

Saimaa University of Applied Sciences
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Sergey Klementev

**Implementation of the 5S model as a source to
increase labor productivity and as a platform for
the continuous improvements for SPPM**

Master Thesis 2015

Abstract

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Instructors:

Principal Lecturer, Tuuli Mirola, Saimaa University of Applied Sciences;

Deputy of the General Director for Financial and Economic, Kirill Rogal, Syassky Pulp & Paper Mill.

SPPM is located in the Leningrad region. The company was founded in 1928 and specializes in producing hygiene products. The market of these products is highly competitive, here are all the main players, multinational companies, domestic manufacturers as well as small local producers. The main problem in the enterprise is low labor productivity, and it reflects the overall picture in the Russian industry.

The purpose of the thesis is to search for ways of continuous improvement (CI) that can be used to, foremost, improve the labor productivity and, secondly, identify which of them could be suitable in the case of SPPM.

The main contributions of this research are an understanding of the existing quality system management approaches, their influences on business, especially on labor productivity and finding the most suitable solution for the company, particularly for SPPM.

Keywords: competitiveness; productivity; quality management; continuous improvement; 5S; TQM

Preface

This work took much more time than I could have imagined. There were objective and subjective reasons. During this study a lot of mistakes were made, at the same time it brought me a wealth of experience in similar works. But all that would not have been if I had not have the support of my supervisor Tuuli Mirola and personally Minna Ikävalko. I also want to thank my supervisor from Syassky PPM Rogal Kirill. Special thanks to Mr. Brady, CEO of KBR Russia and Dmitry Timokhin, head of the quality department of KBR Russia, for their assistance and materials provided. Despite the fact that the material provided by Mr Claes Berlin is not included in this work, I would like to express my deep gratitude for his help in this work.

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1 Introduction to the research study

"In terms of productivity, we are still far in comparison with the leading countries... For example, we are lagging behind countries such as Norway 4 times, despite the fact that citizens in Norway work for 14 days less than in Russia. On average, we are lagging behind the developed countries somewhere 2.5 times. "

Maxim Topilin, Minister of Labor
and Social Protection
of the Russian Federation

This chapter is devoted to the description of prerequisites for this paper, including a discussion of the problem, which leads to the formulation of assumptions, the investigation of which this work will be devoted to. Then will be shown the aims and objectives of this study, then briefly the scope and delimitation will be explained. Finally research design and the structure of this study will be presented.

1.1 Background

The main contributions of this research are an understanding of the existing quality system management approaches, their influences on business, especially on labor productivity and finding the most suitable solution for the company, particularly for Sayssky Pulp and Paper Mill (SPPM). In order to better understand what makes the company competitive, it is needed to identify the existing characteristics of modern world.

If the outside reflections of the policy issues are left out, the main and obvious characteristic of modern society would be the process of globalization. Globalization has become an important aspect of the modern world system, one of the most influential forces shaping the future course of development of our planet. It affects all areas of public life, including the economy, politics, social sphere, culture, ecology, safety, etc. (Jones 2006, p. 10). Professor of sociology at the University of California (USA) M.Castels defined globalization as "a new capitalist economy," based on information, knowledge, and information

technology as the main sources of productivity growth and competitiveness. This new economy is organized primarily through a network management structure of production and distribution, rather than individual firms, and it is global (Castels 2001, p. 52).

More specifically, globalization can be defined as a process, which increases economic openness, economic cohesion and economic integration in the world economy (Nayyar 2006, p. 137). In 2010, the added value within the global production of transnational corporations (TNCs) was about \$ 16 trillion dollars, i.e. about one quarter of global GDP. Only on foreign affiliates of TNCs accounted for more than 10% of global GDP and one third of world exports (UNCTAD 2011).

The largest group of TNCs is concentrated in the banking and financial sector. It consists mainly of U.S. and Chinese corporations, referred to as multinational banks (TNB), which currently comprise a separate group of TNCs (Table 1.1). The second largest group of MNCs is presented in the extraction and processing of oil and gas, where the leaders are also TNCs in the U.S. and China. This group also includes Russian multinationals such as Gazprom and Rosneft.

INDUSTRY	NUMBER OF TNCs	MAIN FOUNGING COUNTRIES	INDUSTRY	NUMBER OF TNCs	MAIN FOUNGING COUNTRIES
Oil and Gas Extraction	43	USA China Russia	High-tech Production	16	USA Japan Taiwan
Banking and Financial Sector	71	USA China Australia	Car Production	17	Japan Germany USA
Food Manufacturing	9	Switzerland USA Great Britan	Pharmaceutical Production and Biotechnology	22	Switzerland France
Software and Computer Services	13	USA Germany India Japan	Retail Sector	17	USA Spain Mexico

Table 1.1. Distribution of TNCs by production specialization and country of residence in 2012 (Adopted from: Financial Times Global 500 2013)

Globalization affects all economies around the world. It affects the production of goods and services, use of labor, investment, technology and distribution from one country to another. All this ultimately affects the production efficiency, productivity and competitiveness. It is globalization that has caused the aggravation of international competition. Competition in its turn forces companies to look for new approaches that can ensure their competitiveness, and probably, productivity plays the main role in this case. (Roghianian et al. 2012, p.65.)

Over the past few decades there have been significant changes in the Russian economy. Russia joining the WTO, actually, only formalized the fact that the economics of Russia in the XXI century is an integral part of the global economic space, with all its the advantages and disadvantages. This fact means that Russian companies need to act in the face of fierce competition from transnational corporations (TNCs), which largely determine the dynamics and structure of modern markets. Thus in the issues related to the efficiency of activities Russian companies come to the forefront. (Nigmatulin 2013.)

A joint research effort by MGI and McKinsey's Moscow office finds that key historic sources of the growth of the Russian economy—favorable global market conditions for Russian exports, positive demographic trends, and available capacity—are no longer available, and in this new environment productivity and new investment become critical drivers for the economy's future growth. The current global economic crisis has made the need to address the productivity challenge even more urgent. (McKinsey Global Institute 2009, p.9.)

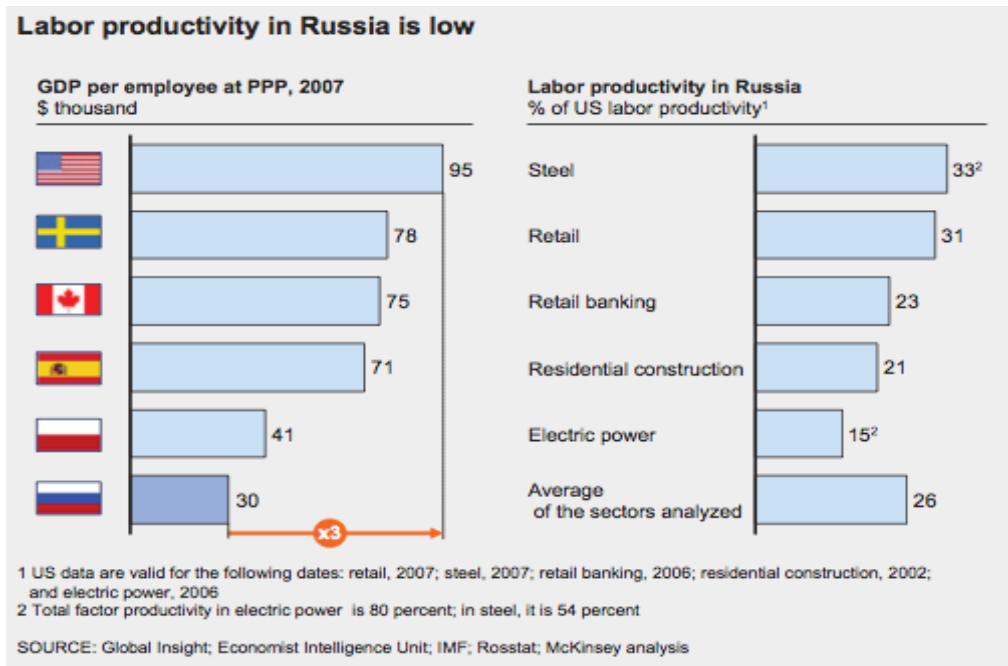


Figure 1.1. Labor productivity in Russia (McKinsey Global Institute 2009, p.13)

The research conducted in 2009 by MGI, identifies productivity gaps in Russia. Productivity stands on average at 26 percent of US levels in 2007 (Figure 1.1). The analysis identifies key shortcomings common to all sectors and finds that inefficient business processes account for 30 to 80 percent of the productivity gap with the United States, depending on the sector. (McKinsey Global Institute 2009, p. 28)

According to the Organization for Economic Cooperation and Development (OECD), any representative of the Group of Seven (G7) works 2.5 times more effectively than the Russians. Norway or Ireland, which occupy one of the leading positions in labor productivity in the world, exceed Russians on this indicator almost 4 times. Even a starker picture emerges if we consider that Norwegians work 14 days less a year than Russians (see Figure 1.2).



Figure 1.2. Correlation between working hours and cost in different countries (Adopted from: OECD 2011)

The figures look scary, especially when we talk about the current trend in the development of the modern world and increasing competition as a consequence of this trend. What are the main reasons for such a strong backlog from the world leading countries?

After the collapse of the Soviet Union 's, the Russian economy was in a deep crisis, and only towards the end of the 90s it was just beginning to recover. In 1999, in the most important sectors of the economy, the average labor productivity was about 18% of the U.S. level. According to the data published by McKinsey Group in April 2009, this figure rose to 26%. According to the authors, this productivity growth (on average this figure is 7% per year), followed by the GDP growth was associated with an increase in the number of the working population (including the expense of migrant workers) and the fuller capacity utilization (from 45 % in 1998 to 80 % in 2007). However, further

growth rate of productivity due to the same factors is impossible (McKinsey Global Institute 2009, p. 22) .

The advantage of low cost does not work anymore. This competitive advantage is no longer with us: selling price of electricity for industrial consumers in Russia is about 55% higher than in the US, gas and coal costs are about the same as in the U.S. (Nigmatulin 2013). An average "clean" salary in Russia (23 410 Rubles, or 582 Euros per month in 2012) not only outperformed all the CIS countries, but also a number of EU member states, such as Hungary (335 Euros), Lithuania (289 Euros) and Latvia (286 Euros) (Eurostat 2013).

So in this case it is difficult not to agree with one of the main findings of the study conducted by McKinsey Groups that the main reason for the low labor productivity in Russia there is inefficiency in the organization of labor.

This phenomenon is common to all industries in Russia. Syassky PPM is no exception. If the company previously was able to take advantage of localization, such as low-cost resources, currently this potential is exhausted. Nowadays, the value of productivity moves to the forefront, as a competitive edge of the company. So the main question is how the company can improve this performance.

1.2 Problem discussion and delimitation

Michael Porter (1990) states: "The only meaningful concept of competitiveness at the national level is productivity." He highlights that profitability, cost competitiveness, and growth in long-term would be generated through productivity improvement. He stressed that a nation's companies must relentlessly improve productivity in existing industries by raising product quality, adding desirable features, and improving product technology (Porter 1990, p. 76).

Productivity is commonly defined as a ratio of a volume measure of output to a measure of input. The unit of input can be labor hours (labor productivity) or all

production factors including labor, machines and energy (total factor of productivity) (Atkinson 2013, p.4).

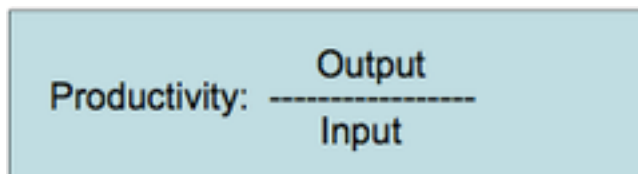

$$\text{Productivity: } \frac{\text{Output}}{\text{Input}}$$

Figure 1.3. The productivity formula

From a mathematical point of view it looks quite simple (Figure 1.3). If it is needed to improve productivity, it would be necessary either to reduce the input or to increase the output. For instance, to gain access to cheaper sources of raw materials or labor than is used. Unfortunately it is not so. This advantage can only take place in the short term. It is well illustrated by the Russian economy that was discussed above, but it has no relation to the definition of productivity. Atkinson (2013) emphasizes that there are still misconceptions that moving production, for example to China, can increase productivity. Even more, "in fact, moving jobs to China might actually decrease productivity since firms in China use fewer machines and are less efficiently organized than firms in the United States". (Atkinson 2013, p. 4.)

In this context, the most comprehensive definition of productivity is the one, which was formulated by Bernolak (1997):

"Productivity means how much and how well we produce from the resources used. If we produce more or better goods from the same resources, we increase productivity. Or if we produce the same goods from lesser resources, we also increase productivity. By "resources", we mean all human and physical resources, i.e. the people who produce the goods or provide the services, and the assets with which the people can produce the goods or provide the services" (Bernolak 1997, p.204).

Productivity is observed as a significant success factor for organizational operation in global and competitive situation (Tangen 2005, p. 4) and to be probably the major area for operational and process management (Reid & Sanders 2011, p. 5). In fact, according to the definition by Bernolak (1997), we can say that the productivity is how the company is able to use their resources, so it lies in the area of operational and process management.

At the same time, there is a consensus among researchers that performance management is a significant component of continuous improvement and successful management (Acur & Englyst 2006, p.74; A. Neely, Gregory, & Platts 2005, p.1229). In terms of competitive operating advantages, QM (Quality Management) policy is considered to be one of the major decision categories in operations strategy (Reid & Sanders 2011, p. 174).

Considering the above arguments, as well as the conclusion made by McKinsey in their study (McKinsey 2009), the main focus in this paper will be placed on the study of continuous improvements (CI) as a likely source to increase productivity in general.

1.3 Research aim and objectives

Hopefully, this study will have a practical implementation at SPPM (Sayssky Pulp and Paper Mill). Thus the main aim is to reach understanding in theoretical and practical approaches of continuous improvements in general. Firstly, the aim is to find the reasons for using quality management, particularly in Russia. Secondly, the objective is to determine which one could be suitable in case of SPPM. Lastly, the target is to create the first steps or some roadmap for implementation of the chosen approach.

1.4 Research questions

In this thesis the following questions will be examined:

1. Are there any obvious reasons and conditions for using CI initiatives in Russia?
2. Which of them could be suitable in case of SPPM?
3. What are the first steps in the implementation of the chosen approach that could be proposed to the company?

1.5 Research design

The research design (see Figure 1.4.) was divided into three parts: the first part is literature review that describes historical background, development of the existing approaches as well as selecting strategies in an international practice with aim to understand the philosophy and theory of CI. In the second part the analysis of the preconditions in Russia was conducted. This analysis includes historical background of the development quality management in Russia, then it is a study of macro factors (social, economic, political, and technological factors) by the PEST model. Finally, there is a cross-cultural analysis (Europe, USA, Japan and Russia). The data set should bring the answer to the main question of this work. The third part is assigned to the empirical study. The main research tool is the case studies. Primarily, it is an internal case of Syassky PPM. Internal company documents and interviews with staff will be used. Then, there is the case of the company, which has successfully implemented a quality management system. The case of KBR, which operates in the same industry and in the same region that is very important for this study, was selected. Lastly, the expert opinion was used in this study. The research conducted by professor Samuel Ho, the leading expert in quality management, particularly in area of 5S implementation was chosen. Mr. Ho worked for the companies in the UK, Europe, the USA and Asia. As a result, an implementation roadmap for the SPPM will be formed.

More detailed description of the research design will be given in section 3.

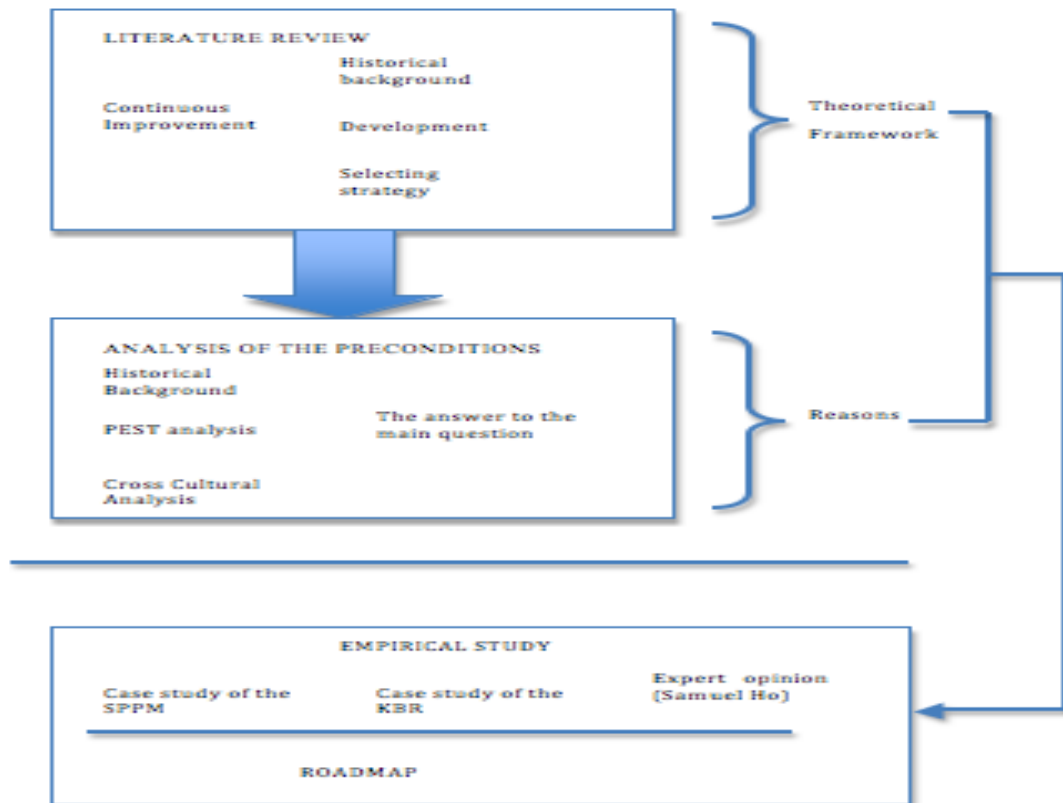


Figure 1.4. Research design.

