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Renewing organisational culture and effectiveness in Russian enterprises after the 2014 recession using W. Edwards Deming's and Joseph Juran's quality management approach

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<p>The following paper examines opportunities for the renewal of organizational culture and effectiveness in Russian enterprises. The discussion starts with the analysis of three major crises that happened in Russia – The Default in 1998, The Global crisis in 2008 and The Economic Recession in 2014. The 2014 Economic Recession has stimulated the import-substitution practices held by the Russian government, which gave the domestic enterprises an opportunity for the economic development during the recession. High performance of enterprises along with the high quality of produced goods can accelerate the transition of Russia to the export-oriented economy. By examining the USSR practices of quality control management, it was found out that Russia has a solid foundation in quality control management. The final step towards successful integration of the Russian enterprises in the international market will be a successful implementation of western quality management approach. In this research, it was decided to use the teachings of American quality control managers W. Edwards Deming and Joseph Juran.</p>	
Keywords	TQM, Russia, USSR, Crisis, Economic recession, Edwards Deming, Joseph Juran, Quality Control

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Glossary

BIP The Defect-Free Production - the system that was invented and implemented in 1955 at the Samara Aviation Plant (Saratov, 1955)

GKO Government short-term commitments

Gosstandard Federal Agency for Technical Regulation and Metrology

KANARSPI Quality management control system in USSR. Stands for quality, reliability, resource from the first products (Gorky, 1958)

KSPEP Quality management control system in USSR that has been enhanced and developed from the previous system, KANARSPI (Krasnodar, 1980)

KSUKP The complex quality management control system in USSR. Stands for quality, reliability, resource from the first products. This system has united all previous experiences in the development of quality control system in USSR. (Lvov, 1975)

SBT The system of defect-free labor in USSR enterprises (Lvov, 1961)

1 Introduction

The purpose of this work is to study the recessions that happened in Russia in 1998 and 2008, that have shaped the economic model of modern Russia, as well as to analyze the current issues of the Russian economy after the 2014 crisis. The goal is to distinguish how Russia can move from an economy that is highly dependent on its raw materials to a new export-oriented model. To achieve that, the bottlenecks of the quality management control systems in Russian enterprises will be analyzed and a set of measures based on the systematic application of W. Edwards Deming's and Joseph Juran's management approach will be offered. The main object of the study will be enterprises of the real sector of the Russian economy. The subject of the study will be distinguishing a set of measures aimed at improving the quality of management at Russian enterprises.

2 The Russian economic crisis in 1998 (Default)

The economic crisis in 1998 (also known as the Default due to one of the causes of the crisis) was one of the toughest in Russian history. The major factors that caused the Default were huge government debt, the earlier collapse of Asian economies, the liquidity crisis and low prices of raw materials, which were the main exported goods from Russia. Moreover, the populist state economic policy and GKO (Government short-term commitments) dragged the economy further down.

GKO is the short-term zero-coupon government bond issued by the Russian Ministry of Finance. These bonds were first traded only within Russia. The idea was that the money received from the sale of bonds would have been invested in the development of manufacturing and agricultural industries and then through dividends, and the interest on the bonds, they would be eventually repaid. In reality, the state re-invested the profit received from selling GKO's in issuing new bonds and already in 1995, the system showed alarming symptoms when the profit from new bonds was not enough to pay off the debt from the old ones. Thus, in 1996 in an attempt to find new sources of borrowing, the government opened the market to foreign investors who purchased

almost a third of all bonds. In five years, the release of GKO reached enormous proportions. Liabilities to foreign investors who quickly became the main holders of bonds in 1998 amounted to more than 36 billion dollars, and annual payments in their favour amounted to 10 billion. For comparison, the reserves of the Central Bank back then amounted to only 24 billion dollars. At the end of 1997, a financial crisis erupted in Asia, which led to the withdrawal of capital from developing countries, including Russia. As a result, the cost of servicing debt for Russia rose sharply: by December 1, GKO rates had risen from 20 to 40%. The situation was aggravated by lower prices for raw materials, primarily oil. As a result, on August 17, 1998, the government and the Central Bank announced a technical default on all types of government obligations. At the same time, it became known about the refusal to maintain the rouble at a stable level within the currency corridor and the transition to a floating rate. As a result, the rouble immediately fell 1.5 times, and in general, as the crisis developed, 3.5 times.¹

As a result, the trust and confidence of the population and foreign investors in Russian banks and the state, as well as in the national currency, was undermined. Numerous small enterprises went bankrupt and the banking system was in collapse for at least six months. The population lost a significant part of their savings and the standards of living drastically fell across the country. However, soon after the crisis, the economic growth resumed, and the industrial production began to grow due to IMF loans (short-term) and the renewed rise in oil prices (long-term).

The book *The Political Economy of Russia* (Robinson 2013) discusses the development of politics and economics in Russia and how both have influenced each other by examining the country's history and the extent of international influence on Russia

In the late 1920s Russia was a primarily agricultural country that was significantly lagging behind in development from more advanced western countries. With the rise of the Soviet Union, the whole system was built to catch up with its capitalist enemies and in 50 years it developed into a modern industrial and urban economy with powerful military forces. However, by the 1970s the rapid growth stagnated, and authors claim that the cause was the central economic planning. The economic system once developed by the Soviet Union for rapid development eventually became its burden as

¹ (RUSSIAN ECONOMY IN 2014 TRENDS AND OUTLOOKS)

it was impractical and complicated to control. The major problem was planning because in terms of logistics it was impossible to have control over every single economic action involved in such a complex system and the amount of information to be processed was simply too large to manage. As a result, there was never a thoroughly planned economy because those individuals who were responsible for planning were controlling the output and distribution of only a small portion of economic production that was approximately 20000 products out of 24 million produced. Then, authors claim that without proper planning it was impossible for the state to control the production capacity and productivity. As a result when factory managers were setting a production goal, they tended to underestimate how much they could produce and overestimate how much resources will they need from the state, and since the main goal was to fulfil the plan, there were not any goals to increase production and efficiency. By the 1970s it became clear that this system significantly slowed down the country's growth. An extensive amount of natural and human resources allowed the USSR to be less mindful over its spending. When there is no or very limited access to such resources, countries are forced to be more efficient and focus on developing other areas of growth such as technology, industrial production or alternative sources of energy. After the dissolution of the Soviet Union in 1991, Russia had to face many challenges. Without any other suitable alternatives, radical economic reforms or 'shock therapy' were chosen to be the shortest route to receiving overseas investments. One of the most criticised aspects of these reforms was the privatisation of state-owned properties, which resulted in thousands of enterprises, land and commercial activities given away into private hands. That gave the rise to the elite group of Russian oligarchs who later used their resources to control the state and prevent liberal economic reforms that would ensure steady economic growth and welfare in Russia.²

Before the 2014 recession the rising crude oil prices helped to sustain the Russian economy through the 2008 crisis, and disposable income continued to grow steadily giving consumers the ability to afford more and at a higher price. However, by 2014, the short-sighted reliance on natural resources, which were the main source of revenue of the state's treasury, became the main cause of the recession. I believe that when the peak of economic development was reached back in the 1970s what should have been

² (Åslund, 1999)

done is to start using natural resources more efficiently, increase labor productivity and work on achieving higher returns on investments.

