms of their implementation, what resources are needed for this.

The application of quality management methods to improve the sustainability of development is shown in Figure 8.

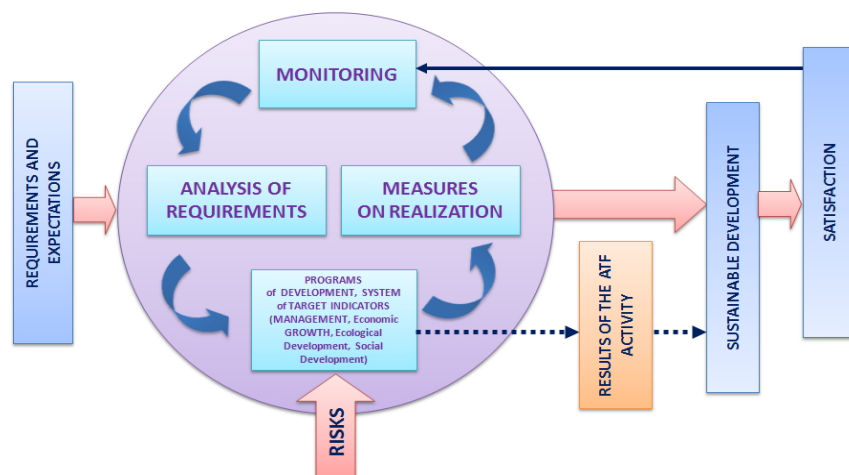


Figure 8. The application of quality management methods to improve the sustainability of development

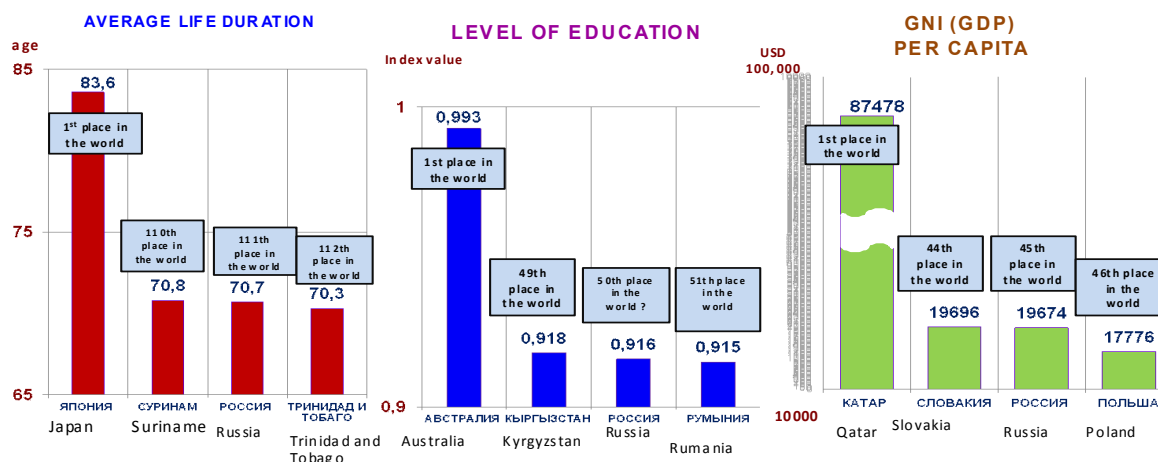
When quality management methods are to improve the sustainability development of the territory we can talk about the origin of peculiar chain reaction of quality. People look for where to live, and investors – where to make more profitable investments. The regions with high levels of life quality, as a rule, differ by more sustainable development, and therefore, they are more attractive in terms of investments. Investments, in their turn, contribute to the development and application of innovation, which is also noted by some authors (Kuzmin, 2014), and, consequently, to improvement of the life quality, which results in increase of sustainability of development. And conversely, in regions with low investment attractiveness life quality gradually deteriorates. And it is possible to overcome this tendency only by taking state level measures.

## 5. Conclusions

As is known, according to the UNDP development program, the life quality is made up of three components: average life duration, level of education and per capita revenue level. In the course of our scientific research we analyzed the position of Russia and St. Petersburg in the world, using, materials of the annual report of the United Nations "Of Human Development".

According to the data of 2013, in terms of average life duration (70.3 years), Russia is only on the 112th place, between Suriname and the island state of Trinidad and Tobago (Figure 9).

### POSITION OF RUSSIA IN TERMS OF LIFE QUALITY INDICATORS (among 187 countries)\*



\*According to the UN Human Development Report 2013

Figure 9. Position of Russia in terms of life quality indicators (according to the data of 2013)

The first place belongs to Japan (83.6 years). Russia has position which much closer to the world leaders in terms of education (index 0.915) – it takes the 51th place in the world, between Kyrgyzstan and Romania (Australia is leading with an index of 0.993), as well as in terms of per capita revenue (USD 19.674 according to purchasing power parity) which corresponds to the 45th position among the countries of the world - between Slovakia (19,696) and Poland (17,776).

Thus, in order to provide better life quality, attention shall be paid to increase of the average life duration in Russia. And the following facts shall be considered: the countries, where the mass introduction of quality management systems in the state and municipal authorities takes place, have a high Human Development Index (HDI), which is considered to be an indicator of life quality. Improving of the quality of management enables to make more effective decisions that are fulfilled at a lower cost, to provide better services. This has direct impact, for example, on the health of citizens, which, naturally, affects the increase in life duration, i.e. on improving of one of the components of the HDI. In other words, the mass introduction of quality management methods improves the population life quality.

In conclusion, it is necessary to emphasize that the innovative development of Russia and improving the life quality of population can and should be based primarily on the development of the industrial sector. In modern conditions the leading countries of the world begin to build their national policies on the priorities of industrial development, of the so-called re-industrialization. It is our companies that should be "growth points" of the new innovative economy. At the same time the solution of this problem is impossible without the use of tools of quality economy - metrology, standardization and quality management. According to our invincible belief this science in the future will play a leading role in solving the problems of sustainable development and improving the population life quality.

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