1.6 Structure of the thesis

This thesis consists of nine sections, described as follows:

Section One investigates the research background and formulates the research questions. It shows the objectives of this study as well as the research design and used study tools.

Section Two reviews the literature on CI (e.g. the approaches to CI initiatives together with their development and background). It also provides a theoretical framework to the research including a review of theories, ideas adoption and selection strategy.

Section Three describes the research design and methodology, explains and justifies the chosen research activities.

Section Four analyzes the prerequisites for the use of CI initiatives in Russia. The main research question will be answered here.

Section Five provides a presentation of the company SPPM. This chapter will analyze the current situation of the company, using internal documents and interviews with staff.

Section Six presents case of the KBR. This chapter will examine the experience of the company, which has successfully implemented quality management in the enterprise.

Section Seven shows the expert opinion, particularly professor Samuel Ho's opinion about the chosen approach.

Section Eight collects all given data and analyzes it. The roadmap will be designed in this chapter.

Section Nine summarizes the results.

2 Literature review

Section One briefly explained the research background and described the research objectives. This section reviews the relevant literature, which underpins this research and describes how this research relates to existing works on continuous improvement.

According to Saunders et al, the literature review is required for each project. At first, the preliminary search helps the author to generate and refine his other research ideas. Secondly, project assessment criteria usually require the author to demonstrate awareness of the current state of knowledge in the subject, its limitations, and how the research fits in this wider context. (Saunders et al. 2009, p. 58.)

The purpose of this section is to get an understanding and definition of quality management, in particular the continuous improvement. Basically there will be explored definitions of continuous improvements, historical background, development and existing approaches to quality management. Ultimately we should get theoretical frameworks for this study.

2.1 Continuous improvement

Despite the fact that in literature there are many definitions of continuous improvement, historically it is associated with Japanese method Kaizen. Kaizen can be roughly translated from Japanese to mean "good change". This philosophy assumes according to Imai that "our way of life – be it our working life, our social life or our home life – deserves to be constantly improved." (Imai 1997, p.1). Kaizen is a long-term approach to work that systematically seeks to achieve small, incremental changes in processes in order to improve efficiency and quality. One of the core principles of Kaizen is self-reflection of processes, which is also known as "Feedback". The purpose of CI is the identification, reduction, and elimination of suboptimal processes, in other words is to become

efficient. Kaizen can be applied to any kind of work, but it is perhaps best known for being used in lean manufacturing and lean programming. (Pankaj et al. 2013, pp.57-58.)

In literature readers can come across the term "Continual" instead of "Continuous". These terms are frequently used interchangeably, but some quality authors make distinction. Hammer and Champy define continuous improvement as subset of continual improvement, with a more specific focus on linear, incremental improvement within an existing process. Some practitioners also associate continuous improvement more closely with techniques of statistical process control (Hammer & Champy 1993, p.46).

W. Edwards Deming, a guru in the quality field, determines Continual Improvement broader in scope than continuous improvement. He refers this term to general processes of improvement and encompassing "discontinuous" improvements—that is, many different approaches, covering different areas (American Society for Quality). In other words, continual improvement speaks to the PROCESS of improvement (always and forever (continually) ongoing, in all of its forms and in all areas) rather than the NATURE of the improvements.

"Continuous improvement" is common usage among business management, to explain both meanings. It is merely the way the word has been conventionally used in this context, in a common understanding that existed regardless of prescriptive preferences. However, ISO (International Organization for Standardization) has chosen the more careful usage Continual Improvement Process (CIP) for its standards including ISO 9000 and ISO 14000 (ISO).

Research of CI has been mainly focused on defining the nature, its tools, organizational issues required to support these initiatives, its applicability to various types of organizations, implementation issues, and critical success factors (Bhuiyan & Baghel 2005, p. 769). So they allocate two models of behavior on continuous improvement initiatives. There are revolutionary and evolutionary models.

Bessant et al. have argued that managing this process effectively depends upon seeing CI not as a binary state or a short-term activity but as the evolution

and aggregation of a set of key behavioral routines within the firm (Bessant et al. 1999, p. 75). Mandar Dabhilkar and Lars Bengtsson shared this position adding that the evolutionary model of continuous improvement behavior stems from a resource-based strategy view, and it has strong impact on plant operating performance (Dabhilkar & Bengtsson 2004, p.125). Then Chen et al. based on analysis of literature identified three main areas of this model: (a) standard problem detection-solving process, (b) leadership (c) organizational learning (Chen et al. 2012, p. 3).

Some authors argue that in the face of shrinking product life cycles, a prerequisite for continuous improvements are innovations. Sower and Fair developed the concept of transcendent quality (transcendent approach) and provided an argument for it's being the fundamentally most important approach to thinking about quality. They claim that focus almost exclusively on continuous improvement may be blind to breakthrough (Sower & Fair 2005, p.8). The most important role in this model is given to technology (Sower & Fair 2005, p.13).

At the same time Michael L. Tushman and Charles A. O'Reilly call the company to be ambidextrous, i.e. who know how to properly combine in their work efficiency with innovation activities, tactics and strategy, solution of large and small problems (Tushman & O'Reilly 2013, p.3). Cole emphasizes that some industry conditions give managers much stronger incentives, resources, and constraints to use the one rather than the other model (Cole 2001, p.9). Since continuous improvement is conventionally considered, then it is likely best in slow-moving industries, while there is an industry where understanding of continuous improvement is widened to think in terms of continuous innovation. He stresses that in many situations, those firms that can find a way to do both would be best off (Cole 2001, p.19).

The other example this sort of model is hybrid model, which was proposed by Beenish Qamar. The proposed model exhibit both types of the revolutionary and evolutionary changes, depending on the benefits and detriments related to these change approaches (Qamar 2012, pp. 4-8).

2.2 Historical background and development

To better understand the existing approaches of continuous improvement, it is necessary to trace the development of these initiatives. The initial attempts to apply the quality management approaches were taken in the 1800s by several companies, which encouraged any improvements carried out staff in order to achieve better results. And in the late 1800s early 1900s some companies already used scientific approaches to standardize certain processes, such as the development of norms of piecework wages (Bhuiyan & Baghel 2005, p. 762). In that time Taylor, an American engineer, founder of the scientific organization of labor and management, suggested doing work tangible and measurable through analyzing manufacturing processes and separating them into a set of tasks, which could be standardized and repeated. His techniques became the basis of scientific management (Rath & Strongs\Management Consulting 2003, p. 5). In 1913 Henry Ford adopted these ideas to his the first moving assembly line used for large-scale manufacturing. It was the first model, which became later famous as Just-in-Time model and Lean Manufacturing (Rath & Strongs\Management Consulting 2003, p. 6).

In the 1920s Walter Shewhart was involved in project at Western Electric Corporation in Rochester, New York where he was investigating ways of improving the economics of the electromechanical relay manufacturing lines at Western Electric. Shewhart started using the emerging science of applied statistics to see if issues causing process variations might be identified and fixed before leading to the production of defective parts. As a result of this work, he founded theory and approach to continuous improvement, which became the foundational work for the Statistical Quality Control (SQC) movement, the Total Quality Management (TQM) movement. (PP&S White paper 2013, p.3.)

The next stage in the development of quality management refers to Japan. It covers period from 1947 to the end of the 1970s. Sometimes that period call "quality Japanese miracle"(Paraschivescu 2013, p.44). At this particular time were laid down the basics of what we today call TQM, which are often linked to

people like Edwards W. Deming, Joseph M. Juran and Kaoru Ishikawa. Japanese companies developed their own approaches based on works of these people (Bergquist, Garvare, & Klefsjö 2007, p.256). Much of the Japanese success was based on the three fundamental tenets of Juran (Klefsjö, Bergquist & Edgeman 2006, p.164). He developed numerous quality theories, two concepts in particular serve as the basis for establishing a traditional quality system and to support strategic quality management – Juran’s Quality Trilogy for managing quality (quality planning, quality control and quality improvement) and his Quality Planning Roadmap (Juran & Godfrey 1998, pp.2.5-2.7). As a result of these efforts, we can say that the economic growth and manufacturing dominance of Japanese industries in the 1980s can be attributed to the successful application of TQM in Japan (Klefsjö, Bergquist & Edgeman 2006, p.165).

The quality revolution in the West began as a backlash to the Japanese success. Total quality management (TQM) became the centre of these drives in most cases since 1980s (Martínez-Lorente, Dewhurst & Dale 1998, p. 379).

TQM has developed in many countries into holistic frameworks, aimed at helping organisations achieve excellent performance, particularly in customer and business results. In Europe, a widely adopted framework is the so-called “Business Excellence” or “Excellence” Model, promoted by the European Foundation for Quality Management (EFQM), in the UK by the British Quality Foundation (BQF) in the US the Malcolm Baldrige National Quality Award created by an Act of Congress (Fisher & Nair 2009, p.11). These programmes focus on pre-production activities and rely on quality standards or instructions to assist with the reduction of the risk of failures and mistakes in the processes used to produce a product or service (Bergquist, Garvare & Klefsjö 2007, p.254). Despite the large number of such programs ISO standards have become the most internationally recognised (Thawesaengskulthai 2007, p. 18) . ISO is a series of quality management systems (QMS) standards created by the International Organization for Standardization, a federation of 132 national standards bodies. The ISO 9000 QMS standards are not specific to products or services, but apply to the processes that create them. The standards are

generic in nature so that they can be used by manufacturing and service industries any- where in the world. (ISO 2014.)

As we see throughout the history there have been several stages in the development of the quality movement. Although in literature a lot of definitions of quality management, mostly authors agreed that we could divide whole development into four eras. According to Dale et al. (see Figure 2.1.) there are Inspection, Quality Control (QC), Quality Assurance (QA) and Total Quality Control (TQM)(Dale et al. 2007, p. 23-24).

However, some researchers say that we can now distinguish the fifth era is continuous improvement, which tends to overlap with issues such as sustainable business development, the environment and interest groups (Bergquist et.al. 2012, p.12; Thawesaengskulthai 2007, p.14).

Other researchers believe that further development of quality management will lie in the field of innovation and technology (Cole 2001, p.19).

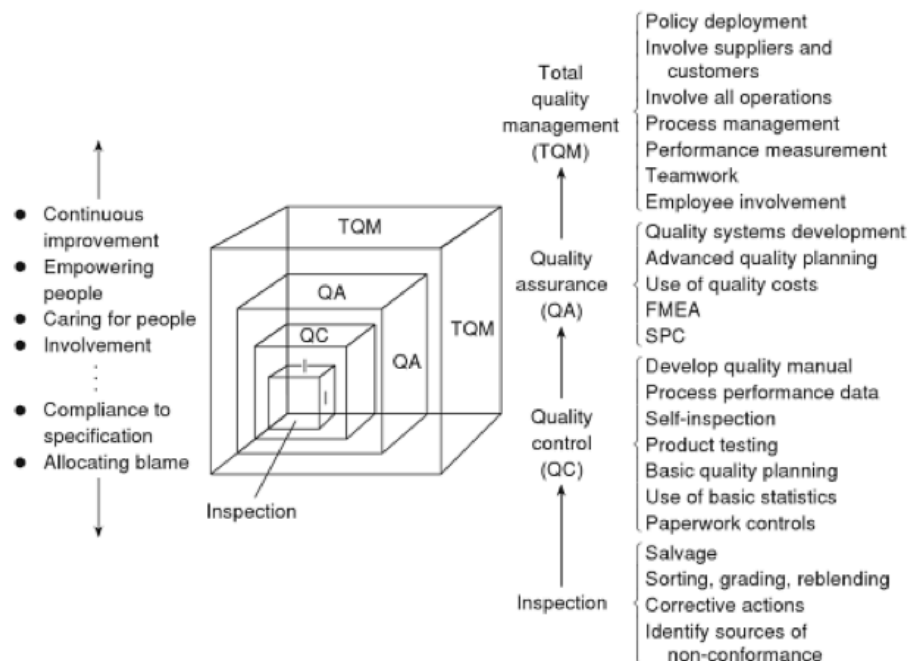


Figure 0.1. Four stages in the evolutions of QM (Dale et al. 2007, p.24)

2.3 Existing approaches of CI

The PP&S company distinguishes as a result of the development quality management initiatives, the following methods for quality improvement in use today that cover product-, process- and/or people-based improvement:

- ISO – guidance on use for process improvement and process capability determination.
- QFD – quality function deployment, also known as the House of Quality approach, that focuses on customer wants or needs in the (re)design of a product or service.
- Kaizen – Japanese for change for the better; the common English term is continuous improvement.
- Zero Defect Program – created by NEC Corporation of Japan, based upon statistical process control and one of the inputs for the inventors of Six Sigma.
- Six Sigma – combines established methods such as statistical process control, design of experiments and failure mode and effects analysis (FMEA) in an overall framework.
- PDCA – Shewhart/Deming's plan, do, check, act cycle for quality control purposes. Six Sigma's DMAIC method (define, measure, analyze, improve, control) may be viewed as derivation of this.
- Taguchi methods — statistical oriented methods including quality robustness, quality loss function, and target specifications.
- The Toyota Production System – reworked in the west into “Lean manufacturing”.
- TQM – total quality management is a strategy aimed at embedding awareness of quality in all organizational processes. First promoted in Japan with the Deming prize, it has been adapted in the U.S. as the Malcolm Baldrige

National Quality Award and in Europe as the European Foundation for Quality Management award (each with their own variations).

- BPR – business process reengineering, a management approach aiming at 'clean slate' improvements (abandon existing practices). (PP&S White paper 2013, p.5.)

Gershon also identifies a variety of existing techniques such as Six Sigma, Lean Management, Lean Six Sigma, Agile Management, Re-engineering, Total Quality Management, Just-In-Time, Kaizen, Hoshin Planning, Poka-Yoka, Design of Experiments, and Process Excellence (Gershon 2010, p 61).

At the same time, a numerous of authors discuss that nowadays most of the companies use or should use a combination of methods (Thawesaengkulthai 2007, p. 22). Thawesaengkulthai based on literature review found out that so called "blending recipe" mainly centres around TQM and Six Sigma programmes and the 'other ingredients' which are typically suggested as appropriate (Thawesaengkulthai 2007, p. 23). Bhuiyan & Baghel also confirm this view, stating the assumption that the combination of programs helps to overcome the weaknesses of one program or another resulting in a combined CI program that is more far reaching than any one individually (Bhuiyan & Baghel 2005, p. 765). They describe a combination of Lean Manufacturing and Six Sigma as the most well-known (ibid).

Pirasteh shares this opinion. According to his research, over 95% of all continuous improvement initiatives are based on one of the three methodologies. The most widely known and used methodologies that produced significant results are Lean Thinking, Six Sigma and Theory of Constraints (TOC). These continuous improvement approaches have shown considerable tangible impact at a large number of companies, including: Toyota, Motorola, GE, GM, Boeing, Intel and the US Navy & Air force. (Pirasteh & Fox 2010, p.260.)

Having taken into account these statements I will study the three approaches as the most useful and famous among researchers, exactly Lean Thinking, Six Sigma and hybrid model Lean Six Sigma.

2.3.1 Lean thinking

As I mentioned above, Henry Ford was the founder of system, which latter became more famous as Lean Manufacturing or Lean Thinking, when he established the concept of mass production in his factories. The Japanese adopted lean manufacturing and improved it (Bhuiyan & Baghel 2005, p. 763). This adoption refers to Toyota Motor Company, where Taiichi Ohno, former executive vice president of Toyota, developed the methodology Toyota Production System (TPS) focuses on improving workflow to reduce waste, which in turn, will improve business performance. It is a systematic approach to identifying and eliminating waste through CI by following the product at the pull of the customer in pursuit of perfection (ibid).

Seven main types of wastes were identified as a part of the Toyota Production System (El-Namrouty & Abu Shaaban 2013, pp. 70-71):

1. Overproduction, it is unnecessary to produce more than needed.
2. Too much inventory. Work in progress that is idle is inventory. Wait time accounts for much of the total cycle time in most transactional processes.
3. Unnecessary motion. It includes any unnecessary physical motions or walking by workers, which divert them from actual processing work
4. Unnecessary transportation. It includes any movement of materials that does not add any value to the product, such as moving materials between workstations.
5. Over processing. It means work that could be combined with other work.
6. Producing defects or rework & duplication.

7. Waiting of both people and parts (standing time and delay time). (ibid.)

Lean manufacturing has deal with Five Primary Elements (see Figure 2.2.) there are Manufacturing Flow, Organization, Process Control, Metrics, and Logistics (Feld 2001, p.4).