3 Russia in the period from 2000 to 2008

Due to a favourable external environment, Russia experienced continuous economic growth all the way from 2000 to the second half of 2008. Finally, the financial institutions achieved stability and interest in the emerging markets of foreign investors continued to grow. A prolonged rise in prices for major export goods (primarily oil, gas, metals) and economic growth led to increased production and multiple increases in the number of large companies in new industries. If in the early 2000s there were about 25 large companies in Russia (companies with annual revenues of more than \$1 billion in the oil and gas industries and more than \$500 million in all the rest), then by 2007 their number had grown more than 10 times. Moreover, only 20% of them were fully or partially state-owned (for comparison, at the beginning of 2000, only half of the major players belonged to the private sector). Entrepreneurs began to develop new business areas and moved into export-oriented segments (metallurgy, petrochemicals, mineral fertilizer production, etc), and then into those industries with stable domestic demand (retail, agriculture, mobile communications). The development of the domestic market gave rise to the large players in retail (Magnit, Eldorado, Euroset, Sportmaster), the food industry (Wimm-Bill-Dann, Baltika), and mobile communications (MTS, MegaFon, VimpelCom).

In the 2000s Russian business started to actively expand into the foreign market. According to Rosstat³, the volume of foreign investments grew from \$14.3 billion in 2001 to \$121.1 billion in 2007. Such growth in investment in the Russian economy can be explained not only by rapid economic growth but also by low rates and capital inflows to all emerging markets in the 2000s.

The key features of entrepreneurship of those times can be summarised by the following characteristics:

- the importance of property rights was increasing

³ (ПОСТУПЛЕНИЕ ИНОСТРАННЫХ ИНВЕСТИЦИЙ ПО ТИПАМ, 2019)

- the number of large enterprises increased several times, appearing in new industries and sectors;

- the process of borrowing on the foreign market began to play a big role in business development

4 Russia in the period from 2009 to 2015

By the beginning of the 2008 crisis, Russian companies had accumulated a large number of obligations to foreign creditors. According to the Central Bank, in the fourth quarter of 2008 alone, \$ 47.5 billion had to be paid on external debt, and \$ 115.7 billion for the whole year of 2009. When the Central Bank decided to raise interest rates, the level of production in Russia dramatically decreased. Moreover, before the crisis in 2008, the number of bankrupt companies ranged around 2%. At the end of 2008, the Central Bank increased the refinancing rate to 13%, which was supposed to balance the supply and demand. However, this led to more expensive loans for small, medium and private business (18-24%), so eventually, the loans became unaffordable and the number of bankruptcies increased 3 times due to the inability of citizens to pay their debts to banks. By mid-2009, the percentage of bankruptcies in the country had grown to 10%. As a result, there was a sharp decline in production and the closure of a large number of businesses across the country.

From 2012, the Russian economy has grown exclusively due to the growth in household demand. This led to the fact that already in 2013, when all sectors, except those aimed at consumer demand, began to lose their profit, it became impossible to ignore the problems in the Russian economy. The conditions for dynamic development disappeared already in 2012-2013; for example, in 2013 the growth of investments started to decline.⁴

In 2014 the sanctions imposed by Western countries after the events in Ukraine cut off Russian companies from the US and EU capital markets which were the main external sources of financing. The attitude of investors towards Russia has worsened significantly and in 2014 the amount of foreign investment fell by 70%. Once again, the country's economy and welfare began to fall and even attempts to actively engage with the

⁴ (Statistika.nethouse.ru, 2019)

Chinese market have not yet led to a significant breakthrough: trade between the two countries in 2015 decreased by almost 30%. In addition, the Russian economy is strongly dependent on external factors, mainly on crude oil and natural gas prices. Taking into consideration state-owned giants like Gazprom, which are responsible for the major source of the country's revenue, oil prices have a significant effect on the Russian economy and specifically on the value of the rouble. In two years (between 2014 - 2016), crude oil prices have fallen down from \$100 to \$30 per barrel. Moreover, the increased U.S. production of shale-based oil and gas puts additional pressure on crude oil prices. To get a better understanding of how shale-based oil and gas can affect the crude oil prices, the following document "Quantitative effects of the shale oil revolution", (Belu Mănescu and Nuño 2015) has been used. In their research, authors use the general equilibrium model by Nakov and Nuño (2011) to assess the effect of increased shale oil production on the crude oil prices. In this model the oil price, oil production, and consumption are the result of the optimizing decisions of oil importers and oil exporters. The market of oil importers is defined by the presence of the dominant supplier with a competitive fringe that may exist as long as it enjoys a cost advantage over the fringe. The authors claim that the key advantage of their model is that the largest player in the market, Saudi Arabia, is embedded in the model. This country is the largest producer among other OPEC members that have enough power to influence the oil market, thus leaving the price impact of shale oil dependent on the response actions of Saudi Arabia. In the research, the authors found out that in "normal" circumstances the increased shale supply could affect the oil prices by $\pm \$4$ per barrel (pb). Then, another question arises which is what else has led to the collapse of oil prices in 2014? The report proposes three possible explanations:

- 1) The glut of oil supply in the second half of 2014.
- 2) The global economic slowdown has compelled IEA to lower the expected oil demand in their forecasts. In addition, it has caused a decline in most commodity prices. Lastly, dollar appreciation has led to an increase in the real price of oil in other currencies.
- 3) Despite the disadvantageous ratio of demand and supply in the oil market, Saudi Arabia has refused to lower the production of oil.

Russia is the second largest oil producer in the world but it has refused several times to join OPEC. The official reason claimed by Russia's representatives is that in contrast to OPEC's other member countries, Russia's oil industry is largely privatized. This means that the majority of oil companies are not under government control and the Russian government does not have the power to affect oil production in response to the outcome of the OPEC meetings. However, the more realistic reason might be the reluctance of the Russian government to be told how much of the oil the country has to produce since oil production is the country's main source of revenue.

5 How market conditions changed after 2014 recession

5.1 Diminished household wealth and increase in inflation

In the first quarter of 2015, household wealth dramatically diminished. The inflation rate increased from 6% at the beginning of 2014 to 17% in 2015.



Figure 1. Russia's household wealth from 2014 to 2018 (in %)

In 2016 the country's GDP has grown by 0.3% officially leading Russia out of the crisis. However, in reality in the two-three years after the recession, Russians have understood the scope of the problem. The immediate effect the recession has had on consumer behaviour is the decrease in their spending due to diminished household

income. In 2015 PwC conducted research to provide a broad overview of the Russian economic recession⁵. They interviewed 3 000 Russian residents; this group constitutes a representative sample of the country's urban population. From the report, it follows that 90% of respondents observed a decrease in their purchasing power and 53% were not able to make any savings. It also states that the majority of Russians associate crisis with the rapid increase in prices and fluctuations of national currency.

5.2 Moscow and small cities (population less than 100000) have been least affected by the recession

Figure 1 (Appendix) shows the rate of decrease in the population's nominal income in different cities. It can be noted that Moscow and small cities with population less than 100 000 were least affected by the recession and that the worst effect was on cities with population from 500 000 to 1 000 000. The following results from interviewing 3000 households from urban regions in Russia.

Among other urban residents, Moscow citizens have higher incomes. For example, a teacher in Moscow earns on average 107,600 roubles (~1494 euros) in contrast to a teacher in Buryat Republic with average salary of about 15,000 roubles (~208 euros) per month.

Also, in small cities (less than 100 000) the majority of the population works in local companies, usually in manufacturers, that operate in the market with lower competition and as a result companies there were not faced with the need for mass reduction and lowering wages.