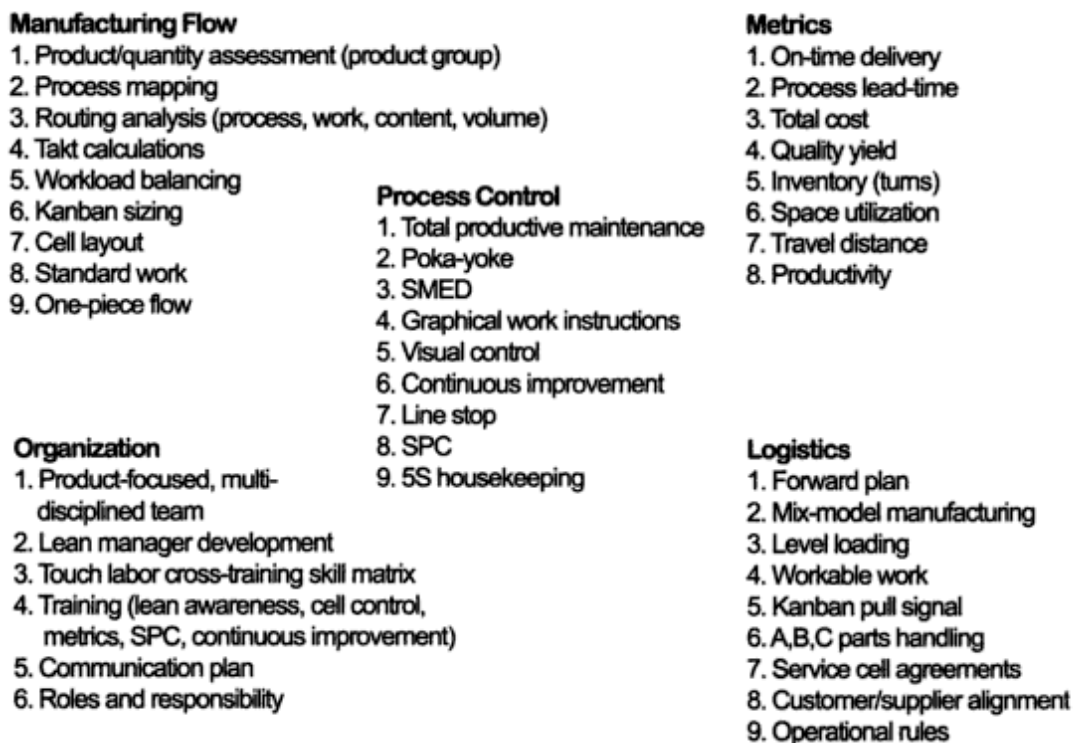


Figure 0.2. Five Primary Elements (Feld 2001, p.5)

What does it mean? In other words, it adheres to the following principles: focus on customers perspective; process and value flows mapping; continuous flow of material and information across the business units; focuses on a pull system by the customer; commitment of all the organization to the continuous improvement (Sanchez 2012, p.16).

Lean thinking based on the idea of Just-in-Time (JIT), but Lean thinking includes two extra features. One comes from the organizational structure of the company, where eliminates many levels of management, bringing everyone closer to the processes. The second feature is a strong process analysis orientation, where every step in the work processes is evaluated. It is important that processes should add value, trying to reduce or eliminate those that don't.

This is more structured than JIT, but this process analysis is the same, to eliminate the waste in the process. (Gershon 2010, p 66.)

Lean manufacturing unites a set of interrelated dimensions, where concepts and initiatives support each other to continuously identify and reduce waste (Sanchez 2012, p.17). In this case company should apply several techniques and tools to support this method. One of them is the 5 S. This tool came from Kaizen. The 5S model consists of five elements where the capital letters begin from S. These are:

- seiri-(selection): proper (suitable) preparation of a workplace, manner and instrument of work; with the elimination of everything useless,
- seito-order (systemic): tidiness in a workplace and preparation of every required tools in the manner enabling simple and quickly utilization,
- seiso-clearness (cleaning): order in a workplace allowing on increase of safety of workplace, control of equipment and responsibility for the means of production
- seiketsu-consolidation (standardisation): reminding employees about their duties in the aspect of care of used tools and equipment and about keeping the workplace order,
- shitsuke- discipline (self-discipline): adaptation of employees to the principles accepted by the organization, independent elimination of bad custom, training. (Pankaj et al. 2013, p.59.)

The main tasks of the 5s are to reduce costs, increase quality, and improve safety by sorting useable elements from non useable ones, simplifying work stations, sweep tidiness of the area ensuring an accurate performance of equipment, standardize work procedure, and sustain the housekeeping activities to continuously reach efficiency (Sanchez 2012, p.17). Another tool to reduce idle time is total productive maintenance (TPM) to improve machine availability and a better utilization of maintenance and production resources (ibid).

Lean thinking affects every aspect of the organization and leads to a complete cultural change for the organization. To implement it successfully, a company does not need sophisticated systems, but it requires are correct attitude, employee involvement, and continuous improvement (Reid & Sanders 2011, p. 255). Reid & Sanders define the following steps in the implementation process JIT, which they consider to be similar to lean thinking (Reid & Sanders 2011, p.232): 1) Make quality improvements; 2) Reorganize workplace; 3) Reduce setup times; 4) Reduce lot sizes and lead times; 5) Implement layout changes; 6) Switch to pull production; 7) Develop relationship with suppliers (Reid & Sanders 2011, pp. 255-256).

For the successful implementation Sanchez also offers to use certain metrics (see Table 2.1.), which will help the company to maintain continuous improvement (Sanchez, 2012, p.18).

Metric	Scope
Inventory turnover	How many times a company's inventory is sold and replaced over a period
Manufacturing cycle efficiency (MCE)	The total value add time in the overall manufacturing time
First time yield (FTY)	The yield that results from the first time through the process prior to any rework
Cycle time (CT)	The length of time from when materials enter a production facility until the final product exists
Takt time	The pace of production required to match the customer demand
Customer reject rate	Measures the number of complete units rejected by external customers (expressed in parts per million)
Lead time	The total time a customer must wait between placing an order and receive the product

Table 0.1. Lean Manufacturing Metrics (Sanchez 2012, p.18)

Researchers call many advantages of this method. Among them are reduction in inventory, improved quality, reduced space requirements, shorter lead times, lower production costs, increased productivity, increased machine utilization, greater flexibility (Reid & Sanders 2011, p. 254). However, this methodology is sometimes criticized for ignoring the customer perspective, as well as underutilizing statistical/systems analysis (PP&S White paper 2013, p.7)

2.3.2 Six Sigma

Six Sigma takes the roots from the 1980 when Robert Galvin, at that time CEO at Motorola, realised the importance of working systematically with variance reduction. Together with Bill Smith, Mikel Harry and Richard Schroeder, they created an improvement program that was given the name Six Sigma (Klefsjö et al. 2006, p.168). Sigma, σ , is a letter in the Greek alphabet used by statisticians to measure the variability in any process. A company's performance is measured by the sigma level of their processes. Traditionally, companies accepted three or four sigma performance levels as the norm, despite the fact that these processes created between 6,200 and 67,00 problems per million opportunities (Gershon 2010, p 64). Bill Smith came up with the idea of inserting hard-nosed statistics into the blurred philosophy of quality. The program was inspired by Japanese work, but also strongly influenced by Jurans thoughts. Due to Six Sigma, Motorola managed to reduce their costs and variation in many processes and were an inaugural winner of Americas Malcolm Baldrige National Quality Award in 1988 (Klefsjö et al. 2006, p.168).

The term 'Six Sigma' derives from the original goal of having no more than '3.4 defects per million opportunities' in products, processes or service operations. The formal statistical formulation is as follows: Suppose you have a process variable that is normally distributed with some mean and standard deviation. Further, suppose the process mean can drift over time within 1.5 standard deviations. Then, if the process is within 'Six Sigma' limits, one will get no more than 3.4 defects per million parts, operations, etc. (Fisher & Nair 2009, p.10.)

So we can formulate the definition of Six Sigma as an organized and systematic method for strategic process improvement based on statistical methods and the scientific method to make dramatic reductions in the customer defined defect rates, in attempt to minimize defects to the level of accepting close to zero and focuses on reducing variation in all the processes of the organization (Bhuiyan & Baghel 2005, pp. 764-765).

According to Reid & Sanders there are two aspects to implementing the Six Sigma concept. The first is the use of technical tools to identify and eliminate causes of quality problems, and the second aspect of Six Sigma implementation is people involvement (Reid & Sanders 2011, p.208).

An important part of Six Sigma related to the first aspects is the DMAIC procedure (see Figure 2.3.):

Step 1: Define the quality problem of the process.

Step 2: Measure the current performance of the process.

Step 3: Analyze the process to identify the root cause of the quality problem.

Step 4: Improve the process by eliminating the root causes of the problem. Step

5: Control the process to ensure the improvements continue. (Reid & Sanders 2011, p.208.)

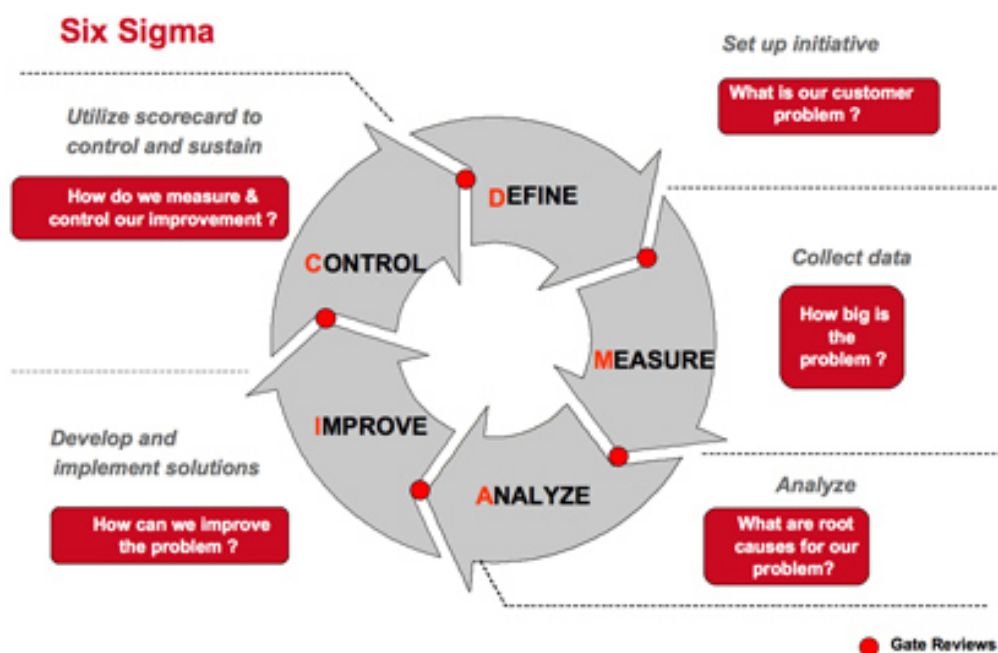


Figure 0.3. DMAIC model (Sai Global)

It can be coordinated with other major initiatives and systems, such as new product development, materials requirement planning (MRP), and just-in-time (JIT) inventory control (Bhuiyan & Baghel 2005, p. 765).

Six sigma initially was thought of as a system that could be used only in manufacturing operations, but more recently it has proven to be successful in nonmanufacturing processes as well, such as accounts payable, billing, marketing, and information systems (Bhuiyan & Baghel 2005, p. 767).

The benefits, which linked to Six Sigma are increased understanding of variation and its relation to defect levels and process yield; the relationship of process steps to defect rates; focus on production and service design; and improved understanding of the relationship between defect performance and financial performance (Reid & Sanders 2011, p. 209).

Six sigma programs is increasingly considered a mission-critical best practice, even among mid-sized and smaller firms. After the evolution of lean manufacturing many companies such as GE, ABB, Honeywell, Sony, Honda, and Ford have followed Motorola's lead and have been using six sigma to achieve their company's unprecedented goal (Bhuiyan & Baghel 2005, p. 764). At the same time, the rapid growth of Six Sigma in America and slower growth in the rest of the world may indicate that Six Sigma is better suited to the American way of doing business (Klefsjö et al. 2008, p.121). It has also been criticized for potential negative effects such as ignoring the customer, stifling creativity (especially in research) and being oversold or inappropriately applied by consultants (PP&S White paper 2013, p.6).

2.3.3 Lean Six Sigma

To get a bigger share of the market was developed a new methodology called lean six sigma by some big companies. Lean six sigma is a relatively new methodology, and as such, has not been studied in great detail (Bhuiyan & Baghel 2005, p. 765).

There is a set of benefits, which could bring this hybrid model. On one hand Lean firms should take advantage of statistical analysis and quantitative data for decision-making. On the other hand Six Sigma has been utilized as a cost reduction technique by improving quality (Sanchez 2012, p.20). Lean manufacturing and six sigma individually cannot achieve the required improvements at the rate at which lean six sigma can, and using this combination, greater value to the customer can be provided (Bhuiyan & Baghel 2005, p. 765). You can find some integration steps in accordance with Sanchez in Table 2.2.

Lean Step	Six Sigma Tool
Establish methodology for improvement	Policy deployment methodology
Focus on customer value stream	Customer requirements measurement
Understand current conditions	Knowledge discovery
Collect product and process data	Data collection and analysis tools
Document layout and process	Data collection tools, SPC
Create standard work combination sheets	Process control planning
Evaluate options	FMEA, cause and effect
Reduce waste	Seven management tools, seven quality control tools, design of experiments

Table 0.2. Integration steps of Lean Thinking and Six Sigma (Sanchez 2012, p.20)

However company could meet the number of challenges, which were highlighted by Sanchez. First of all, there is a need for the implementation to be defined as a strategy and focus on process. Secondly, there has to be a balance between the both methodologies to obtain the largest amount of benefits from both lean and Six Sigma. Lastly, a balance must exist between complexity and sustainability, since some problems are unique and will require the application of different tools. (Sanchez 2012, p.21.)

Sanchez also identified some limitations in implementing lean Six Sigma methodology. One limitation is the balance required between statistical tools and creative solutions. Then the second limitation of implementing the lean Six Sigma is the large set of tools available, which sometimes results in difficulty for a professional when choosing the correct tool for application in the business environment. And the third difficulty is the uneven level of mathematical and

statistical knowledge, which make the lean Six Sigma tools more challenging for some employees. (Sanchez 2012, p.21.)

2.4 Comparison existing approaches

Throughout the world, the company has achieved leadership use strategies that differ from each other, but the principles of activity, the nature and development of all successful companies are the same. The main driver is always competition. Companies achieve competitive advantage due to innovations. They approach to understanding innovation in the broadest sense, using both new technologies and new ways of business and working processes. Having reached these advantages the company is able to hold them only through continuous improvements. According to Porter, "the creation of more sustainable advantages often means that the company should be regarded as obsolete advantages, even if they are still advantages" (Porter 1990, p. 78). In other words, the only possibility to retain a competitive advantage is continuous improvement (ibid).

Summing up the literature review, we can say that continuous improvement is the company's aspiration to become effective. In turn, efficiency of the company is determined by its ability to control costs and wastes through the optimization of existing processes on the one hand and meet the demands and expectations of consumers, in other words is ability to control the quality, on the other hand. During the development of continuous improvement has been developed a wide variety of methods and models corresponding to the solution of certain problems. But somehow all methods are based on the main principles:

- Reduction of waste and defects
- The processes and standardization
- Customer focus
- Involvement of all employees in process improvement
- Continuity of action

As a summary, specific characteristics for each of the approaches are listed in the Table 2.3., which was developed by Dr. Zoe Radnor. ISO 9000 is not included in this list as it is an accredited standard rather than an approach in itself (Radnor 2010, p.23).

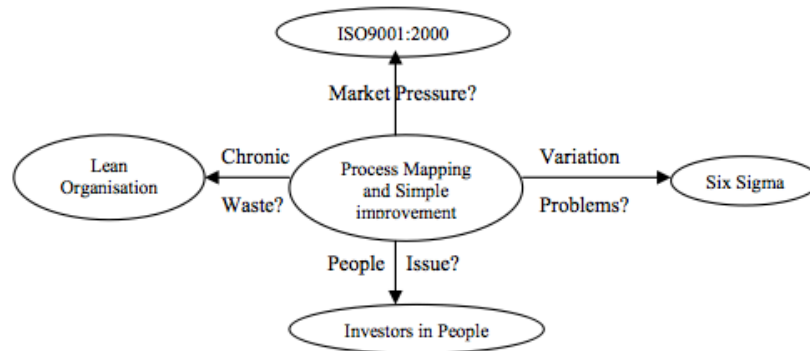
The history of the development of quality management shows that the emergences of new methodology occur in response to the new challenges of the environment. New approaches complement the existing tools, depending on the stage of development of the company and solved problems. We can not say that this or that model is a versatile tool for the construction of quality management in the company. Furthermore, many researchers are inclined to believe that the company should use a combination of models.

Thawesaengkulthai in the literature review devoted to the selection of technology implementation of continuous improvement pays attention to the diversity of approaches. The most promising in her opinion are Bendell (2005); Ho (1999); Krasachol (2000) (Thawesaengkulthai 2007, p.29).

The methodology by Bendell (2005) starts from a company's problem and links it to the initiative's main benefit i.e. if the main issue for a company is market pressure, it should adopt ISO9001, if it is chronic waste, then Lean would be more suitable, if it is variation problem, then implement Six Sigma. When it is a people issue, Investors in People will solve it. The TQM Excellence model by Ho (1999a) suggests a sequence of adoption starting from 5S, BPR, QCC, ISO, TPM and TQM (see Figure 2.4). The QM framework by Krasachol (2000) also propose five stage of QM implementation starting from no tools in the unaware stage, to 5S, QC, GMP in the basic stage, ISO 9001, SPC, 7QC tools in the developing stage (Thawesaengkulthai 2007, p.29).

Description	Where used	Focus
<p>Lean</p> <p>A way of working which identifies and eliminates waste to deliver improved value and service</p>	<ul style="list-style-type: none"> - Where fast results are needed - Where shorter lead times and improved flexibility are critical - Where large numbers of front line staff work together - Where limited performance data is available 	<ul style="list-style-type: none"> - Process - Customer - Defect reduction - Waste reduction
<p>Six Sigma</p> <p>A structured approach to data driven problem solving</p>	<ul style="list-style-type: none"> - To reduce costs or increase volume - Where mature data analysis is in place - Where time exists to analyse the right data - Where specific training can be set up and supported 	<ul style="list-style-type: none"> - Process - Customer - Defect reduction
<p>BPR</p> <p>An approach to transforming activity through process change</p>	<ul style="list-style-type: none"> - Where IT is likely to be the main driver of change - Change is often done out of line 	<ul style="list-style-type: none"> - Process
<p>Kaizen</p> <p>An approach to continuous incremental improvement, creating more value and less waste</p>	<ul style="list-style-type: none"> - Where fast results are needed - Where the right group of people can be coordinated for a blitz approach 	<ul style="list-style-type: none"> - Process - Customer - Defect reduction - Waste reduction
<p>Benchmarking</p> <p>A comparison with external organisations to highlight and develop best practices</p>	<ul style="list-style-type: none"> - Where time exists to analyse external performance data - Where other improvement strategies are required 	<ul style="list-style-type: none"> - Process - Customer - Defect reduction - Waste reduction
<p>TQM</p> <p>A way of working which focuses all participants on quality, driving long term success through customer satisfaction</p>	<ul style="list-style-type: none"> - Where refocus on customer needs is required - Where formal management systems are already in place 	<ul style="list-style-type: none"> - Process - Customer - Defect reduction
<p>EFQM</p> <p>An organisational framework designed to improve competitiveness using the fundamental concepts of TQM</p>	<ul style="list-style-type: none"> - Where self assessment and peer reviews are valued and repeated periodically 	<ul style="list-style-type: none"> - Process - Customer - Defect reduction

Table 0.3. Characteristics and Comparison of Business Improvement Techniques (Radnor 2010, p.24)



Decision path of business process improvement methodologies (Bendell 2005)

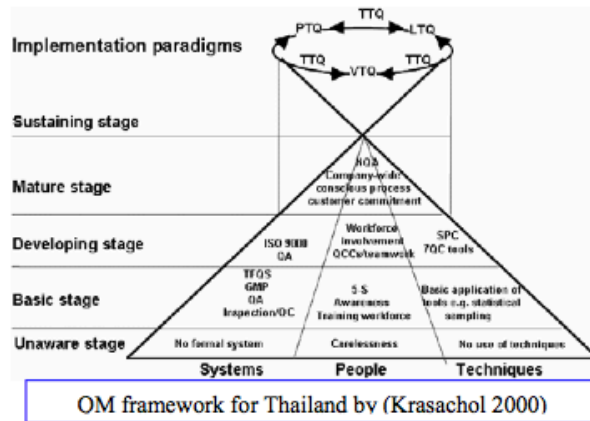
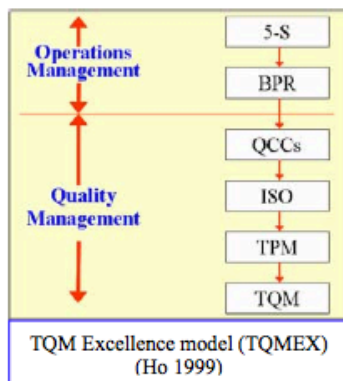


Figure 0.4. Prescriptive approach to the selection of QM techniques (Thawesaengkultai 2007, p.30)

If look at the proposed approaches, one may find that the first step how to start choice of the techniques it is the determination what is the main internal problem and what is the existing stage of the development quality management of the company at this moment. Thus, for the success of the selection of a particular technique is necessary to understand the current situation in the company and clearly define the basic problem. In addition, using a combination of different methods it allows to neutralize the shortcomings of a single methodology.

3 Research strategy and methodology

In this section I will describe the strategy of this study and give the explanation choosing methodology. According to Creswell, in the process of making-decision how we should form the research design, there are three questions, which we could keep in mind:

1. What knowledge claims are being made by the researcher (including a theoretical perspective)?
2. What strategies of inquiry will inform the procedures?
3. What methods of data collection and analysis will be used?(Creswell 2003, p.5)

Basically, these questions or framework of research design could be categorised into the following steps: a) philosophical assumptions, b) strategy inquiry, and c) methods (Creswell 2003, p.23).

3.1 Philosophical assumption

I start with the purpose of this study. The aim is to get deep understanding in existing approaches of Continuous Improvement and identify which of them could be suitable in case of SPPM. In other words, the purpose of research is to find solutions to real-world problems in a manner that the solutions are generalizable, and to see the knowledge that is gained through this research could be transferred into a change in practice. That is to find “whatever works” to answer the research question. Hence, the most appropriate is a pragmatic approach.

What does it mean? Pragmatism is a deconstructive paradigm that advocates the use of mixed methods in research, “sidesteps the contentious issues of truth and reality” (Feilzer 2010, p. 8), and “focuses instead on ‘what works’ as the truth regarding the research questions under investigation” (Tashakkori & Teddlie 2003, p. 713). Creswell has summarized the works of researchers and has identified the main ideas of this approach:

- Pragmatism is not committed to anyone system of philosophy and reality.
- Individual researchers have a freedom of choice. They are "free" to choose the methods, techniques, and procedures of research that best meet their needs and purposes.
- Pragmatists do not see the world as an absolute unity. In a similar way, mixed methods researchers look to many approaches to collecting and analyzing data rather than subscribing to only one way (e.g., quantitative or qualitative).
- Truth is what works at the time; it is not based in a dualism between reality independent of the mind or within the mind.
- Pragmatist researchers look to the "what" and "how" to research based on its intended consequences-where they want to go with it.
- Pragmatists agree that research always occurs in social, historical, political, and other contexts. (Creswell 2007, p.23.)

In other words, pragmatism asserts that concepts are only relevant where they support action. This means that the most important determinant of your position on each of the continua is the research question – one position may be more appropriate than another for answering a particular question (Saunders et al 2009, p.109). The importance of research finding is the practical consequences. Pragmatists recognize that there are many different ways of interpreting the world and undertaking research, that no single point of view can ever give the entire picture and that there maybe multiple realities (ibid). Given all this, a pragmatic philosophical assumption was chosen for this study.

3.2 Research strategy

According to Crotty, starting point in developing a research proposal is to identify the methodologies which relate to “the strategy, plan of action, process or design lying behind the choice and use of particular methods, and linking the choice and use of methods to the desired outcomes” (Crotty 1998, p.3).

The justification of the choice of methodologies lies in answering the questions posed for the research (Saunders et al 2009, p.136). Yin categorizes the types of the questions for the different research strategies using a basic categorization scheme for the types of question: "who," "what," "where," "how," and "why."(see Table 3.1.)

<i>Strategy</i>	<i>Form of research question</i>	<i>Requires control of behavioral events?</i>	<i>Focuses on contemporary events?</i>
Experiment	How, why?	Yes	Yes
Survey	Who, what, where, how many, how much?	No	Yes
Archival analysis	Who, what, where, how many, how much?	No	Yes/no
History	How, why?	No	No
Case study	How, why?	No	Yes

Table 0.1. Relevant Situations for Different Research Strategies (Yin 2003, p.6)

Yin also highlights the importance of context. For instance, within a case study, the boundaries between the phenomenon being studied and the context within which it is being studied are not clearly evident. This is the complete opposite of the experimental strategy, where the research is conducted within a highly controlled context. It also differs from the survey strategy where, research can try to deal with phenomenon and context, but their ability to explore and understand this context is limited by the number of variables for which data can be collected. (Yin 2003, p.13.)

This study was focused on three Specific Research Questions. These were:

1. Are there any obvious reasons and conditions for using CI initiatives in Russia?
2. Which of them could be suitable in case of SPPM?
3. What are the first steps in the implementation of the chosen approach that could be proposed to the company?

Here we can find two types of questions. There are - "what "and "how". According to Yin (2003), the most suitable strategy to these types of questions is survey, but at the same time if you wish to gain a rich understanding of the context of the research and the processes being enacted, the choice of the

case study strategy will be preferred and the case study strategy also has considerable ability to generate answers to the question 'why?' as well as the 'what?' and 'how?' questions, although 'what?' and 'how?' questions tend to be more the concern of the survey strategy. (Saunders et al 2009, p.146.)

3.3 Research methods

3.3.1 Pest analysis

The answer to the main question of this work somehow lies in the analysis of external environmental factors as well as national culture and historical background of the development of quality management in Russia. This defines the ability or opposite views on the use of the advantages which quality management provides.

The components normally considered part of the general environment are economic, technological, social and political (Gupta 2013, p.013). The analysis of these factors is called PEST analysis, which is an acronym for external environmental factors (P)olitical, (E)conomic, (S)ocial and (T)echnological (Ward & Rivani 2005, p.11) . This type of analysis is very often used in business issues, especially for developing a sustainable competitive advantage; identifying opportunities and threats (Yüksel 2012, p.53). But also the analysis could be used as a tool to identify narrower contexts and focus research questions on feasible and meaningful regional contexts (Peng & Nunes 2007, p. 230).

National culture refers to the issues of macro environmental factors. It is often considered among the socio-cultural factors, but in the context of the implementation of quality management, this factor is crucial. According to Abbas Mardani and Mansooreh Kazemilari there is a link between national culture and TQM elements. They state that cultural influence not only comes from organization culture but also from national culture and culture influences the understanding of core TQM concepts in a country and it also has an effect

on the operationalisation of TQM. They found substantial results that “power distance”, “long-term orientation” and “individualism” are more critical elements that can impact the TQM implementation effort (Mardani & Kazemilari 2012, p.304).

Hence, the combination of PEST analysis and cross-cultural analysis was chosen to give an answer to the main research question.

3.3.2 Case study

To answer the second research question, as noted in the literature review, to determine the most appropriate techniques, it is necessary to understand the current situation and the main problem of the company. According to Saunders (2009), a case study is considered to be an intensive and holistic description and analysis of a restricted phenomenon, thus case studies will be the most appropriate method (Saunders 2009, p.146). But a single case is usually used where it represents a critical case or, alternatively, an extreme or unique case (ibid). In this case the evidence from multiple-cases is often considered more compelling, and the overall study therefore regarded as being more robust than a single-case study (ibid). The rationale for using multiple cases focuses upon the need to establish whether the findings of the first case occur in other cases and, as a consequence, the need for synthesis from these findings. Therefore the multiple-case design was chosen.

The overall criterion for selecting the cases was that the organisation should have successfully implemented TQM. In order to find something that "really works", and in accordance with the philosophy assumption, it was necessary to choose the companies working in this industry and in similar conditions. In accordance with these criteria, the case of KBR was selected. KBR is a company that is situated in Svetogorsk, Leningrad region. The company is the general contractor of International Paper. KBR carries out maintenance of equipment and processes. More details about the company will be discussed in Section 6 of this study.

3.3.3 Interview

Marshall and Rossman (1999) defined interview as "a useful way to get large amounts of data quickly" (Marshall & Rossman 1999, p. 108). According to YIN (2003) one of the most important sources of case study information is the interview: "most commonly, case study interviews are of an open-ended nature, in which you can ask key respondents about the facts of a matter as well as their opinions about events" (YIN 2003, p.90). Ritchie (2003) describes individual interviews as a probably the most widely used method in qualitative research. She highlights that interviews are particularly well suited to research that requires an understanding of deeply rooted or delicate phenomena or responses to complex systems, processes or experiences because of the depth of focus and the opportunity they offer for clarification and detailed understanding (Ritchie & Lewis 2003, p.36). Saunders et al. (2009) said the use of interviews can help to gather valid and reliable data that are relevant to research objectives. Semi-structured and in-depth interviews are used in qualitative research not only to reveal and understand the 'what' and 'how' but also to place more emphasis on explaining the 'why'. Also, semi-structured interviews can be most appropriate for situations where the questions are either complex or open ended or where the order and logic of questioning may need to be varied from one to another interviewee, as well as depth interviews can help the researcher to understand the meanings that people hold for their activities (Saunders et al., 2009, p.324).

From the above discussion semi-structured interviews were chosen as a main source of data collection in this research. To obtain a general perspective on QM implementation, the top management and middle management of various directorates in the two case studies were interviewed. There are two cases, one is directly the case of the company Syassky PPM, which this work focuses on and the case of KBR, which is mentioned above.

3.3.4 Expert opinion

According to Saunders et al. (2009), if you are using a case study strategy you are likely to need to use and triangulate multiple sources of data (Saunders et al. 2009, p. 146). Triangulation is a method used to determine the location of a fixed point based on the laws of trigonometry. These laws state that if one side and two angles of a triangle are known, the other two sides and angle of that triangle can be calculated. Triangulation extended beyond its mathematical roots in the 1970s when it began to be used as a sociological method (Hale 2010, p. 13).

Triangulation refers to the use of different data collection techniques within one study in order to ensure that the data are telling you what you think they are telling you (Saunders et al. 2009, p.146) Norman Denzin differentiates between four different types of triangulation: triangulation of data (involving time, space, and person), investigators (it consists of the use of multiple, rather than single researcher), theories (it consists of using more than one theoretical frame in the interpretation of the phenomenon) and methodologies (it involves using multiple methods) (Hale 2010, p. 14).

In principle, one of the most powerful methods for developing informative priors is to synthesise the information from an expert. Despite the fact, that expert opinion has complex, subjective nature and, there has been no formally established methodology for treating expert judgment, using of expert judgment is critical, and often inevitable, when there are no empirical data or information available on the variables of interest (Ouchi 2004, p. 2). Expert opinion is often necessary in forecasting tasks because of a lack of appropriate or available information for using statistical procedures (Rowe & Wright 2001, p. 125).

Considering the strategies and goals of the study, data triangulation approach would be most appropriate. To complete the triangulation approach of the data collection for this research the expert opinion of professor Samuel Ho, the leading expert in quality management, particularly in area of 5S implementation, will be used.

3.4 Data analysis

According to Saunders et al. (2009) qualitative data analysis procedures include both deductive and inductive approaches, range from the simple categorisation of responses to processes for identifying relationships between categories (Saunders et al. 2009, p.480). Yin (2003) maintains that data analysis consists of "examining, categorizing, tabulating, testing, or otherwise recombining both quantitative and qualitative evidence to address the initial propositions of a study" (Yin 2003, p.109).

Kohlbacher (2006) argued that the qualitative content analysis could prove to be a useful tool for analyzing data material in case study research (Kohlbacher 2006, p.24). He points that one of the key features of the qualitative content analysis in contrast to the classical quantitative content analysis is that the context is also central to the interpretation and analysis of the material. It is not only the manifest content of the material that is important but also the latent content as well as formal aspects need to be taken into consideration (Kohlbacher 2006, p.25).

According to Kohlbacher (2006), the object of the qualitative content analysis can basically be any kind of recorded communication. Furthermore, qualitative or expert interviews are a very common field of application for qualitative content analysis. Hence in a comprehensive study, which aims at analyzing different kinds of data material, the same method can be applied to different types of evidence—a major advantage not only from a pragmatic point of view, but also as far as quality criteria are concerned. Therefore, the qualitative content analysis can be viewed as a comprehensive approach to the data analysis, which seems to be especially suitable for case study research. It can certainly contribute to adding and enhancing rigor, validity and reliability of case study research. (Kohlbacher 2006, p.27.)

4 Analysis of the preconditions in Russia

In this section the author will try to find out if there are preconditions for the implementation of quality management systems in Russia. First of all, the author will address to the historical aspects, in order to understand whether there were attempts to implement quality management systems in the prior years. What were these attempts and what they brought in general. Then the author will try to understand what opportunities exist today, which are dictated by factors of external macro environment. Separately, the issue of the cultural features will be studied, as it deeply influences the success of the implementation of such systems.

4.1 Historical background

The Soviet school of quality takes its roots from the military sector of economy. In the late 20s of the XX century, the development of manufacture and an increase in output of the enterprises, mostly military factories, led to the necessity to create specialized structures for supervision and quality control such as the Department of Technical Control (OTK –Russian abbreviation) (Mishin 2005, p. 29).

In the 1950s new requirements for product quality especially for the military purposes, resulted to the further development of the individual elements of quality management and the introduction of more sophisticated methods. Quality management was implemented in industries providing scientific and technical progress, such as radio engineering, chemistry, aviation, military missilery. At that time, some approaches have were developed. The most famous (since 1955) quality assurance techniques were named as a system:

- Saratov system zero-defect manufacturing of products (BIP)
- Gorky KANARSPI system (quality, reliability, resource, from the first products)
- Rybinsk system scientific organization of labor, production and management (NOTPU)

- Yaroslavl system scientific organization of operations on increasing the motor-resource of drivers (NORM)
- Lvov system of the defect free labor (SBT). (Mishin 2005, p. 29.)

These systems were a powerful means to improve product quality. Since 1962, similar systems have begun to be introduced in the GDR and Poland, as well as in the US, Germany, Japan and other countries. In principle, BIP system was embodied in the foreign programs "zero defect" (Kane et al. 2008, p.11).

However, all these systems had significant drawbacks. Firstly, the limited scope was used in the product life cycle. Secondly, it did not cover all functions and activities (e.g. marketing). The most significant drawback was lack of an integrated approach to manage quality and insufficient use of funds in the form of quality management standardization. It should be noted that virtually all of these systems as a control object provide more quality of work, not the quality of products and services. (Mishin 2005, p.30.)