5.3 Food embargo and import substitution

In August 2014, Russia introduced the import ban that prohibits the import of certain raw materials food and agricultural products from EU, US, Canada, Australia and Norway.⁶ However the market as a whole declined and domestic prices rose

⁵ (Economic downturn in Russia: 360 ° view, 2015)

⁶ The list was later updated and included Island, Albania, Ukraine, Liechtenstein and Montenegro

substantially.⁷ Moreover, the physical imports of products from countries affected by Russian counter-sanctions have fallen sharply. As a result, some countries such as Finland and Poland have suffered losses of billions of euros and some still have not been able to find a replacement for the Russian market. According to the Russian Federal Customs Service, in January - May 2015, volumes of food supplies decreased by 40.6% (financial) and 26% (physical) compared to the same period of 2014. The import of the following products has decreased the most: butter (2,5 times), meat products (2,1 times), cocoa beans and products containing cocoa (2 times), fish (1,9 times), poultry meat (1,9 times). The embargo had serious “side effects” on the Russian economy such as an increase in price, reduced choice for consumers and increased volume of counterfeit products.

On the other hand, it gave an opportunity for Russian food producers (especially meat, poultry, fish and cheese) to significantly increase the volume of their production. Indeed, Russian companies can find an opportunity in the current procedures of import substitution held by the state. For example, before the recession, the international producers of medical equipment (mostly German) were successfully selling their products to state-owned hospitals. However, in 2015 the Russian government imposed a law prohibiting state-owned medical institutions to purchase import goods if there are more than two domestic substitute products offered. At the same time, it is important to be realistic about the ability of the Russian government to replace all the imported products. Taking medical industry as an example, the process “Pharma 2020”⁸ which was aimed at the technological re-equipment of Russian enterprises and advanced training of personnel have started already in 2010. However, the ban on the import of a number of drugs was made way before the full-fledged high-quality domestic analogs could be created. First of all, in the pharma industry creating a high-quality analogue is a very long process. The CEO of biotechnology company “BIOCAD” Dmitry Morozov claims that the creation of a first-in-class drug from scratch is fraught with a high risk of failure, requires from 7 to 12 years of time and huge investments (from \$ 2 billion). And even the creation of an analogue requires an average of 5 - 7 years.⁹ However, the basis for the Russian pharmaceutical industry may be already developed and well-proven technologies and generics (drugs similar to the original, but cheaper and with a different name), whose share in the domestic market is still small, although they are not

⁷ (Ac.gov.ru, 2019)

⁸ (Pharma-2020.ru, 2019)

⁹ (Forbes.ru, 2019)

inferior in quality to the imported drugs, because they are often produced from the same raw materials.

The Ministry of Industry and Trade created a state information system¹⁰ which contains information about the import substitution strategy in 22 industries (Automobile, Aviation, Children's goods, Light manufacturing, Timber industry, Mechanical engineering for food processing industry, Medical industry, Oil and gas engineering, Production of road-building machinery, Conventional arms industry, Electronic industry, agricultural and forestry engineering, machine-tool industry, building materials, shipbuilding industry, transport engineering, pharmaceutical industry, chemical industry, nonferrous metallurgy, ferrous metallurgy, power engineering). Not all products from these industries are subject to import substitution and the number varies according to the industry. Thus, the electronic industry has the biggest amount of products (538) that are planned to be substituted by local producers. For the automobile industry the goal is to substitute 69 products (mostly it is large aggregates). According to the Russian Ministry of Industry and Trade 97,4% of those 69 goods are being imported, the goal however is to minimise this number to 7,6%. Light manufacturing is a promising field for Russian manufactures, as they have an opportunity for fulfillment of state orders and provision of clothing and footwear for security forces and armies. On the other hand, the share of imported sewing products sold on the free market remains 82%-84%, and shoes 85%-88%. The reason is the lack of synthetic fabrics that are produced domestically and the outdated equipment in manufactures. According to the Russian Union of Entrepreneurs of Textile and Light Industry, 39% of equipment in the industry has been in operation for over 20 years.¹¹

Despite its harmful effects, the other side of the crisis can be seen in the formation of necessary conditions that initiated and boosted the development of the Russian manufacturing industry and the growth of domestic companies. The next chapter will attempt to answer the question why most of the time Russian companies are failing to satisfy the needs of domestic customers and how Russia can move from being a country dependent on raw materials to an export-oriented economy.

¹⁰ (Gisp.gov.ru, 2019)

¹¹ (Newizv.ru, 2019)

So, the main question that is facing the top officials of domestic enterprises today is how to survive in conditions of high uncertainty, decreased demand for manufactured products, weak national currency, expensive loans and other new challenges of the future?

The concept of Total Quality Management (TQM) arose from the common goal to stimulate the production of goods that would be competitive in the global market. It had a huge impact on the economies of entire countries and Japan was the first country to implement TQM. The most famous figures in the concept of Total Management Control and Quality are William Edwards Deming and Joseph Juran, who made a significant contribution to the development of the Japanese economy. Their theories, unlike the socio-economic doctrines of the past, are tested according to the criterion of effectiveness and combine the knowledge from the most valuable experiences of different companies and countries. Deming and his colleagues were the true humanists, they acknowledged the growing role of workers and employees in achieving the successful development and competitiveness of companies, as well as the importance of motivation and continuous training.

6 W. Edwards Deming's management approach for operating a business during turbulent times and crisis situations

W. Edwards Deming was born on October 14, 1900, in Sioux City, Iowa. He was a scientist, statistician, lecturer, professor and management consultant. By writing his first book "Out of the Crisis" (first published in 1982) he primarily aimed to answer the question why U.S companies were not able to withstand fierce competition from Japanese competitors during the U.S energy crisis in the late 1970s and early 1980s. In Japan, he was consulting the top officials of the Japanese companies, and there he was actively introducing the statistical quality control methods into their production processes. The result was a significant improvement in product quality and production efficiency. All this led to the high competitiveness of Japan in the global market. It is true that it is not realistic to compare Japan and Russia, both countries can be said to be at the opposite poles, as well as the idea of applying the Western management approach to the Russian reality. However, there are still a few lessons that Russian companies can learn from Deming's approach to the quality management system. The main reason for the

decrease in the competitiveness of Russian enterprises is a crisis in the quality of management and a way out of which can be possible through the implementation of a set of measures and actions based on the systematic application of the 14 principles of Deming. It is a set of management principles that helps companies achieve a higher quality of products and boosts overall productivity.

6.1 #1 Principle: Create constancy of purpose for improving products and services

This principle advises to set a goal and be invariably firm and constant in achieving the goal of continuous improvement of products and services. Nowadays, import substitution is one of the main goals that is set for Russian enterprises. To be able to produce competitive products, enterprises need the appropriate equipment. As mentioned earlier, according to the Ministry of Industry and Trade of Russia (2014), the share of imports in the automobile industry is more than 90%, in heavy engineering 60–80% and in the electronics industry 80–90%. This situation is the result of the model that has developed over the years in the Russian economy where raw materials are being exchanged for imported goods. So, when the goal is set, Deming proposes to distribute resources in such a way to ensure long-term goals and needs (and not just short-term profits). He strongly opposes the usage of quantitative indicators, claiming that such goals immediately turn into an object of manipulation, which then leads to unreliable results. For example, in Russian practices it is common to mainly focus on key performance indicators (KPIs), which proved not to be effective in stimulating productivity.¹² (Appendix 1)

6.2 #2 Principle: Adopt the new philosophy

The second principle states that quality should be embraced throughout the organisation and that satisfying customer needs should be prioritized over beating the competition. The following principle also means that the company (or country as a whole) must undergo thorough, radical changes in relation to many strategies, behaviours, and beliefs comprising the company's culture, or way of operating.

¹² ("Productivity - GDP per Hour Worked - OECD Data")

In the context of the aforesaid, it can be said that Russia has only one way of development which is the transition from being an exporter of raw materials to an innovative developed economy.