The next step in the development of quality management systems was the transition to complex systems. In the early 70's, Gosstandart in cooperation with experts in Lvov created a comprehensive system of quality control (KSUKP). The system is based on the principle of enterprise standards as internal organizational, regulatory and legal framework for the functioning of the system of quality management. And already in 1978 by Gosstandard was developed and approved the Basic Principles of the Unified State System of Quality Control (ESGUKP) and later GOST (Kane et al. 2008, p.15).

Further development of the systems covers a larger range of issues. So in the 1980s, in Dnepropetrovsk were developed KSUKP and EIR (comprehensive quality management system and efficient use of resources), and then in Krasnodar was presented comprehensive system to improve production efficiency (KSPEP). KSUKP and EIR and KSPEP got generic name - Integrated systems to improve production efficiency and quality of work (KSPEP and KR) (Kane et al. 2008, p.18).

Thus, for several decades the improvement of the quality of products at the enterprises of the USSR were associated with the creation of these system of quality control, but a significant shift in this area did not happen. This gave rise to the view that the systems of quality control and, in particular, complex systems are not effective and enterprises should not deal with them. However, such findings have been made without a thorough analysis of the real roots caused of poor quality. (Kane et al. 2008, p.19.)

The planning and administrative system of economic management in those years has not stimulated the process of creating high-quality products. The largest disadvantages were monopoly in the production of many kinds of products; the primary responsibility of companies and their leaders is production capacity, which is often achieved by reducing the product quality and was not backed by adequate resources; pricing mechanism and other factors. (Kane et al. 2008, p.19.) One can say that the company, on the one hand, is not encouraged to improve the quality of products and, on the other hand, may well exist making products with low quality. In other words, customers could not opt for purchasing one product or service as opposed to another or as noted in Russia 'vote by rouble', as no choice existed (Maslow et al. 2005, p.202).

At the same time it should be noted that the principles ISO 9000 and KSUKP largely coincide. The main differences of the two quality systems (according to ISO 9000) are as the follows:

- orientation to the satisfaction of the consumer
- assignment of responsibility for the quality of products on specific person
- verification of the suppliers by the consumers
- selection of a supplier of components and materials
- traceability of quality products ranging from materials to disposal of products
- marketing
- organization of accounting and cost analysis on the quality

- traceability of materials and components throughout the production cycle
- addressing the disposal of the product after use. (Kane et al. 2008, p.20.)

Anyway, we can say that the domestic experience of total quality management is a good foundation for the development of ISO 9000 and other approaches to quality management (Mishin 2005, p.38).

4.2 Pest analysis

The PEST analysis is the most common approach for considering the external business environment. The PEST analysis stands for Political, Economic, Social, and Technological analysis and describes a framework of macro-environmental factors used in the environmental scanning component of strategic management (Gupta 2013, p.013). In accordance with Ward and Rivani (Ward & Rivani 2005, p.11), the original PEST model factors are described in the Table 4.1. below:

Political (incl. Legal)	Economic	Social	Technological
Environmental regulations and protection	Economic growth	Income distribution	Government research spending
Tax policies	Interest rates & monetary policies	Demographics, Population growth rates, Age distribution	Industry focus on technological effort
International trade regulations and restrictions	Government spending	Labor / social mobility	New inventions and development
Contract enforcement law	Unemployment policy	Lifestyle changes	Rate of technology transfer
Consumer protection		Work/career and leisure attitudes	Life cycle and speed of technological obsolescence
Employment laws	Taxation	Entrepreneurial spirit	
Government organization / attitude	Exchange rates	Education	Energy use and costs
Competition regulation	Inflation rates	Fashion, hypes	(Changes in) Information Technology
Political Stability	Stage of the business cycle	Health consciousness & welfare, feelings on safety	(Changes in) Internet
Safety regulations	Consumer confidence	Living conditions	(Changes in) Mobile Technology

Table 4.1. Drivers of the PEST model dimensions (Ward & Rivani 2005, p.11)

4.2.1 Political factors

Let's start the evaluation of the political factors looking at how Russia stands in some international rankings. To compare Russia's positions, the status of the countries included in the G20 will be used here. "Big Twenty" - G20 (official name: Group of Twenty Finance Ministers and Central Bank Governors) is a group of the most industrialized countries, which representing about two-thirds of the world's population, 85 per cent of global gross domestic product and over 75 per cent of global trade. Currently, the "Big Twenty" includes 19 countries - Argentina, Australia, Brazil, Britain, Germany, India, Indonesia, Italy, Canada, China, Mexico, Turkey, Russia, Saudi Arabia, the USA, France, South Africa, South Korea, Japan - and the European Union. (The Group of Twenty (G20).)

In accordance with the context of political factors the following ratings were selected: KOF Index of Globalization 2014, which is compiled by the Swiss Economic Institute (KOF Swiss Economic Institute); The Global Competitiveness Index 2014 is a global study and ranking countries in terms of economic competitiveness by the World Economic Forum (World Economic Forum); An annual ranking of global competitiveness (The IMD World Competitiveness Yearbook 2014) is a global study ranking countries in terms of economic competitiveness according to the Institute of Management (Institute of Management Development); "Doing Business 2014» is a global study and rating countries in terms of the creation of a favorable business environment, calculated in accordance with the World Bank; Freedom in the World 2014 is an annual survey rating the state of political and civil liberties in the world, by the international NGO Freedom Houses; Global ranking of countries and territories in the world in terms of gross domestic product, which is calculated in accordance with the World Bank; Corruption Perceptions Index (CPI 2014) is a global study rating countries in terms of corruption in the public sector, calculated in accordance with the international non-governmental organization Transparency International. The results obtained can be seen in Table 4.2. (The World Bank; The World Economic Forum; Institute of Management Development; KOF Swiss Economic Institute; Freedom House; TRANSPARENCY INTERNATIONAL.)

Country	Population		GDP per capita		KFO rank	GCI rank	IMD rank	Doing Business rank	CPI rank	Freedom status
	mln.	rank	\$,US	rank						
Australia	24,3	51	65390	9	19	22	17	10	11	free
Argentina	42,7	32	11030	82	80	104	58	124	107	free
Brazil	202,2	5	11690	81	76	57	54	120	69	free
Canada	34,3	38	52200	20	12	15	7	16	10	free
China	1371,0	1	6560	107	72	28	23	90	100	not free
France	64,2	22	43460	30	21	23	27	31	26	free
Germany	80,8	16	47270	24	26	5	6	14	12	free
India	1267,3	2	1570	168	112	71	44	142	85	free
Indonesia	252,8	4	3580	141	91	34	37	114	107	partly free
Italy	60,8	23	35860	39	22	49	46	56	69	free
Japan	127,0	10	46330	26	59	6	21	29	15	free
Republic of Korea	51,3	26	25920	45	60	26	26	5	43	free
Mexico	119,7	11	9940	89	70	61	41	39	103	partly free
Russia	141,9	9	13850	72	56	53	38	62	136	not free
Saudi Arabia	29,3	45	26260	44	48	24	n\	49	55	not free
South Africa	54,0	24	7190	101	58	56	52	43	67	free
Turkey	77,7	17	10970	83	46	45	40	55	64	partly free
The UK	64,3	21	41680	32	17	9	16	8	14	free
The US	318,6	3	53470	17	32	3	1	7	17	free

Table 4.2. Russias rating among the "Big Twenty" in 2014 (The World Bank; The World Economic Forum; Institute of Management Development; KOF Swiss Economic Institute; Freedom House; Transparency International)

The table above shows that Russia lags behind other countries in the rankings of the "twenty" in almost all indicators, and takes the last place on the level of corruption and the level of civil liberties. A more detailed analysis reveals the "black holes". For instance, in the ranking of Doing Business 2015 Russia has the worst position on the specification "international trade". Russia is much less focused on international cooperation than all the advanced countries. In accordance with ranking, the main problem areas here are the border crossing regime, bureaucracy procedures and insufficient tax incentives for exports (The World Bank).

Also, Russia has the worst position in the specification of "investor protection" (along with China) and "construction permit" (along with India and China). Russia demonstrated the worst performance in terms of the complexity of getting the electricity (see Figure 4.1.) (ibid).

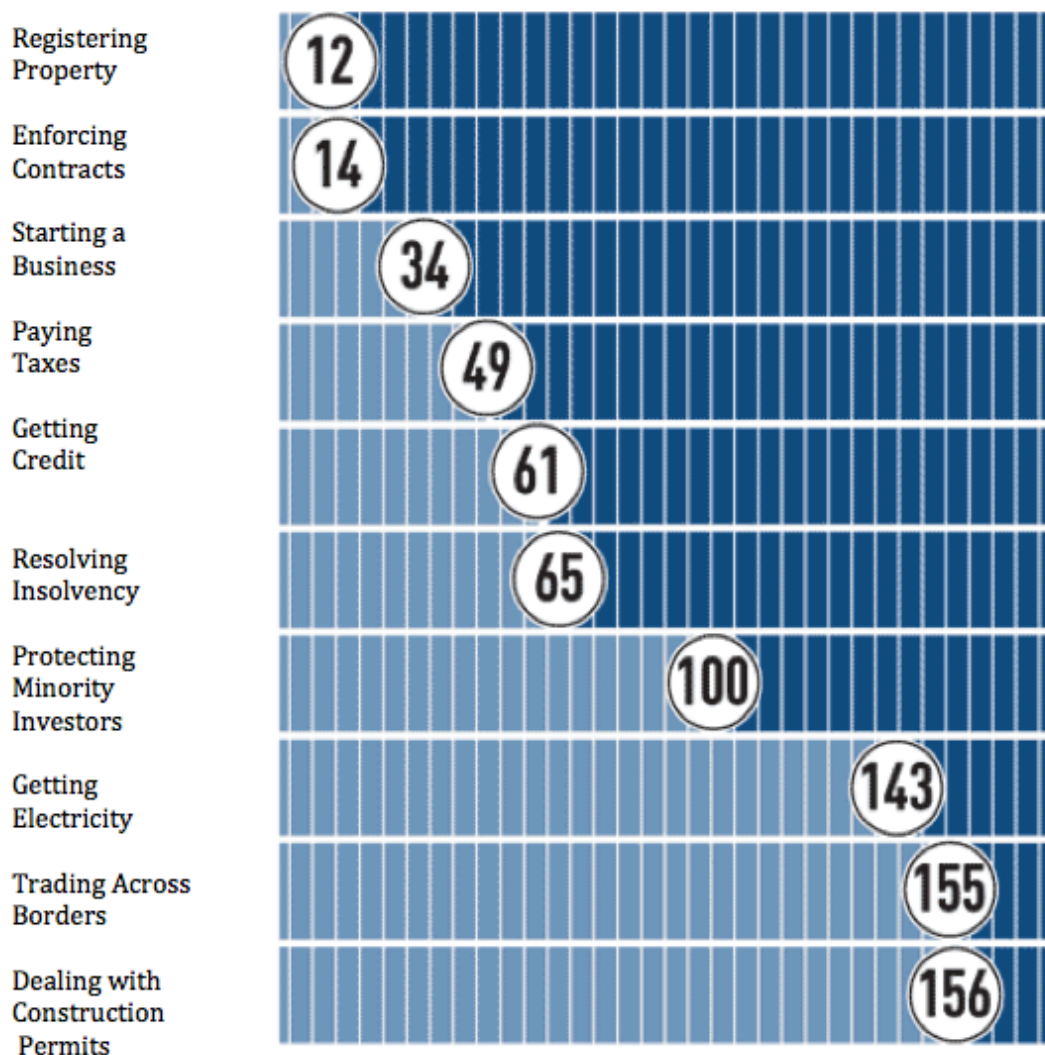


Figure 4.1. Russias position in the ranking of Doing Business 2015 (The World Bank)

IMD competitiveness ranking shows that Russia has a substantial backlog of partners in the "business efficiency". The main problem areas are the "price", "institutional environment", "legislation for business", "efficiency and productivity of the business", "the practice of management." (IMD).

Traditional "failures" of competitiveness of the Russian economy according to the Global Competitiveness Index of the World Economic Forum (GCI WEF) are weak institutions, low efficiency of the commodity market, low efficiency and level of development of the financial market (opacity, unequal conditions of competition, preferences for the state-owned banks) (World Economic Forum).

Therefore, ratings identify the following "black holes" of the business and investment climate in Russia:

1) Investment protection, 2) Corruption, 3) Barriers of entry into the market, 4) international trade regime (primarily - border crossing regime), 5) Financial Markets, 6) Access to networks (ibid).

The average position of Russia in the ratings could be considered as relatively good result, if you do not look at other statistics. Using sources, which include the U.S. Geological Survey, the U.S. Energy Information Administration, Bloomberg and Financial Visualizations, the Internet resource 24/7 Wall St. (24/7 Wall St., LLC is a Delaware corporation which runs a financial news and opinion company with content delivered over the Internet) calculated the total value of the proved reserves of 10 of the most valuable resources, by country in the 2012 (Table 4.3.). They include oil, natural gas, coal, timber, gold, silver, copper, uranium, iron ore and phosphate.

Rank	Country	Total resource value	Oil reserves (value)	Natural gas reserves (value)	Timber reserves (value)
1	Russia	\$75.7 trillion	60 billion barrels (\$7.08 trillion)	1,680 trillion cu. ft. (\$19 trillion)	1.95 billion acres (\$28.4 trillion)
2	United States	\$45 trillion	not in top 10	272.5 trillion cu. ft. (\$3.1 trillion)	750 million acres (\$10.9 trillion)
3	Saudi Arabia	\$34.4 trillion	266.7 billion barrels (\$31.5 trillion)	258.5 trillion cu. ft. (\$2.9 trillion)	not in top 10
4	Canada	\$33.2 trillion	178.1 billion barrels (\$21 trillion)	not in top 10	775 million acres (\$11.3 trillion)
5	Iran	\$27.3 trillion	136.2 billion barrels (\$16.1 trillion)	991.6 trillion cu. ft. (\$11.2 trillion)	not in top 10
6	China	\$23 trillion	not in top 10	not in top 10	450 million acres (\$6.5 trillion)
7	Brazil	\$21.8 trillion	not in top 10	not in top 10	1.2 billion acres (\$17.5 trillion)
8	Australia	\$19.9 trillion	not in top 10	not in top 10	369 million acres (\$5.3 trillion)
9	Iraq	\$15.9 trillion	115 billion barrels (\$13.6 trillion)	111.9 trillion cu. ft. (\$1.3 trillion)	not in top 10
10	Venezuela	\$14.3 trillion	99.4 billion barrels (\$11.7 trillion)	170.9 cu. ft. (\$1.9 trillion)	not in top 10

Table 4.3. The Worlds Most Resource-Rich Countries (24\7 Wall St.)

The results show us, that Russia is the world's richest country when it comes to natural resources. It leads all other nations in the size of both its natural gas and timber reserves. In addition to having such large gas and timber reserves, Russia has the world's second-largest deposits of coal and the third-largest deposits of gold. Additionally, it has the second-largest estimated deposits of rare earth minerals, although none are currently being mined. (24\7 Wall St..)

Information shakes and removes all doubt as to the incompetence of the Russian authorities. On the one hand, Russia is the most resource-rich country, and on the other hand the most inefficient country.

The analysis in the context of political factors indicates the problems of low business activity associated with adverse factors of the business environment and government regulation, and the problem of low domestic competition as the central shortcomings of the Russian market. The main negative factors in this area are:

- 1) extreme inequality of rights of market agents,
- 2) barriers of entry for new companies,
- 3) the distorting effect of state and monopoly sectors,
- 4) excessive and inefficient regulation,
- 5) insufficient pace of restructuring old companies receiving government support in various forms,
- 6) corruption.

4.2.2 Economic factors

The Russian economy in the last 13 years has seen a growth in GDP, with the exception of 2009 (in 2000 - 10%, in 2001 - 5.1%, in 2002 - 4.7%, in 2003 - 7.3%, in 2004 - 7.2% in 2005 - 6.4%, in 2006 - 8.2%, in 2007 - 8.5%, in 2008 - 5.2%, in 2010 - 4.3%, in 2011 - 4, 3% 2012 - 3.6% 2013 - 1.5%). Also, there was an increase in industrial and agricultural production, construction, real incomes as well as a decrease of population living below the poverty level (from 29% in 2000 to 13% in 2007). From 1999 to 2007, the production index of manufacturing industries increased by 77%, including the production of machinery and equipment – by 91%, textile and clothing production - by 46%, food production - by 64%. (Ereport 2014.)

According to Kudrin and Gurchich, the main driver of growth of the Russian economy in this period served as a massive influx of resources from outside. It allows conditionally characterize acting economic mechanism as a "model imported growth" (Kudrin & Gurchich 2014, p.12). The main components of growth were superincomes generated from export expansion of oil and gas

resources that is income derived from an increase in prices, but not as a result of increased extraction and deliveries. The total superincomes from export of oil and gas in the period from 2000 to 2013 years amounted to 2.1 trillion dollars. (Kudrin & Gurvich 2014, p.6.) In turn, the rise in exports spurred economic growth primarily due to the expansion of domestic demand. In conjunction with the increase in hydrocarbon prices, oil and gas revenues of the budget increased 40 times (understood as the natural rent using resource payments and export duties) in 2000-2008, or nearly 8 times in real terms (Kudrin & Gurvich 2014, p. 7). Because of this the government has managed to significantly reduce taxes in the non-primary sector, without prejudice to the budgetary system, its total income for this period in real terms almost doubled. All kinds of public spending grew: for example, by 2008, investment in fixed assets from the budget increased in real terms, almost three times (ibid). The growth of social spending and salaries in the public sector created additional consumer demand, and the increase of state purchases created the demand for industrial products. The rapid expansion of domestic demand influenced the strategies of enterprises: they were focused mainly on increasing production, and improving its efficiency was seen as a minor problem. (Kudrin & Gurvich 2014, p.14.)