6.3 #3 Principle: Stop depending on inspections

The following principle could apply especially in the public sector. Indeed the activities of executive authorities, regions and local municipalities should be based on the PDCA (plan-do-check-implement) cycle of Deming - only in this case the built-in quality at the implementation stage can be achieved and to reduce dependence on mass inspections. The practice of mass inspections is common in Russia and an increase in the number of regulatory bodies and regulations will continue to contribute to the development of corruption.

6.4 #4 Principle: Use a single supplier for any one item

The key to the quality is the consistency, so Deming encouraged to reduce the number of suppliers to ensure less variation in the production processes (the less variation in the input, the less variation in the output). Moreover, the suppliers should be the partners for the manufacturer in achieving quality. They should be more encouraged to improve their own quality, rather than competing with other suppliers based on price alone.

In 2009, AvtoVAZ concluded contracts with 800 suppliers. In 2010, a joint service was created between AvtoVAZ and the Renault-Nissan Alliance for the quality and development of suppliers. In the same year, it was announced that a sharp reduction in the number of suppliers of AvtoVAZ is expected: from 800 to 70-90 by 2012-2014. By 2013, 80 of AvtoVAZ's 280 suppliers met the Alliance requirements.

In February 2014, AvtoVAZ's management, represented by the new president, Bo Andersson, introduced more stringent requirements for suppliers, explaining that the previous conditions of cooperation caused significant losses for the manufacturer in 2013. On the official website of AvtoVAZ, one can find a development plan of the company and one of the unconditional priorities of the development plan is "Procurement

Efficiency”. Moreover, the ideas of Deming explained in his fourth principle, are reflected in the management approach of the current top officials of the Russian auto giant.

Unfortunately, the fourth principle of the quality philosophy of Deming is currently not applicable at state enterprises and in companies that are forced to make purchases in the field of procurement of goods, work and services for the provision of state and municipal needs. According to the procurement standards existing in these companies, the criterion “contract price, unit price” cannot be less than 75% of the sum of selection criteria. Thus, the remaining criteria (delivery time, functional characteristics, competence of the procurement participant) practically do not affect the final result when summing up the results of competitive procedures.

6.5 #5 Principle: Improve constantly and forever

In his book *Out of the Crisis* Deming discussed the importance of building quality throughout every stage of production.¹³ He explained that when the plan is already being implemented, changing something at this stage can be too late. Taking import substitution as an example, for Russian enterprises the consumer requirements referenced for example in the terms of the design of a product, should serve as a starting point for each manager.

At those Russian enterprises where traditions of quality management have been established, the work on improving the processes is systematic and represents a continuous search for new improvement tools. They can vary from seven basic tools of quality, engineering techniques, and lean manufacturing principles to experiment design and Taguchi methods.

6.6 #6 Principle: Use training on the job

The sixth principle of Deming is vital for the implementation of the previous principle, as only competent professionals could effectively manage organizational and technological changes at enterprises in the real sector of the economy.

¹³ Deming, 1986

According to the research of the Paris-based Organisation for Economic Co-operation and Development (OECD), Russian workers, despite working the most hours (1982 hours/per worker/per year) compared to the other EU countries (e.g Austria 1576/per worker/per year) have very low productivity (GDP per hour worked - 24 USD) compare to EU countries (labour's GDP per hour worked in Austria- 53.7 USD).

The analysis made by Pavel Travkin for National Research University Higher School of Economics¹⁴ found out that Russian enterprises train their employees as much as foreign companies do. According to various data collected by Travkin, between 50% to 70% of enterprises conduct training for their employees. More often it is done by innovative, growing, developing enterprises that place high demands on the level of knowledge and competencies. However, the involvement of workers in the learning process in Russia is at a relatively low level. So the reason for the overall low productivity of Russian workers highlighted by the OECD research can be the fact that Russian enterprises train a relatively small number of workers which more often are highly skilled ones. So, in medium and large companies, a little less than 16% of employees undergo training leaving the majority of the workforce untrained. The smallest share of those trained is in agriculture and fisheries - about 4%. The highest rate is demonstrated by companies engaged in financial activities - 24.5%. Enterprises whose main activity is mining, manufacturing, and the production and distribution of gas and water, train 22-23% of their employees.

6.7 #7 Principle: Implement leadership

The practice is widespread in Russia in which subordinates perceive the leader as the immediate boss, but not the leader who is able to convince and lead others. The "boss-subordinate" relationship is characterized by a high centralization of power, a lack of trust and an atmosphere of fear. Deming explained that the work of management is not supervision, but leadership and the path to leadership in the manager's work lies through the "system of profound knowledge", consisting of four interrelated elements which are appreciation of the system, knowledge about variation, theory of knowledge, psychology.

Another observation by Deming that can be useful for Russian managers is directly related to the leadership and competitiveness of the organization: "Who is responsible

¹⁴ («экономики», IQ and труда, 2019)

for quality? Answer: top management. The quality of the company's products cannot be higher than the level that was determined above. "The leader who transfers responsibility to subordinates is focused on control and supervision, but not on leadership and carries two key losses: knowledge during the dismissal of an employee and his unrealized potential. A true leader is ready to spend money and time on training members of his team. The volume of these investments is negligible compared to the economic effect that will increase the quality and productivity due to staff competence.

6.8 #8 Principle: Eliminate fear

In an interview to the RBC newspaper¹⁵ Manfred Kets de Vries, a Dutch psychoanalyst, scientist and economist in the field of management, professor in the field of personnel management and leadership development, noted that Russian CEOs are more authoritarian than their Western counterparts. He proposes that this feature rooted in the culture of the country as the whole history of Russia is the story of strong leaders such Ivan the Terrible, Peter the Great and Catherine II. Moreover, the generation to which the leader belongs to also plays vital role in his management approach. Thus he explains that those people whose beginning of the career fell on a difficult period after the collapse of the USSR had experienced competition in extremely harsh conditions, unlike their Western colleagues. When asked to describe their management style he refers to it as paternalistic where management is built vertically and employees are treated as robots without regard to what they think and what they want. He also refers to the lack of delegation of authority which results in unwillingness to make autonomous decisions and a high fear of failure. Many Russian companies have a culture of fear where obsessive control instils paranoid thinking in employees. Deming stressed that people stop being creative when they are afraid or when they simply are not being listened to.

6.9 #9 Principle: Break down barriers between departments

To eliminate the fear and develop an effective leadership the ninth principle calls to reduce the boundaries between departments, which will allow the establishment of cooperation in the process of search and selection of the most effective methods that will increase customer satisfaction. In chapter 5 of his book Deming discusses another

¹⁵ RBC press, 2019

important issue which is the destructive nature of competition within the company. He stressed that when the management is trying to make employees or even departments to compete with each other, it can lead to harmful consequences for the whole company.

6.10 #10 Principle: Get rid of unclear slogans

In this principle Deming recommends the substitution of unclear slogans that give almost no information to employees with the process control system that instead uses statistical methods in order to increase the reliability of management actions and to enable employees to see clear figures and to assess their own productivity.

6.11 #11 Principle: Eliminate management by objectives

Deming urged top managers to stop using rigidly established norms. He claimed that it is necessary to eliminate the mechanism of arbitrary installation of the process that must be achieved, but instead focus on gradual improvement of the process. This kind of approach carries more losses than results. For example, the production workers who have fulfilled the quota set by the manager are waiting for the shift to end and it can last from several minutes to several hours. All this is a loss.

Vkusvill (vkusvill.ru) is a Russian retail chain of supermarkets positioned as “products for healthy eating”. It was launched in 2009 as a local brand of farm products “Izbenka” and initially it traded exclusively in dairy products. The company works with local suppliers of farm products and runs its own enterprise that produces food and household appliances. After the Russian government imposed sanctions against certain imported goods including food products in 2014, the supermarket chain was able to quickly expand and become one of the best alternatives to the imported goods.

The founder of Vkusvill, Andrey Krivenko, in his interview with RBC explained the decision of his company to abandon the use of quantitative metrics after an attempt to operate with KPIs and other indicators has led to the fact that once, despite the backdrop of excellent data, in reality the company was in a deplorable state.

6.12 #12 Principle: Remove barriers to pride of workmanship

The following principle stands for allowing every employee to take pride in his or her work without being rated or compared to others. The cashiers and other employees in the store are not being penalized in Vkusvill. The reason why is that such actions reduce the employees' initiative. The company instead expects the greatest possible independence in the decision-making of workers of each store. So instead the company offers to them the freedom of decision making, for example, the store employees can withdraw any product from the assortment of their store without the need to receive an agreement from the office or decide where the product will be located. Sellers decide for themselves how much and what kind of goods to sell at a discount price. In stores, the company supports a flat organisational hierarchy, so there is no director, his deputy and accountant in the stores. Instead, there is the role of a senior seller, whose functionality is 95% the same as that of a regular seller, but, besides, he is engaged in encashment, working with mail and an accounting system, solving crisis situations and mentoring. In his book¹⁶ about Vkusvill Evgeny Shchepin (employee of Vkusvill) explained that the result of encouraging autonomy and absence of penalties from the office allows employees to feel a greater sense of pride for the quality of his work. As the result, employees are able to enjoy the working process and be more creative.

6.13 #13 Principle: Implement education and self-improvement

The ability to appreciate mistakes is embedded in the corporate culture of Vkusvill. Such culture and flexible budgeting allows employees to be more initiative and creative in conducting experiments. Another interesting practice that was discussed in the book demonstrates how to apply the thirteenth of Deming's principles in practice.

Every two to three months, the company discusses books. Each employee can offer a book for discussion. If a book gains the most number of votes, then it becomes the next one for discussion. The book is purchased for the office in the right amount of copies. The book becomes a centre of discussion of a full-time meeting, where employees discuss how book ideas can be applied in the company development. Thus, the

¹⁶ (Schepin,2019)

discussion of Nassim Nicholas Taleb's book "Antifragile" has led to the regional expansion of Vkusvill.

6.14 #14 Principle: Make "transformation" everyone's job

Deming's final principle insists on improving the organisation by encouraging each person to take a step toward quality. Through analyzing every small step and understanding its role on a bigger scale, the company should use effective change management principles to implement all 14 points of Deming into the new philosophy of the company. However, in this particular section, he emphasized the importance of top managers taking on responsibility for the company's changes. The responsibility for the quality of the product cannot be just delegated to the workers by the managers.

However, to many of Russian leaders what Deming speaks and warns in his principles might not appear to be necessary since practically during current recession, as in 2008-2009, it is not the convenient time to engage in quality, training, improvement when it seems that the only priority is to stay on the market and keep the business afloat. Unfortunately, the common reaction to the crisis and the decrease in purchasing power of the population is lowering product quality. In *Out of the Crisis* Deming explained that during a recession, it is vital for companies to not alter the functionality and the quality of the product. He claimed that in all times, especially during a recession, companies should always aim for improving the product's quality. He supported his statement with the discussion of the costs associated with producing defective products and the relationship with poor quality, leading to more waste and longer production times and less profitability. Deming believed that if a company sets a product's quality as a priority the result would be higher productivity and lower production costs. This conclusion was reached by the group of Japanese engineers, who studied the materials on quality control by the researchers from Bell Laboratories.¹⁷ Below is illustration of the chain reaction that results from the product's quality improvement.

Improve the quality → Due to fewer operational mistakes, reworks, delays and efficient usage of machine time and resources will lower the costs → Increase in productivity →

¹⁷ Industrial research and scientific development company owned by Finnish company Nokia. Website:bell-labs.com

Will take the market offering better quality for less price → Will be able to stay in business
→ Keep and increase the number of working places

In turbulent times, companies might be tempted to cut off marketing costs, save on advertisement or trying to earn on brands, offering cheaper versions of the product under the same name, but lower quality. Deming considered this approach a strategic mistake of the company. During the recession, brands should change the quality of the product. Indeed, fewer customers will be able to afford premium brands. However, this anyway should not affect and concern those customers who are still willing to purchase the product. It is likely that after having a bad experience with the bad quality of the product, even the most loyal customers will switch to another brand, and attracting new customers costs much more than retaining the existing ones.

The key factor for companies to thrive during the recession is improving the quality of the product or service. To achieve that management must set a consistent goal of making the consumer the most important part in the value chain.

7 Quality management in USSR

When taking a closer look at the Soviet quality management systems, it can be noticed how closely they are related to Deming's 14 principles. The first attempts to introduce quality control were made in the Soviet Union back in the 1920s. During those times the industry was recovering from the civil war. The rapid growth of industry and a more complex production structure boosted the development of individual elements of quality management. This happened already in the 1930s and 1940s. Most of the changes affected high-tech industries: radio engineering, chemistry, aviation and rocketry. The first stage of a new era of the Soviet Quality Management System is considered to be the BIP (The Defect-Free Production) the system that was invented and implemented in 1955 at the Samara Aviation Plant. The biggest difference of BIP system with all the previous ones was the fact that it shared the responsibility for the quality of the product with the worker. Before that the worker reported only whether he completed the production program, that is, for the quantity he produced, and all the reprimands for the unsatisfactory condition of the final product were received by the Technical Control

Departments. As a result the number of these Technical Control Departments were rapidly growing that was financially unjustified. (#3 & #14 Principles) Delegating responsibility across all stages of production and reducing the amount of controlling departments shows that Deming's management approach was relevant and effective even before it became well known. The main idea of the BIP was to count the number of produced goods delivered by the worker that were not returned for revision due to its poor quality. Those employees with high rates of defective products were penalized, and those who produced goods without any defects for 6 months straight were given the opportunity to put a personal stamp on the product of their labor (#12 Principle). In addition, there was also a material incentive for such employees. Moreover, particular attention was paid to monitoring the correct implementation of production procedures before the final product was delivered to the Quality Department. This was necessary in order to exclude as much defects as possible before the product of a particular worker was checked. The key to the success of the BIP system was mostly the educated and qualified personnel. Quality schools were organized within the company to improve the professional level of those employees who were involved in the quality control of the manufactured product. For the same educational purposes, enterprises spent the whole days educating workers about quality. In the 1950s and 1960s, the BIP system was so effective that it was introduced at the plants of the German Democratic Republic and Poland (Polish People's Republic).

The next quality management systems that appeared after the BIP were not something fundamentally different from the first system. They were rather created in order to improve the efficiency of the old one and to specialize the system for the specific branch of activities. One of the later systems was called SBT (System of defect-free labor), in SBT, as in BIP, the main focus was made on the effectiveness of a particular worker, but this effectiveness was evaluated using a different approach, the coefficient of the quality of labor. This coefficient was calculated individually for each employee of a given department for a certain time period: a week, a month or a year. Moreover, the defects of the product were ranked by their importance. A serious drawback of SBT was that it did not provide any incentives for those employees who did not allow defects in their work. The bottleneck of SBT and BIP can be considered the fact that all work with the product quality was concentrated in the factories, that is, in the process of manufacturing the goods. However, in the late 50s, up to 60-85% of defects were attributed to the

Design Bureaus that developed the product and to the share of technologists (engineers who organize production). To solve this problem in 1958 the new system was introduced called KANARSPI (quality, reliability, resource from the first products). In the production process, this system, like others, adhered to the principle of defect-free labor. Major changes were made to the product development. With this system production tests and pilot production were introduced. Deficiencies and defects identified during the testing of trial models of products were thoroughly studied and only after that the projects were finalized. In addition, the feedback was established between the consumer and the designer. The results of exploitation by the buyer of the goods were sent back to the developer and were taken into account when upgrading existing models and developing new ones. Overall, the KANARSPI system produced very positive results. For example, the reliability of the products increased by 2 times and the complexity and the cycle of installation and assembly work decreased by 1.3-2 times.