Part of the surplus, which remained with producers after tax was directed to increase wages, was not only in oil, gas and metals industries, but also throughout the economy. As a result, real wage growth much outpaced the growth of labor productivity (measured as the ratio of volume of production and total labor costs) (Kudrin & Gurvich 2014, p.7).

There were other mechanisms, which increased the availability of financial resources, firstly, a low base of interest rates in the US and the euro area, as well as the increased flow of capital from developed countries in developing. In just eight years (2000-2007) net capital inflows to developing countries and countries with emerging markets grew almost 20 times (Kudrin & Gurvich 2014, p.9).

Secondly, the exchange rate policy of the Bank of Russia, on the background of consistently rising oil price, has shaped expectations of stable nominal

exchange rate. As a result the conditions of external borrowings recalculated into rubles looked extremely profitable. In this case, the expansion of the domestic market due to increased production and strengthening of the ruble increased the attractiveness of the Russian economy to foreign investment. As a result, instead of large-scale outflow of capital (11% of GDP in 1999) came substantial inflow (7% of GDP in 2007) (ibid).

The following figures can illustrate this situation. According to Inozemtsev (2014), the share of imports in GDP in 1980-2014 increased from 2 to 15%, but exports of oil, gas, coal, ores and products of their primary processing more than 75% (Inozemtsev 2014, p.3). The share of oil consumed in the country has declined over the years from 84 to 30%, the share of investment in GDP - from 34-38 to 18-20%. The total debt of the state and corporations exceeded USD 650 billion, and it is comparable with the total reserves of the Central Bank and public funds. The share of imported components in the aerospace industry reached 65-70%, pharmaceuticals - 80%. Import dominates the market for electronics, medical products, road construction, agricultural products and machinery. (Bliakhman & Gazizullin 2014, p. 9.)

As a result, Russia has lost former competitive advantages related to cheap raw materials, energy, and highly qualified staff at a low payment. According to the Ministry of Economic Development of Russia, only 15 million of the total number of 68 million workers in Russia is employed in effective workplaces. About 9 million are employed in the ministries, departments, supervisory structures, about 2.5 million - in pension, insurance and financial funds, about 1.8 million - in private security agencies (Bliakhman & Gazizullin 2014, p.9). By the assessment of McKinsey, Russia has three times the gap from the leading countries in labor productivity, in which 20-60% is associated with obsolete equipment and technologies, and 30-80% with inefficient organization and lack of incentives for innovation (McKinsey Global Institute, 2009).

According to Kudrin and Gurvich, state-connected companies with distorted motivation still dominate in the Russian economy. "They are less interested in making a profit, their commercial activities in many cases are combined with the actual acting as an agent of the government, they have less responsibility for

the results - losses can be one way or another are covered by the government." (Kudrin & Gurvich 2014, p.22). Distorted motivation of the state-owned companies affects all market participants who lose the incentive to cut costs.

Kudrin and Gurvich noted that "the main problem of the domestic economy is the weakness of market mechanisms," adding that the current model will not be able to provide not only economic growth, but also a way out of stagnation (Kudrin & Gurvich 2014, p.21).

The underdeveloped market environment leads to incorrect evaluation of the companies. It does not encourage the producers to eliminate the wastes, does not make the business look for new, more advanced strategies and techniques. As a result, economic resources are not moved to the most productive sectors, there is no demand for innovation, the need to support the so-called "their" companies increases the burden on the budget - thus, the economy is increasingly lagging behind in development (Bessonova 2010, p.107). According to Bessonova, the positive effects of competition on the efficiency of production are constrained by the coexistence of the enterprises with high and low productivity, because the industry's least efficient enterprises are protected by institutional barriers (ibid).

Distorted motivation in state companies not only determine their own actions, but also has an impact on all market participants. The state or state-owned suppliers do not have incentive to cut costs as they can relatively easily include them in their prices (due to inefficient state action during procurement, price regulation of natural monopolies, etc.). This phenomenon is spreading across the economy and as a consequence, it inevitably reduces the competitiveness of production. (Kudrin & Gurvich 2014, p.22.)

Thus, to improve performance requires not only reducing barriers of entry, restraining competition, but also facilitating the movement of factors of production from less efficient to more efficient industries. This requires improving the quality of the market environment, i.e. weak protection of property, low competition, excessive state regulation, short planning horizon, and finally poor labor organization. (Kudrin & Gurvich 2014, p.23.)

4.2.3 Social factors

Among all the factors of the social environment in the context of threats to the development of industry in Russia, the most pronounced is the demographic situation.

To highlight the main directions of the demographic changes in Russia in the next 20 years, let's look at the results of the three prognostic authoritative statistical institutes - the Federal State Statistics Service (Rosstat), UN Population Division World Population Prospects and Census Bureau US. In addition, to assess the potential value of human reproduction and migration to population growth in Russia, the report of demographic forecast, conducted by IDEM (Institute of Demography National Research University Higher School of Economics (Russia)), was taken. It is based on scenarios of fertility and mortality of Rosstat, but migratory growth from 2010 to 2030 was taken to be zero.

According to these forecasts, in terms of impact on the socio-economic development of the country during the study period, the most important trends of population dynamics in Russia, there are decline in population, its aging and declining population in the economically active age groups. (Rosstat 2010; UN Population Division World Population Prospects The 2010 Revision; Census Bureau US; IDEM).

According to these estimates, in Russia in the next two decades is expected the depopulation (Table 4.4.). But, as we see, there is a noticeable difference in the estimates of prospective population between Rosstat, the UN Population Division and the Census Bureau.

Source	2010	2015	2020	2025	2030
Rosstat	141,9	142,2	141,9	140,9	139,4
IDEM	141,9	140,7	138,9	136,1	132,8
UN Population Division	142,9	142,2	141,0	139,0	136,4
Census Bureau	139,4	136,0	132,2	128,2	124,1

Table 4.4. Prospective assessment of Russias population, in million (Rosstat; UN Population Division; Census Bureau; IDEM)

In Russia will clearly manifest the global demographic trend, it is the aging of the population. All forecasts predict by 2030 and almost identical noticeable change in the age composition of the population (Table. 4.5.). The proportion of persons aged 65 and older will increase by 60%. Almost every fifth inhabitant of the country in 2030 will be over 65 years old. (Rosstat 2010; UN Population Division World Population Prospects The 2010 Revision; Census Bureau US; IDEM.)

Source	2010			2030		
	0-14	15-64	65	0-14	15-64	65
Rosstat	15,1	72	12,9	15,2	65,4	19,4
IDEM	15,1	72	12,9	15,3	65,2	19,5
UN Population Division	15	72,2	12,8	15,8	65,1	19,1
Census Bureau	15	71,7	13,3	14,2	64,9	20,9

Table 4.5. The age structure of the population of Russia in 2010 and 2030, % (Rosstat; UN Population Division; Census Bureau US; IDEM)

Another unfortunate trend is population decline in economic activity or able-bodied age (Table. 4.6.). It is of particular concern due to the fact that there was no historical analogues maintain high rates of economic growth in a shrinking population, including its economically active (McDonald and Temple 2008, p.30). Medium variant projection of Rosstat shows that population aged 15-64 will decrease in Russia by 2025 on 9-10 million people, while the population within the officially defined boundaries of ability to work will decrease

on 11 million people. The results of other forecasts give a greater reduction. The number of children will vary in waves and in a narrow range, and the number of persons in the older age groups will steadily increase. In the context of demographic aging the economically active part of population will also age. The proportion of young ages (under 35 years) will significantly decrease, and the proportion of older people (aged 50 to 65 years) will increase by 2030. (Rosstat 2010; UN Population Division World Population Prospects The 2010 Revision; Census Bureau US; IDE.)

Source	2010	2015	2020	2025	2030
Rosstat	102,2	99,8	96	93	91,1
IDEM	102,2	98,7	93,8	89,6	86,6
UN Population Division	103,2	99,7	95,2	91,5	88,8
Census Bureau	100	95,1	89,6	84,6	80,5

Table 4.6. Prospective evaluation of working age population (15-64 years), in million (Rosstat: UN Population Division; Census Bureau US: IDEM)

Thus, in the 2010-2030 there will be very significant changes in the number of age groups and quantitative relationships between them. Expected demographic changes in the next two decades, threaten serious contraction in the labor market, which in turn calls into question the possibility of rapid economic growth. Labor shortages may increase significantly. The economy will have to adapt to the new situation, in order to neutralize the possible adverse consequences of such compression, in different ways, which can be summarized in three groups. (Strategy 2020, pp. 52.)

A) It is improving the efficiency of the economy itself, permitting an answer to reduce labor supply growth by increasing productivity. Modernization and technological renewal of the entire production sphere - it is a question of survival of Russia in the modern world (Medvedev 2009). There is obvious need for significant investment in upgrading and accumulation of physical capital, appropriate retraining. However, the revolutionary productivity growth cannot occur without an increase in capital intensity and technological innovation, and improving the labor organization (Strategy 2020, pp. 54).

B) The other one, increasing and improving use of the available labor potential, under current demographic conditions by increasing the levels of economic activity of the population, by reducing unemployment, by increasing working time and efficiency of its use, by increasing investment in human capital (health and education), improvement of professional and domestic migration mobility and so on (ibid).

C) And involvement of labor from outside, i.e. international labor migration (ibid).

4.2.4 Technological factors

Progress in technology involves the deepening of the scientific base and extension of its use. The first activity is usually called the fundamental research; the second is directly related to applied research and development (R & D). In practice, they are closely interrelated. They are the result of innovations that make the work more efficient, allow increasing the quantity, quality and variety of manufactured goods and services (Voronina & Pykhtev 2014, p.25).

According to Porter (1990), all developing economies, depending on the methods of competition, go through various stages of development. An economy in which the driving forces are the factors of production (factor-driven economy) depends mainly on the availability of natural, capital and human resources, and a victory in the competition achieved by reducing production costs. If economic development is conducted mainly through investment (investment-driven economy), competition is determined, above all, by opportunities to improve the technical efficiency of production. Innovative Economy (innovation-driven economy) aims to create a new, higher "value for consumers," while manufacturers of innovative products will have a competitive advantage, even while maintaining production costs at a level approximately equal to the cost of the competitors production. (Porter 1990, p.77.) It is an innovative model that allows to overcome the nature of the raw materials export growth reflects the main features of the inertial parameters of the development

is the most suitable for the domestic economy (Voronina & Pykhiteev 2014, p.26).

In Russia, 70s - 80s of the last century, there was the conception of the need of priority development of industries producing capital goods, which, along with the long-term arms race led to a significant degradation in the consumer sector, especially in technical terms. Advanced technology, the most qualified personnel, funding for R & D were concentrated in the military and allied industries (Mishin 2005, p. 29). The civil sector, on the other hand, had a permanent deficit of investment and innovation resources. According to the Institute of Economic Forecasting, the share of Soviet military spending by mid-80s reached almost 1/4 of GDP, which is much higher than the level of developed countries. In particular, in the United States concerning the military burden on the economy was at about 7% of GDP (Naryshkin 2007, p.53).

Market reforms, including their implementation did not have well thought-out plan of conversion and demanded sharply reorient the direction of R & D. Scientific - research organizations had to independently develop relationships with potential customers. At the same time sharply reduced public funding, which led to the loss of a significant part of qualified personnel (Voronina & Pykhiteev 2014, p.27). Research and innovation potential of the country is in a very difficult position. The total number of organizations able to create attractive investment development decreased from 4099 in 2000 to 3566 in 2012, i.e. on 533 units (Table 4.7.). Very significant changes have also occurred in their structure: the number of engineering offices decreased more than 2.5 times.

The number of organizations engaged in research and development, by type of organization in the Russian Federation														
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
The number of organizations - total	4099	4037	3906	3797	3656	3566	3622	3957	3666	3536	3492	3682	3566	3605
including:														
scientific research organizations	2686	2677	2630	2564	2464	2115	2049	2036	1926	1878	1840	1782	1725	1719
engineering offices	318	289	257	228	194	489	482	497	418	377	362	364	340	331
design and survey organizations	85	81	76	68	63	61	58	49	42	36	36	38	33	33
experimental plants	33	31	34	28	31	30	49	60	58	57	47	49	60	53
institutions of higher education	390	388	390	393	402	406	417	500	503	506	517	581	560	671
industrial organization which has research, engineering and design departments	284	288	255	248	244	231	255	265	239	228	238	280	274	266
others	303	283	264	268	258	234	312	550	480	454	452	588	574	532

Table 4.7. The number of organisations engaged in research and development, by type of organisation in the Russian Federation (Rosstat)

At the same time, the number of personnel engaged in research and development has fallen over the years, more than 2 times to 1536.6 thousand people in 1992 to 726.3 thousand people in 2012 (ibid).

Also there was reducing domestic expenditure on Russian R & D. In 2011, they accounted for 1.1% of GDP, and about the same (1.12% of GDP) in 2012, which is less 2 -3 times, than in developed countries. For example, in Germany in 2011 it amounted to - 2.9% in the US - about 2.9%, in Japan - about 3.4% (Table 4.8). Then, drastically reduced the number of patent applications. In 1991, were filed 190 thousand applications, in 2011 - only about 29 thousand (Voronina & Pykhiteev 2014, p.27).

COUNTRY	GROSS DOMESTIC EXPENDITURE ON R & D, % OF GDP	THE SHARE OF RESEARCHERS IN THE TOTAL NUMBER OF STAFF, %	HIGH-TECH PRODUCTS, % OF MANUFACTURED EXPORTS	APPLICATIONS FOR REGISTRATION OF PATENTS
RUSSIA	1,1	50	6,5	28765
USA	2,9	87,2	27,1	231588
CHINA	1,8	81	28,7	194579
JAPAN	3,4	75	17,9	330110
GERMANY	2,9	59	13,5	49240
FRANCE	2,3	60	20,2	14743
THE UK	1,8	74	19,3	16523

Table 4.8. Statistics by country (Voronina & Pykhiteev 2014, p.27)

Much of the funding for R & D (67.1%) occurs at the expense the state budget and control over budget spending is poor. Typically, these funds are used for the maintenance of a large number of public research institutions, are still poorly connected with training as well as to entrepreneurial activity. Virtually no signs of recovery interest of manufacturers to innovate: the proportion of organizations that conducted the technological innovations in the industry in 2000 was 10.6%, in 2008 - 9.6, in 2012 - 9.9% (Kudrin & Gurevich 2014, p.14). The level of innovation activity Russia lags behind not only the most developed countries, but also from all emerging market countries (Table 4.9). It indicates very weak incentives for Russian companies to improve their efficiency (Kudrin & Gurevich 2014, p.27).

Country	Share of organizations which conducted the technological innovation	The total level of innovative activity
Russia	9,1	10,3
Brazil	41,2	76
Poland	16,2	28,1
Turkey	35,2	51,4
South Africa	65,4	73,9

Table 4.9. Innovation indicators, 2012 (Kudrin & Gurevich 2014, p.27)

Unfortunately, in Russia the efficiency of investment in science, which is determined by the level of innovation introduced in the country and an increase in the share of high-tech manufacturing in GDP, not great. In practice, the main purpose of investment in fixed assets is still the replacement of worn-out machinery and equipment. This is reflected in the commodity composition of exports. Russia is considerably inferior to the world's leading exporters of high-tech products. Its share in the Russian industrial exports remains low: in 2011 it was only 6.5%, while raw material component of Russian exports reached 70%. (Voronina & Pykhteev 2014, p.27.)

In the 2000s, Russia's economy has been growing rapidly mainly due to income from commodity exports, redistributed between sectors and stimulating consumer and investment demand. The growth in revenue of the commodity sector was not the result of modernization, efficiency and cost-effectiveness of

primary industries, and has been obtained due to the growth of world prices. Over time, it became obvious that the export growth mechanism of raw materials, in the form in which it is, has exhausted itself. Now Russia with all the urgency of improving the competitiveness has faced the problem be caused of a broad modernization of all industries. (Kudrin & Gurevich, 2014, p.16.)

4.3 Cross-cultural analysis

According to the majority of researchers, we can draw conclusions about certain features of organizational cultures peculiar to most companies in this country, having the idea of a national culture. The researchers attribute this to the mentality of the citizens and the differences with respect to employees and managers of the companies to business processes in different countries (Fey& Denisson 2003, p.688).

Using ethnometry, direction ethno-sociological research that analyzes the mental characteristics of different ethnic groups using formal (mathematical) methods, in particular the method of Geert Hofstede, researchers seek to identify "the mentality of the country in comparison with other countries," designating a country's position on the mental map of the world. (Gorshkov et al. 2010, p.274.)

According to Gorshkov, Russia occupies on the mental map an intermediate position between East and West; so to speak, it is in the mental isolation (Gorshkov et al. 2010, p. 288). From this we can conclude that Russia is an intermediate unit between East and West, or it is characterized by its own qualitative specificity of mentality. Therefore, to the question "if Russia is an European country", one can give the answer in the following form: "Yes, it is approximately to the same extent as Israel. This conclusion seems paradoxical, but that is the objective reality" (Gorshkov et al. 2010, p. 289).

So today's Russians in terms of individualism are close to the inhabitants of the Czech Republic, Malta, Poland, Luxembourg and Estonia. The value of this indicator in Russia today is very different from the situation in collectivist

countries (in the East) and does not hold out to the value of the majority individualistically oriented countries of the West. (Gorshkov et al. 2010, p. 276.)

The measurement in cross-cultural studies on the dimension of power distance leads researchers to a curious paradox. According to this indicator Russia is at the same level with Ireland, Switzerland and Germany. The paradox, according to the authors, is that "Russia is perceived as a country with authoritarian traditions, but the survey data describe our country as a democratic country in terms of mentality. Meanwhile, even the United States has a higher power distance than our country "(Gorshkov et al. 2010, p. 278). In their explanation of this paradox, researchers rely more on experience than on research data and reproduce commonplace stereotypes. They point to double standards: "Russian democracy - is liberalism in words" and " knowing one's place in fact". The idea that "the existence of such a conflict has historical roots" is not based on empirical data (Gorshkov et al. 2010, p. 283). Thus, the remarkably low index of Russian power distance is largely a contradictory installation. In fact, in Russia there is no recognition of equality, nor reverence power. One side pretends that it pursues a policy based on the opinion of the majority and the other side pretends that performs top-down solutions. The existence of such a conflict is rooted in history and, for example, in the US calling "all take and share" categorically does not cause sympathy, but in our country - it is always accepted. (Gorshkov et al. 2010, p. 28.)

In contrast to the values, which are common in masculine societies, e.g. desire to maximize income, recognition, career promotion and competition, in Russia there are feminine traits, e.g. the value of maintaining friendly relations, cooperation, comfort, and safety. In this respect Russia is similar to countries such as Thailand, Guatemala, Uruguay, South Korea" (Gorshkov et al. 2010, p. 279). "It should be noted that one of the main features of Russians, which foreigners emphasize are hospitality, kindness and sympathy. All these qualities are the basis of feminine mentality, and femininity of the Russian soul more than once became the subject of debate among Russian philosophers (Gorshkov et al. 2010, p. 279).

"Russia should be considered moderately feminine society. Although modern market reforms have taught the Russians to pay special attention to the value of wealth, success and service career, however one can hardly argue that our fellow citizens are ready for the rules of the game "every man for himself." Careerism, the pursuit of the good things of life perceived by the majority of Russians though with understanding, but with some tinge of disgust. The ideal is when the income, prestige and career come "by themselves."(Gorshkov et al. 2010, p. 285). The relationship between people is basis on relationship in the business environment. The situation when a good man but a bad worker easier can hold down a job more is well known than the opposite situation, here welcomes the exchange of gifts and services not only between family members, but also between colleagues, which is considered as a sign of attention. There is an unmistakable sign of feminine culture in Russia such as a constant searching for the answer to the question "What should I do?" And the question "Who is to blame?". (Gorshkov et al. 2010, p. 286)

Then, the Russians have very high uncertainty avoidance. It can be assumed that what is considered the Russian thrust towards authoritarianism, in fact a manifestation of the high uncertainty avoidance, reflecting the desire of the laws, rules and procedures in a situation of instability of life in Russia. This explains the paradoxical contradiction between authoritarianism characteristic of Russian civilization, and low power distance inherent in the Russian mentality. Russians love equality, but are extremely afraid of surprises, so they are willing to tolerate (but not to love!), authoritarian regimes, which guarantee a stable order of things "(Gorshkov et al. 2010, p. 288).

In the last decade, domestic and foreign scientists conducted empirical studies the purpose of which was to identify cross-cultural differences, especially in connection with the Russian business culture and to evaluate its impact on organizational culture. The study, conducted by Latfullin and Gromova (2004) was completed with 2144 Russian managers and it included the results of the survey of 70 managers of Russian companies. They were enrolled in the MBA program conducted by professor Smirnova, and the study identified peculiarities of culture of Russian companies. The study of organizational culture as a comparison criteria with the Japanese and American models examined

characteristics of management organizations, such as the image of the company, objective of the business motivation for profit, core values, wages, treatment of staff. (Table. 4.10)

The study showed that the image of the modern Russian company is quite difficult to determine. It was noted that the image of the company depends on its age, size, ownership, stage of the life cycle, for what purpose it was created, and who is the founder.

Small and medium-sized Russian companies often resemble "family team". This is because most private Russian companies were established 6-8 years ago, but not more than 10 years ago and are either at the stage of "infant" or "growth." For these stages of the life cycle of the organization the way to hire employees is a 'family principle', which provides a high degree of confidence in the company, higher reliability and safety activities. However, with the growth and development of the company, it is gradually moving away from the principles of kinship and nepotism. (Latfullin & Gromova 2004, p.94.)

The purpose of the business, which largely determines the image of the company in Russia, is not always linked to the needs of the market. Factors such as a significant proportion (40-50%) of shady business, a strong influence of the state and government structures on the activities of the company, as well as the identity of the entrepreneur still often are decisive in choosing the goals of the organization. Despite this, the survey results show that many Russian companies, successfully overcame the survival stage, having a focus on the long-term existence of a profitable business as the primary goal (Latfullin & Gromova 2004, p.95).

Depending on the factors mentioned above profit for many Russian companies is a means of existence for others even more it is a tool for development. In some cases, the dominant motive in making a profit is to enrich the owners and senior management of the company, who used different methods of obtaining short-term profits (ibid).

Polls showed that Russian companies values are orientated to material values (about 95% of respondents). Only 5% of respondents indicated that their companies have predominant orientation to person (ibid).

About three quarters of the respondents indicated that their company's management considers them as the labor source, and only a quarter believed that their organizations consider them primarily as a person (ibid).

Russia is still a country where the collectivism is still more characteristic than individualism. The emotional not rational approach to problem solving prevails (ibid).

The study of relationships within organizations has shown that along with the traditional Russian cooperation between the employees of the company exists also competition. Large companies are characterized by a strong competition. Cooperation is based on informal personal relationships. (ibid.)

In Russian companies the guarantees for the majority of employees are missing or are low enough as a result of the country's social policy and because of the possibility to circumvent existing labor law regulations (ibid).

The relationships between managers and subordinates in the vast majority of Russian companies are based on subordination, hierarchy, centralization, and authoritarian style of leadership. Characteristically individual decisions come from the top - down, sometimes with elements of group discussion (ibid).

Promotion of employees career has might be based on merit and ability, but often enough preference is still given to family members, relatives or friends (ibid).

Many managers of the Russian companies build employees motivation based on the average cost of a worker in the labor market. In this case the employees are offered the lowest possible level of pay. The starting salary is maintained long enough, the percentage of its growth is quite low, and there is unreasonably high differentiation of labor (Latfullin & Gromova 2004, p.96).

This study identified four basic qualities of an ideal subordinate from the Russian leaders point of view: professional knowledge, initiative, teamwork and diligence. Mid-level managers in Russian companies are considered primarily subordinates, and not leaders, with authority and responsibility.

Russian leaders often show caution and unwillingness to implement radical changes in the company. Staff organizations are also often resistant to change and do not believe in their positive results.

In general it can be noted that the organizational culture of Russian companies, although having some similarities, differs significantly from both the American and the Japanese cultures (Latfullin & Gromova 2004, p.96). The most significant differences with American culture by parameters are e.g. collectivism to individualism, emotional to rational, authoritarianism to democracy. The similarity of the organizational culture of the Russian and Japanese companies can be traced by parameters such as teamwork, cooperation, informal relations, the image of the family.

Comparative criterion	USA	Japan	Russia
Image of the company	Sports team	Family	Family team
Purpose of the business	Profit	Long term orientation to existence of business	Long term orientation to profitable existence of business
Motivation for profit	Any funds	As a means of achieving the goals of the organization	As a means of livelihood
Values	Focusing on the material values	Focusing on the human	Focusing on the material values
Employees	Just a labor resource	A man as an individual	Just a labor resource
Human relationship	Functional Individualism	Emotional Collectivism	Emotional Collectivism
Competition	Strong competition, the victory of the strong over the weak	Cooperation, harmony and coexistence	Competition and cooperation
Guarantees for employees	Low (short-term contracts and narrowly focused specialists)	High (long-term contracts, lifelong employment, universal specialists)	Low (often no guarantees)
Decision making	Individual decisions from top to down	Collective decisions from down to top	Individual decisions from top to down
Promotion	According to abilities and merits	According to a length of service	Nepotism and kinship
Payment	Depending on the result	Depending on the length of service	The minimum salary based on the market value of the specialist

Table 4.10. Comparative analysis of the characteristics of organisational culture (Latfullin & Gromova 2004, p.95)

4.4 Conclusion of the PEST analysis

The competitiveness of a country depends on the tendency of its industry to innovation and modernization. Companies could reach the benefits of relatively strong global competitors due to the pressure and challenges. They get benefits from the internal competition and demanding consumers (Porter, 1990, p. 73).

Summarizing the data, one can suggest that the problem of domestic competition could be regarded as a key question due to the fact that it has a pronounced macroeconomic and structural aspect.

Competition as macroeconomic factors: competition hampers the growth of domestic prices, thus reducing the overall costs on economic growth and allows escape from the alternative "attenuation" of growth or formation of "bubble" (the transition from the "economy of demand" to the "economy of offers").

Competition as a structural factor: provides a redistribution of resources in accordance with market signals.

Competition is not a technical, but a political problem. Attempts to reduce the pressure of the state bureaucracy on business have made for many times, but each time they have ended in failure. (Kudrin & Gurevich 2014, p.21; Bessonova 2010, p.107.)

Bad institutions have a traditional problem in emerging markets, and the stability of bad institutions is largely related to the problem of corruption, bureaucracy and allowing its affiliated businesses receive transformational rent, that is, the income associated with the low quality of institutions. In turn, the problem of corruption (traditional in emerging markets) is largely associated with poor motivation of bureaucracy to defend the public interest, including due to the low level control of power on the part of society. (Baranov, 2010, p. 140.)

The "the vertical power" created by Putin, based on domination and subordination, and leaves no choice for a man. This system is suitable for internally unfree people dependent on paternalistic attitudes. It should be noted that the vertical power stopped the centrifugal tendencies in the country,

increased the importance of the federal government and its impact on regional processes and restored a unified system of government. As noted Migranyan, "these actions of the authorities were more or less adequate to current reality" (Migranyan 2006, p. 73). However, the vertical power has penetrated all spheres of society and has become an obstacle for the development of initiative and free will of the citizens, the source of the omnipotence of the bureaucracy, uncontrolled by society, contributed to the expansion of corruption. As a result, the positive effect of the vertical of power, reflected in the establishment of political stability in the early 2000s., replaced by negative factors, which were the logical result of the policy (Baranov 2010, p. 140). Vertical of power became playable in all social processes, dominating almost the whole sphere of social relations. Officials were arranged under it, which was the most clear vertical power system - convenient for bureaucracy and inefficient for society (ibid). Vertical power has not coped with the financial and economic crisis, requiring an increase in public funding of significant projects, the personal intervention of top officials to solve even the regional political and economic problems, a testament to its inefficiency and the need to move to a relationship more dependent on citizens and established by them (ibid).

According to Porter, the four main features are the basis of the competitive advantages of the country, the so-called Diamond model. There are factor conditions; demand conditions; related and supporting industries; firm strategy, structure and rivalry (Figure 4.2). Michael E. Porter argued that a nation could create new advanced factor endowments such as skilled labor, a strong technology and knowledge base, government support, and culture. (Porter 1990, p. 82.)

Porter's Diamond Model for the Competitive Advantage of Nations

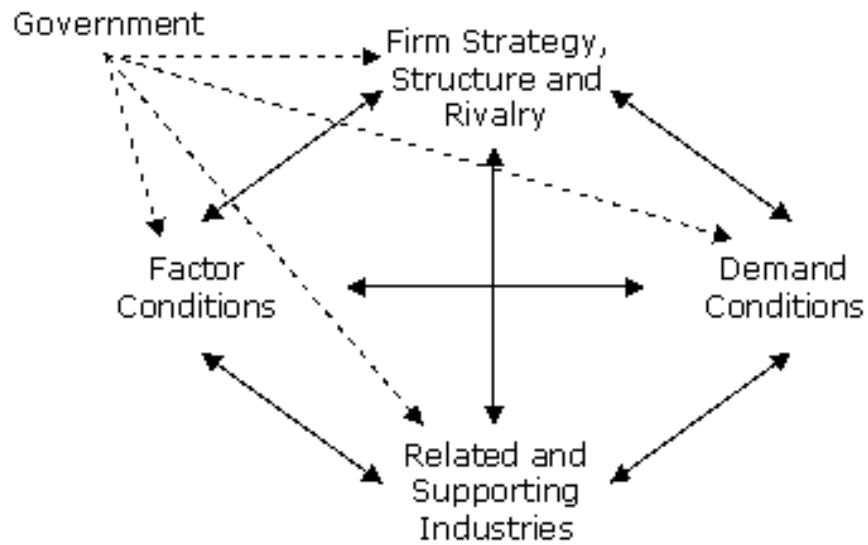


Figure 4.2. Porters Diamond Model for the Competitive Advantage of Nations (Value based management)

Each of the four components determines the point on the rhombus competitive advantages of the country. The condition of one of the components is dependent on the other three. In general, the weak position in any of the components will limit the ability of the industry to progress and updated. In the case of Russia, and in accordance with PEST analysis, at presence of factor conditions, related and supporting industries, as well as conditions demand, weak components are internal competition and the role of government. Porter stressed that the tough internal competition stimulates the development of unique factors, but also enhances the interaction of all four components (Porter 1990, p. 86). Create internal competition can only the companies themselves, trying to find their competitive advantage. Government cannot create a competitive industry. The role of government is to create conditions for companies to invest in innovation and improvement. The policy of static, short-term cost advantages harms renewal and development and it is the most common mistake of economic policies of governments (Porter 1990, p. 87).

The regulatory activities of government can contribute to achieving competitive advantage by promoting and improving domestic demand. Regulation of competition through policies aimed at preserving the state monopoly, control

over the investments in the industry and price fixing, leads to two negative results. Reduced competition and not create Innovations (Porter 1990, p. 87).

So are there any prerequisites for the implementation of quality management systems in Russia? Based on this analysis one can say that there are internal conditions are due to the following factors, firstly, the inefficiency of the state in combination with high level of corruption, which is unable to provide the work of the law, protect human rights and freedoms, timely and adequately respond to the challenges of our time. Secondly, the existence of a primitive raw materials economy hinders a) innovation development, b) the massive growing of the middle class, c) improving the living standards of the people. Thirdly, lack or low levels of internal competition caused by the dominance of state-owned companies. Fourthly, there is a demographic risk. Fifthly, the existing experience in the construction of such systems in the period of socialist development of the country, which were later found application in other countries. Finally, Russia occupies an intermediate position on the mental map of the world, which leads to flexibility in the choice of methods and models.

5 Case of Sayssky Pulp & Paper Mill

This section presents the case of Syassky PPM. The history of the company and the information regarding the company will be presented very briefly at the beginning. Then the current situation will be analyzed. The results of the interviews, as part of the analysis and empirical part of this study, will be demonstrated.

5.1 Historical summary

Syassstroy is a city located at the mouth of the river Syas, it is the 136 km of the motorway "Cola" connecting St. Petersburg to Murmansk. The first mention of the village "Syassky ryadky" by written sources was found in 1582. In 1702, by the decree of Peter the Great, a shipyard was laid here, but the settlement of Syassstroy was founded in 1926, in connection with the construction of Syassky Pulp and Paper Mill.

In 1928, Syassky PPM was put into operation, hereafter in 1935 there was built a sulfite-alcohol plant running on waste from the mill. In the history of the Soviet industry Syassky Mill entered as a unique factory-school, preparing staff for new pulp and paper companies in the country (Kulikov 2014, p. 14).

The original design capacity of the plant was 60 thousand tonnes of pulp cooking per year. As a result of improved technology and reconstruction, the capacity reached 120 thousand tons per year. Later them significantly transformed and the following part were built and put into operation:

- A bleaching plant with the capacity of 100 thousand tonnes per year
- A workshop for the production of protein feed yeasts with the capacity of 2.5 thousand tons per year
- Cardboard and Paper Mill

- A complex of factories producing sanitary products, with the capacity of 53 thousand tonnes per year
- A groundwood workshop for the production refiner pulp of aspen wood, with the capacity of 100 thousand tonnes per year.

The crisis of the 90's in the economy had impact on the business. In the period from 1996 to 1998, the plant was shut down completely. Only at the end of 1998, a large amount of repair work was done and the plant was reopened (ibid).

Today Syassky PPM is one of the leading manufacturers of sanitary products in Russia. The main competitive advantage of the company is the complete process chain: wood-balance - pulp - base paper - finished consumer products (SPPM internal materials).

5.2 Company profile

JSC "SPPM" (Syassky Pulp and Paper Mill)

Year of Establishment: November 1928

Legal form: Joint Stock Company of open type

Structuring: part of a group of companies "SevZapProm"

Capital: 100% private capital

Employees: more than 2,500 people

Geography: Located in the city Syasstroy 150 km from St. Petersburg and 30 km from the district center of Volkhov, near the river Syas, the area of Lake Ladoga.

Demographics: The population of 15,000 people.

Infrastructure and External Resources: The company owns 300 hectares of land, has the necessary buildings and housing. It has its own transport

department, as well as access to the railway. The company is located near the federal highway of St. Petersburg - Murmansk. There is the possibility of pure abstraction. The company is located in an area of forests, with mixed forests in the vicinity of the pipeline Volkhov - Petrozavodsk and Volkhov hydroelectric power station.