The NORM quality control system (Scientific Organization of Labor to Increase Motor Resources) appeared in 1963 at the Yaroslavl Motor Plant. It combined the principles of KANARSPI and BIP and adapted the quality standards for a particular industry - the production of motors. The developers had a specific task, which is to increase the service life of motors. To do this, the system introduced the procedure of tracking the performance of engine until its first breakdown. The system provided gradual increase of engine life, therefore, if the period of its defect-free service was unsatisfactory, a whole project verification system was launched. Details were found due to which durability decreased, and corresponding changes were made. Successful adaptation of previous quality systems to a specific type of production has shown that any field of activity requires its own specific Quality Management System.

KSUKP, which arose in 1975 in Lviv, was an attempt to take into account even more factors in quality control than it was in KANARSPI. Here, attention was paid not only to the work of design bureaus, but also to the raw materials from which it was planned to make certain goods, as well as to the selection of personnel. More than before, the attention was paid to standardization of products, KSUKP worked closely with the State System of Standardization (GSS). In comparison with earlier systems, KSUKP focuses more attention and systematically approaches an increase of production of high-quality products that would correspond to world standards.

In the early 1980s, using the main ideas of KSUKP, the teams of a number of enterprises of the Krasnodar Territory with the help of Gosstandart developed and implemented the Integrated Production Efficiency Improvement System (KSPEP), which allowed USSR enterprises to move from a single-purpose product quality management system to solving the complex, multi-purpose issue of production management efficiency. KSUKP and KSPEP received the generalized name - Integrated system for improving production efficiency and quality of work. This integrated system was a new stage in the further development of KSUKP. It covered all levels of enterprise management, all stages of the product life cycle, regulated the organisation of the management in all aspects of the production as well as economic activities of the enterprise. Moreover, this system also covered the social life of the workers by developing and implementing a set of standards and rules in enterprises. It aimed to increase the economic efficiency of production, ensuring the growth of labor productivity, improving product quality as well as the rational use of production assets, labor, material and financial resources.

8 Limitations of Quality Management System in USSR

Although Soviet quality management systems allowed the industrial and other sectors of the economy where they were introduced to achieve impressive success, it was not able to ensure the victory of the USSR in the economic race with Western countries. The main reason for this was not in the quality management systems, but in the peculiarities of the Soviet economy. Many enterprises were monopolists in their industries, and more often they did not have an interest in working with consumers and increasing the quality of products.¹⁸ Thus, despite the fact that for several decades, improving the quality of products at the enterprises in USSR was achieved through creation of product quality management systems, there was still no significant shift in this area. As the result, it led to the formation of an opinion by the state that the product quality management systems and, in particular, the integrated system (KSPEP) were not effective and should not be focused on. However, this kind of conclusion was made without a deep analysis of the real root causes of unsatisfactory product quality in USSR enterprises. Naturally, when there is no goal, there is no need to look for a means to achieve it, especially if this threatens great troubles. This is precisely the situation with integrated quality management systems, which turned out to be an unnecessary means for most

¹⁸ Maslov et al., 2004

enterprises to achieve the virtually absent goals of ensuring high product quality. As a result, the creation of quality management systems at enterprises has turned into a purely political campaign of formal reporting by enterprises to their ministries. In fact, the potential of a systematic approach to organizing work at the enterprise to improve product quality was not used by most of the companies.

It can be noticed that quality management was primarily introduced in the sectors that ensure scientific and technological progress — radio engineering, chemistry, automobile, aviation, and rocket technology.¹⁹ There were fewer activities that would cover the quality management control in enterprises involved in the provision of consumer goods manufacturing or services. Indeed, the lack of customer focus has become one of the main reasons for the failure of the USSR's quality management control systems.

In addition, the primary responsibility of enterprises and their managers was the implementation of volumetric planned production indicators, which were most often achieved by reducing product quality. Another issue was the lack of self-assessment of the management in USSR enterprises. Unless it was related to financial analysis, managers did not see the value of the self-assessment practices. However, self-assessment is an important tool in quality management control and requires the identification of problematic issues along with the development of advocated solutions and corrective actions for it to lead to improvement.

Another issue in USSR enterprises that is still relevant today in Russia is the use of fear in the management approach. The entire management system in USSR, whether it was a small company, or an entire government, was based on fear. The manager of any level suppressed subordinates and at the same time was afraid of higher authorities. Therefore, companies as well as the government in the USSR were extremely centralized. This system simply did not allow the effective use of human resources. The possible reason for this management approach established in USSR could be that historically Russia for a long time was ruled by dictators, and there was not a single period of time when disagreement with authority was encouraged. As the result, people were used to being afraid and preferred to be more restrained in sharing their opinion with higher authorities. So, when a problem occurred subordinates were not willing to take responsibility and instead reported the issue straight to the managers. Therefore,

¹⁹ Maslov et al., 2004

there was no progress in companies and no movement forward. But many managers, oddly enough, were pleased that everything depends only on them. Leaders in the USSR (and in Russia) did not listen to their subordinates, and as a result the workers just were waiting for instructions and did not try to do anything themselves. In this authoritarian culture it is very difficult to develop entrepreneurship and an entrepreneurial spirit. So, the stagnation was obtained both in business and in the country. In opposition to Deming's principle that suggests eliminating fear from the management approach, his contemporary Joseph Juran believed that fear can bring out the best in people.²⁰ However, he also mentioned that this approach only works in achieving short-term goals. Although coercion can provide temporary subjugation of people, it has side effects such as irritation, desire for revenge and alienation. This, in turn, leads to a decrease in efficiency, dissatisfaction and high staff turnover.

8.1 Fear at the workplace

The work environment provides many opportunities to strengthen power on the basis of fear and coercion, because for the majority of people their job satisfies their basic needs in shelter, food and security. For example, almost all people are afraid of dismissal, in certain conditions, using fear is so easy that some managers do it very often, because even a hint of dismissal, deprivation of authority or demotion, as a rule, gives immediate results. When it comes to managers, it should be noted that due to the constant demand for competent, experienced managers, threats of dismissal today are usually ineffective. Instead of the desired effect, they usually lead to additional costs for paying for the services of recruitment agencies and to a long and painful search for a replacement.

Fear can be used in modern organizations, but not often, because from the long-term point of view it is a very expensive method of influence. A striking example of the fact that ultimately fear can have the exact opposite of the desired effect is one of the most catastrophic bankruptcies in business history. W. T. Grant, which until 1975 was one of the largest trading companies in the world, knew that it had problems with consumer loans, which were managed by store directors. The company decided to develop a program of "negative incentives", called "Beefsteak and Beans."²¹ Directors incapable of meeting the norm underwent humiliating procedures: they threw a mustard pie in their

²⁰ Evans and Lindsay, 2010

²¹ Mescon, Albert and Khedouri, 1988

faces, forced them to roll nuts with their nose and run their backs forward through the store, cut their ties, etc. And all this, of course, in public. Performance indicators rose sharply, but the company even increased its debt. The reason for this was revealed by the new management, subsequently hired by the company's creditors. It turned out that store directors, knowing the inefficiency of the planning and control systems in W. T. Grant and trying to avoid humiliation, simply falsified their reports.

It should be remembered that fear can be effective only if it is supported by an effective control system, the creation of which requires a lot of work and money. If coercion is the basis of power, effective control at moderate costs is not possible, as people will make greater efforts to deceive the organization. But even if it is possible to create an effective control system at moderate costs, the best that the management can count on, influencing through fear, is the minimum adequate efficiency of the employee.

9 Joseph Juran - the concept of quality

Along with Deming, Joseph Juran is deservedly considered one of the founders of the Japanese "miracle", the process of reviving the Japanese economy in the postwar years that led to what Juran calls the "revolution in quality." Joseph Juran is an American specialist in the field of quality. In 1951, his book *Handbook for Quality Control* was published in the USA, from which the concept of "quality management" originates. Juran was the first to justify the transition from quality control to quality management. He developed the famous "quality spiral" (Juran spiral) - a timeless spatial model that determined the main stages of continuously developing quality management work. He is also the author of the AQI (Annual Quality Improvement) concept. The main principles of AQI are: planning by management to improve quality at all levels and in all areas of the enterprise, development of measures aimed at eliminating and preventing errors in the field of quality management, the transition from administration (orders from above) to the systematic management of all activities in the field of quality and including the improvement of administrative activities.

First of all, what Russian leaders can learn from Juran's lessons is his definition of the term "quality". He determined "quality" as a fitness for use, this means that buyers or

users expect to receive what they need, these are certain properties or characteristics of a product or service, and not just the absence of defects. It can be noticed that the quality control systems in USSR were focused primarily on producing defect-free products.

Back in the early 1950s, Juran explained that the word "quality" has a double meaning. And only Juran throughout his career consistently explained that any quality management strategy should start with the design by which he meant the whole product development cycle and its production process.²² Juran stated that the quality management control of a product should arise from the needs of a customer. In addition, Juran's quality assurance process through the product's design includes the following main stages²³: identifying consumers → revealing their needs → translating needs from the language of a consumer to the corporate language → defining units and quantifying needs → developing a product that meets these needs the best → developing a manufacturing process for this product. Obviously, the concept of Juran's design is much wider than graphic or industrial design and even engineering design work. However, many modern enterprises in Russia continue to ignore these processes. Even leading companies, despite all their slogans about customer focus, are guided by intuition and assumptions in defining customers' needs. In Western countries the main driver for the development of universal quality management was and remains a focus on the consumer. It was the competition for the consumer that forced managers to look for new approaches in order to satisfy the needs of their customers with the highest quality. In the administrative command system of the Soviet Union, supply and demand were the subject of the state planning, there was no competition between manufacturers. The consumer could not show his preference regarding the producer, because he literally had no choice and had to buy what was offered. These market conditions not only did not contribute, but, on the contrary, contradicted the philosophy of quality. So, the legacy of the Soviet system can be overcome only through an evolutionary way. The advantage of the current position of Russia is that this path can be much shorter, because accumulated world knowledge, experience, as well as mistakes and failures are already known. In addition, Russia has an extensive theoretical and methodological base in the field of quality of the Soviet period. Thus, the Soviet experience can be considered as one of the evolutionary stages in the development of the TQM philosophy in Russian businesses.

²² Juran, 1992

²³ Juran 1988

10 Conclusion

It has been 5 years since Ukraine's crisis, the annexation of Crimea and devaluation of the rouble and since then, the Russian economy is still struggling to recover from the economic upheaval. Moreover, the future forecasts on the recovery rate of the country's economy do not look promising. Overnight, the rouble has lost half of its value and as expected the consumers' response was immediate. As can be seen from the example of the recovery of the Eastern Europe countries from the 2008 Global Recession, some purchasing habits that have been shaped during the past recession have stayed the same even several years after the recession.²⁴ Moreover, the high level of uncertainty puts additional pressure on consumers and significantly affects their purchasing behavior. In the context of the current economic crisis, Russian companies have two goals. One of them is short-term and consists in the need to reevaluate their priorities and win their loyalty in competition with other companies. The second goal is long-term - the production of competitive products for export. Both goals require radical changes in the quality management approach in Russian enterprises. The USSR quality control system has made a significant contribution to the development of a modern approach. However, the successful implementation and adaptation of western practices can bring Russia closer to its goals.

Many approaches to improving the organization's management system and increasing its competitiveness are based on the principles of TQM. This is ISO 9000, quality awards, benchmarking, self-assessment practices. How effective are these methods and tools for Russia? The approach to quality and improvement develops evolutionarily and has a methodological and practical basis. Managers of western companies perceive customer orientation, continuous improvement, involvement and interest of employees and corporate social responsibility as integral principles of operating a business. Nowadays, these principles are artificially introduced into Russian businesses, so the problem of adapting western approaches comes to the fore. Managers, on the one hand, understand that it is vital to change corporate philosophy; on the other hand, there are a lot of barriers: ignorance of how and what should be changed, resistance of employees, misunderstanding of colleagues and business partners. However, the problems described earlier in this paper for the introduction of TQM in Russia cannot become insurmountable barriers to this process. An adequate perception of the market realities

²⁴ Economic downturn in Russia: 360 ° view, 2015

and competent policies, both from the business community and from the state will help to avoid these obstacles.

More specifically, in order to overcome the gap in the field of quality in Russian enterprises, during the post-recession years it is necessary to bring the technical equipment, technology and production culture to the level of leading industrialized countries. Moreover, there is a need to solve the problems of training professionals responsible for quality (quality specialists, quality system managers, quality auditors) and mass training of workers of all levels - workers, specialists and heads of organizations using the principles of western quality managers. As part of the study, it was established that the relevance of the teachings of W. Edwards Deming and Joseph Juran in Russia will only increase over time. The analysis of the activities of Russian organizations that have achieved significant success in the continuous promotion of quality management system based on their principles was carried out. It was found that the main reason for reduced competitiveness of the Russian enterprises in the global market is the crisis of management quality and the way out of which is possible through the implementation of a set of measures based on the systematic application of principles of Deming and Juran. These innovative management methods are vital for Russian companies to thrive during the post-recession years.

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1. OECD – GDP per hour worked (35 countries)

GDP per hour worked Total, 2010=100, 2001 – 2018

Location	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Australia	90.9	92.2	94.2	93.9	94.3	94.8	96.0	99.3	98.4	100.0	101.2	103.6	105.4	106.0	108.8	108.5	109.7	110.4*
Austria	87.9	89.6	90.3	92.1	94.3	96.8	99.2	99.2	98.5	100.0	101.0	102.1	102.8	103.1	104.7	104.7	105.6	106.7
Belgium	89.7	91.8	92.9	95.7	96.7	97.6	99.1	98.5	97.8	100.0	99.5	99.3	100.0	101.0	102.3	102.5	102.8	102.6
Bulgaria	74.0	78.2	80.4	82.2	86.1	89.2	92.8	93.9	94.8	100.0	104.3	106.9	107.9	109.5	112.9	116.8	119.2	122.9
Canada	93.1	94.6	94.8	95.6	97.8	98.8	98.8	98.5	99.0	100.0	101.6	101.9	103.2	105.9	105.7	106.1	107.9	107.7
Chile	83.4	84.1	84.9	88.8	93.6	97.4	101.2	103.4	103.5	100.0	102.2	106.9	109.4	111.1	112.0	113.4	113.8	117.5
Costa Rica	78.7	79.2	80.3	82.2	80.7	83.8	84.9	87.5	89.9	100.0	104.7	103.2	108.3	111.0	114.6	119.7	121.6	123.9
Croatia	89.3	93.1	95.9	98.7	101.7	103.3	105.3	105.1	98.4	100.0	103.8	106.1	109.3	107.3	112.3	115.5	117.1	..
Czech Republic	77.8	78.6	82.6	86.3	90.2	96.0	100.2	100.4	97.9	100.0	101.7	102.1	102.1	103.5	108.7	108.2	110.8	112.5
Denmark	90.6	91.4	92.9	95.8	97.1	98.4	98.6	97.1	96.2	100.0	100.3	102.3	103.1	104.7	106.2	106.7	108.0	108.6
Estonia	68.3	72.3	75.8	80.6	85.3	90.0	96.9	93.3	95.1	100.0	98.7	103.1	104.9	107.4	106.8	110.1	112.3	118.1
Euro area (19 countries)	92.9	93.9	94.3	95.5	96.3	97.8	98.7	98.5	97.5	100.0	101.5	102.3	103.4	104.3	105.2	105.7	106.8	107.0
European Union (28 countries)	90.3	92.2	93.5	95.1	96.1	97.7	98.7	98.4	97.0	100.0	101.5	102.4	103.5	104.2	105.5	106.0	107.2	108.0
Finland	89.4	90.4	92.5	95.5	97.2	99.6	102.7	101.6	96.9	100.0	101.6	100.0	100.6	100.7	101.2	103.8	106.1	105.3
France	93.2	95.9	96.5	97.5	98.4	100.9	100.4	99.7	98.7	100.0	101.0	101.3	102.7	103.7	104.5	104.8	107.3	108.8
G7	87.5	89.4	91.2	93.1	94.7	95.8	96.7	97.0	97.7	100.0	100.6	101.0	102.0	102.7	103.6	103.8	105.1	105.8
Germany	92.3	93.5	94.2	95.2	96.6	98.5	100.0	100.2	97.6	100.0	102.1	102.7	103.5	104.6	105.2	106.7	107.6	107.6
Greece	91.4	93.1	97.2	100.2	97.3	101.5	104.2	102.7	100.0	100.0	96.7	94.9	94.1	95.7	94.1	93.5	92.8	93.0
Hungary	71.1	73.9	77.8	82.2	86.0	89.1	89.6	92.0	89.0	100.0	102.1	101.4	102.7	101.7	103.0	101.5	104.8	109.3
Iceland	72.3	75.4	78.5	84.8	87.7	88.4	93.7	94.7	101.7	100.0	100.2	100.5	102.1	102.4	104.4	107.4	108.7	111.6
Ireland	76.6	80.7	82.4	85.5	85.8	86.4	87.8	85.4	89.5	100.0	101.6	102.3	100.4	105.3	126.3	126.8	132.2	137.8
Israel	89.3	87.7	88.5	92.6	93.7	97.1	98.1	98.0	97.3	100.0	102.6	102.3	104.5	106.4	106.7	107.0	108.1	..
Italy	100.7	99.9	99.2	100.1	100.7	100.7	100.6	100.0	97.8	100.0	100.5	100.2	101.1	101.3	101.5	101.1	101.7	101.5
Japan	90.4	92.2	93.5	95.6	97.1	97.3	98.1	97.9	96.8	100.0	100.2	101.2	103.3	103.3	104.8	104.7	106.0	106.5
Korea	64.8	68.9	72.0	75.0	78.2	81.4	86.3	91.6	94.7	100.0	102.9	104.2	106.3	108.7	109.6	112.5	117.3	..
Latvia	64.4	69.7	75.5	83.7	90.5	95.7	103.0	93.9	96.3	100.0	103.9	107.5	108.0	110.9	114.8	117.5	124.0	127.5
Lithuania	66.4	69.5	75.8	77.6	83.0	89.6	96.1	98.4	94.2	100.0	107.0	109.2	112.5	114.7	113.9	112.8	120.7	123.0
Luxembourg	96.8	98.0	97.9	99.1	101.3	102.5	105.4	99.3	97.1	100.0	99.7	97.4	99.5	101.0	101.8	101.2	99.9	98.8
Mexico	105.7	100.9	104.0	105.4	104.0	107.4	108.8	105.3	105.2	100.0	102.8	103.2	102.7	105.3*	105.9*	106.6*	107.1*	..
Netherlands	91.6	92.2	93.5	95.1	97.3	98.8	99.7	100.2	98.0	100.0	100.6	100.5	101.3	102.0	103.0	102.8	103.7	104.1
New Zealand	91.0	92.7	94.5	94.1	94.0	95.4	99.1	96.0	101.0	100.0	102.0	105.7	103.8	103.4	106.1	105.5	103.9	103.8*
Norway	96.9	98.9	101.8	103.8	104.8	104.0	102.2	99.2	99.4	100.0	99.2	100.0	100.7	101.3	102.7	103.5	105.2	105.0
OECD - Total	88.0	89.5	91.6	93.6	95.1	96.5	98.0	98.0	98.4	100.0	101.0	101.5	102.6	103.4	104.5	104.8	106.3	..
Peru	..	..	..	..	..	..	86.4	93.1	93.2	100.0	104.8	110.1	116.2	118.6	..	..	..	..
Poland	73.4	77.4	80.9	84.0	85.4	87.8	90.1	90.8	93.8	100.0	104.7	106.6	108.3	109.6	111.7	114.1	119.4	126.7
Portugal	89.4	90.1	90.4	92.4	93.5	95.1	96.6	97.1	96.9	100.0	101.3	102.4	103.6	102.7	102.6	102.8	102.2	102.3
Romania	60.0	70.1	72.9	81.5	86.3	91.8	97.6	106.7	103.4	100.0	101.0	113.3	118.6	122.7	129.6	135.6	141.2	146.5
Russia	70.1	71.7	76.8	81.3	85.5	91.1	96.4	101.0	96.5	100.0	102.6	105.1	107.3	107.6	103.8	103.7	105.4*	107.7*
Slovak Republic	68.4	73.3	79.0	81.3	84.0	89.0	95.7	97.8	95.1	100.0	101.7	103.6	107.0	109.1	111.8	113.6	116.4	119.9
Slovenia	82.1	82.7	85.2	88.0	94.1	99.6	103.8	103.4	96.8	100.0	103.4	102.7	101.6	103.0	103.7	107.2	111.3	114.2
South Africa	78.5	81.9	87.8	89.1	86.4	89.9	94.2	91.2	93.7	100.0	100.4	101.4	101.4	101.5	111.5*	98.6*	98.5*	97.9*
Spain	92.3	92.4	92.8	93.0	93.3	93.9	95.0	95.4	97.7	100.0	101.4	103.5	104.9	105.2	105.8	106.3	107.4	107.2
Sweden	85.4	88.4	91.8	94.9	97.4	100.6	101.0	99.2	96.8	100.0	100.7	100.6	101.4	102.6	105.5	105.6	106.2	106.5
Switzerland	91.5	92.2	91.9	92.5	94.9	97.2	99.3	99.6	97.5	100.0	99.5	99.7	101.6	102.7	101.6	101.7	103.8	106.0
Turkey	70.5	75.2	80.1	87.3	92.3	96.7	101.9	101.6	97.5	100.0	105.4	107.6	114.9	114.9*	118.6*	119.8*	124.3*	..
United Kingdom	88.7	91.1	93.9	95.9	96.7	98.6	100.2	100.3	97.9	100.0	100.3	99.8	100.0	100.2	101.9	101.3	102.2	102.8
United States	82.4	84.7	87.3	89.5	91.4	92.4	93.5	94.5	97.6	100.0	100.0	100.4	100.8	101.4	102.1	102.2	103.4	104.3*

Information on data for Israel: <http://oe.cd/israel-disclaimer>

.. Not available; | Break in series; e Estimated value; f Forecast value; x Not applicable; p Provisional data; s Strike; - Nil;