Internal resources:

Equipment:

9 pulp boilers

3 paper machines for paper hygiene

1 paper machine for wrapping paper

1 board machine

3 machines for the production of toilet paper

4 automatic production lines for toilet paper and kitchen towels, new

2 automatic lines for production of napkins

Trucks and the necessary transport arrangements

The laboratory and equipment for quality control

Sewage treatment plants

Technology:

Sulfite pulping

Chlorine bleaching

Encumbrance:

The city is supported by the company, it is formed and developed around and because of JSC "SPPM". As a result the company has had a need to carry the social burden, this includes the heating of residential and administrative

buildings in the city, containing a variety of non-core institutions (health care center, recreation center), and dealing with the land, which is used inefficiently. To maintain the existing business it is enough just to have 10 times less land.

The bank enterprise: JSC Sberbank of Russia Northwest Branch.

Products: cellulose, various kinds of technical papers, lignosulfonates, yeast, toilet paper, napkins, and kitchen towels.

Turnover: 144 million Euros per year. (SPPM Internal materials.)

The technological chain of the enterprise is constructed in such a manner that it covers all stages of wood processing to an end product. At each stage, the company produces a product that is in demand in the market in one form or another (pulp, paper for the production of toilet paper, etc.). In this case we have a situation where a company can conduct business as a B2B market and in the B2C market. This situation formed the basis for the formation of sales in general. The sales department is divided into two parts business-to-business (B2B) and sales in the market of consumer goods (FMCG). (SPPM Internal materials.)

The company uses a functional management system. At the head of the company is General Manager, who has three deputies. Each of them is responsible for his or her own direction. (Ibid.)

The main instruments are three plans. The first is the development plan for the company. It has been executed for three years and includes the investment program. The second is the annual budget, including the annual plan forecast of sales. The third is a strategic marketing plan, which has a three-year framework. All plans are approved by the Board of Directors and adjusted every six months. (Ibid.)

The main criteria for the formation of plans are oriented in the manufacture of finished products, the modernization of enterprises and increased market share of finished products. The main principle is the efficiency through all processes.

The first process assesses demand for finished products and as a result forms a production plan for the processing site. Then according to their own needs the plan is formed for the paper machine and pulping plant. Next that which comes into force maximum capacity factor of the production chain. Thus the volume of sales in the B2B area is formed. Then, depending on the conjuncture of prices, there is a separation between the volumes of domestic and international B2B markets. (Ibid.)

The main focus of the company to produce the final product. This trend is chosen for several reasons:

- Relatively high annual growth of the market
- level of consumption in Russia is less in five times than in the developed countries
- Full chain of production of the product
- Favorable geographical location. (Ibid.)

On the other hand, the company has met high industry competition. On the market today there are almost all types of competitors, multinational companies, domestic producers, local producers. (Ibid.)

The main problem is the reduction in profitability of the enterprise, despite the modernization of equipment and processes of increasing output. Despite of all attempts to control costs, this reduction process continues. Parallel to the increase in output, there are increases the percentage of defects, sometimes, this percentage reaches 30%. (SPPM Internal materials.)

5.3 Problems discussion

The market of hygiene products in Russia, where SPPM operates, in the past few years shows a stable trend. The average market growth for the year in the period from 2010 to 2015 was 8%. This dynamics is provided on the one hand due to a serious backlog of the average consumption, it is 2 times less than the

average world consumption, due to the large number of product producers. On the market today in Russia there are all formats manufacturers, ranging from small local producers to large multinational companies, such as SCA and Kimberly Clark. This fact provides a significant level of competition in the market. As a consequence, in the 2014 the producer prices in Russia, producing toilet paper, according to preliminary data fell relative to 2013. The decline amounted to about five per cent (previous year sales prices rose by 9%). While the retail prices of Russia at the end of 2014 corresponded to the level of 9.8 rubles per roll (rising by 6%), while the producers have implemented the toilet paper at an average price of 4.6 rubles per roll. In 2014, the price of the consumer market for toilet paper more than doubled the price of manufacturers of this type of paper, more precisely 2.14 (previous year ratio of 1.9). Thus, the increase in consumer prices in 2014 came amid falling producer prices. (SPPM Internal materials.)

Further, according to the results of 2010-2014, the cost of electricity has increased by more than 40% (see Figure 5.1). If you look at the growth of prices for the period from 2003 to 2013, the cost of gas for industrial consumers increased 4.5 times and the electricity 3 times (see Figure 5.2.) (Federal Tariff Service).

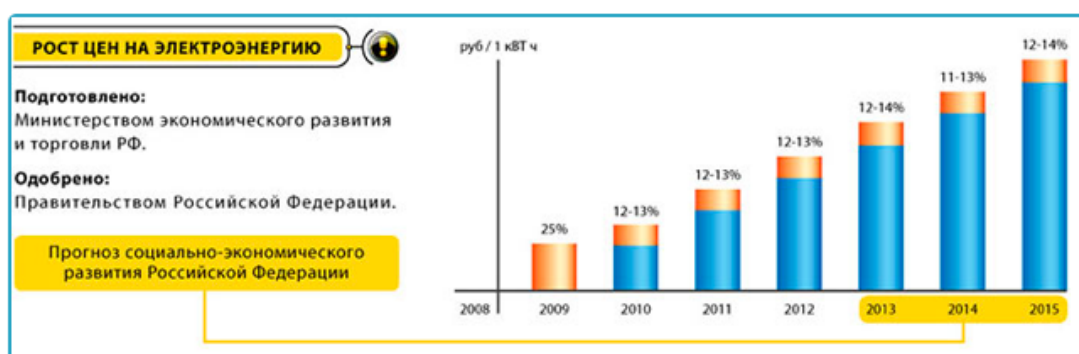


Figure 5.1. Rising electricity prices in Russia (Federal Tariff Service)

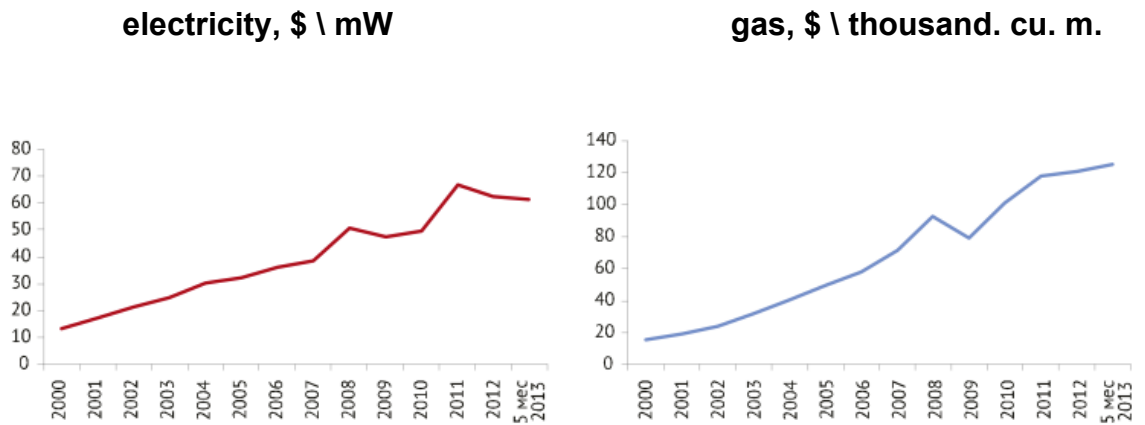


Figure 5.2. Rising electricity and natural gas prices in Russia (Federal Tariff Service)

According to Rosstat, in the period from 2003 to 2013, wages in Russia increased by 6 times (see Figure 5.3) (Rosstat Russia).

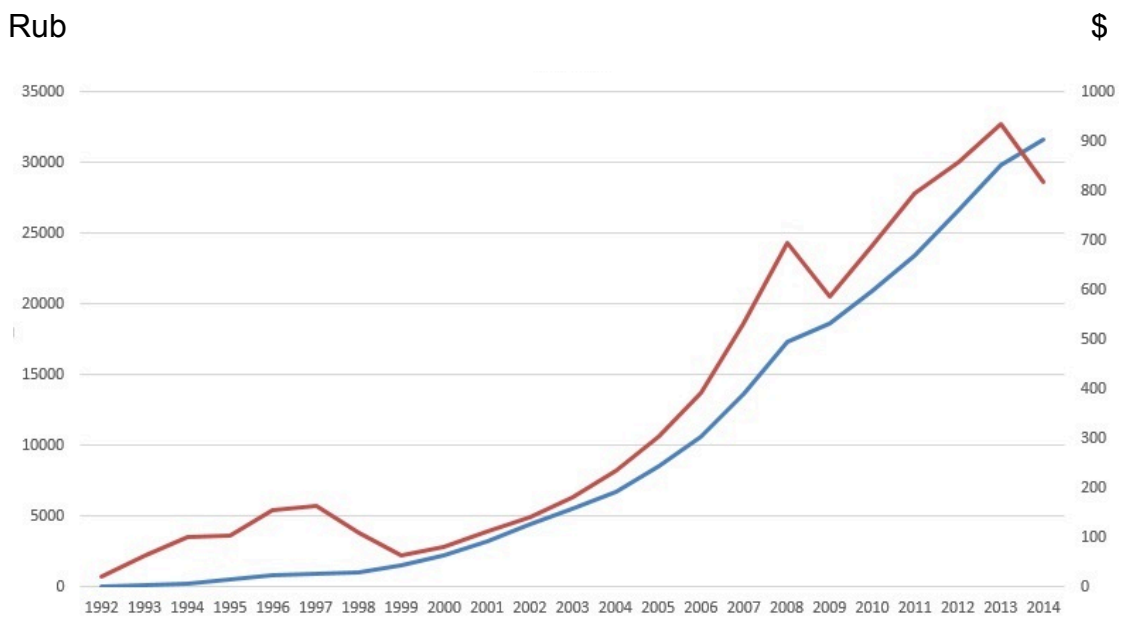


Figure 5.3. Rising wages in Russia (Rosstat)

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Finally, the dynamics of average prices in Russia of pulpwood softwood and hardwood, which is the main raw material for pulp production, one can see in Figure 5.4. It should be noted that in 2013 prices for both softwood and hardwood pulpwood increased significantly; there are growth of 15% and 16%, respectively. Apart of that, the increase in the cost of pulp in 2013 was 5%, and in 2014 an increase in domestic prices for wood pulp exceeded 16% (see Figure 5.5). (Lesonline.)

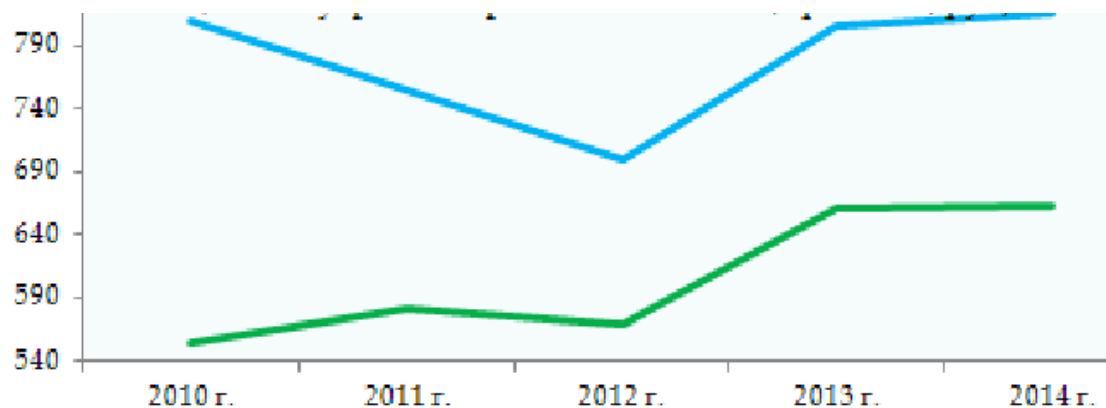


Figure 5.4. Dynamics of pulpwood prices in Russia (Lesonline)

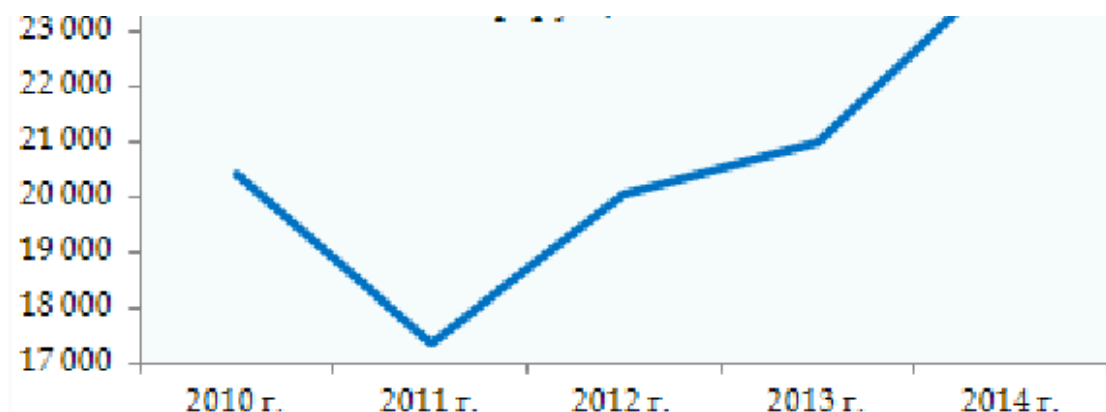


Figure 5.5. Dynamics of pulp prices in Russia (Lesonline)

Thus, the current situation can be characterized as increasing competition from producers on the one hand, and increase the cost of all the components of the manufacturing process on the other hand. In fact if you look at the structure of production costs (Figure 5.6), one could find that 72% of the cost of production is cellulose, 10% gas and electricity, and 10% service equipment. (SPPM Internal Materials.)

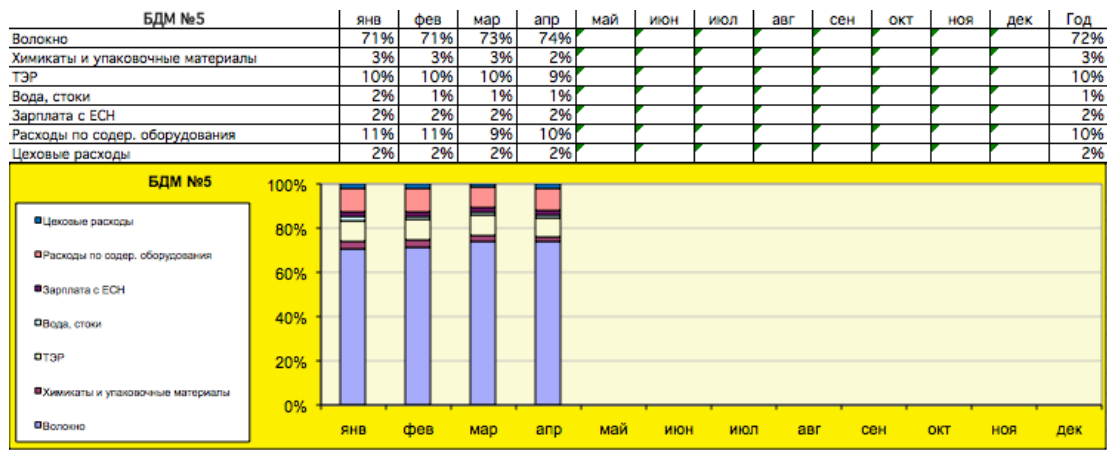


Figure 5.6. The structure of production cost (SPPM Internal Materials)

Despite the fact, that the market is growing, and Syassky PPM is one of the three market leaders, return on sales indicates a negative trend. Over the last year this figure was reduced in 2 times, although sales volumes increased by 23%. Thus we can assume that there is a serious question in the manufacturing process of the company. Lets again look at the definition of productivity:

"Productivity means how much and how well we produce from the resources used. If we produce more or better goods from the same resources, we increase productivity. Or if we produce the same goods from lesser resources, we also increase productivity. By "resources", we mean all human and physical resources, i.e. the people who produce the goods or provide the services, and the assets with which the people can produce the goods or provide the services".(Bernolak 1997, p.204.)

Hence, it can be assumed that it is necessary to look at "how well we do it", to discover which of the existing production processes generate the losses, thereby reducing the competitiveness of the company.

5.4 Interview with the staff

In this study semi-structured interviews were used to gather empirical data. The choice of the theme interview is based on the following arguments. According to James P. Womack and Daniel T. Jones, who studied the success of Japanese companies identified five principles of the construction the successful quality management system (Figure 5.7). These are assessing the value of a particular product, determination of the value stream, providing a constant flow of the value stream, "pull" product strategy, and continuous improvement.(Womack & Jones 1996, p.15.)

1. Value: Define what is of value to the customer

2. Value Stream: Identify the value stream / eliminate waste

3. Flow: Create a constant flow

4. Pull: Produce based on demand

5. Perfection: Continuous improvement

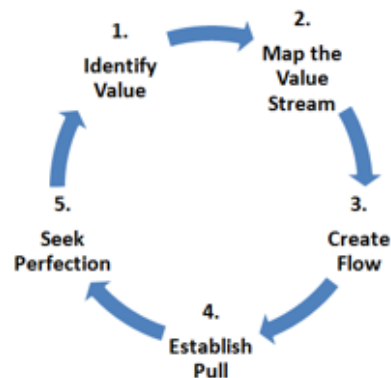


Figure 5.7. The five principles of quality system construction (Womack & Jones 1996, p.15)

A. Kudryashov, in the context of Russian companies adds one more factor (Figure 5.8): involvement of the employees in the activities and endowing them with the necessary authority (Kudryashov 2012, p. 63).

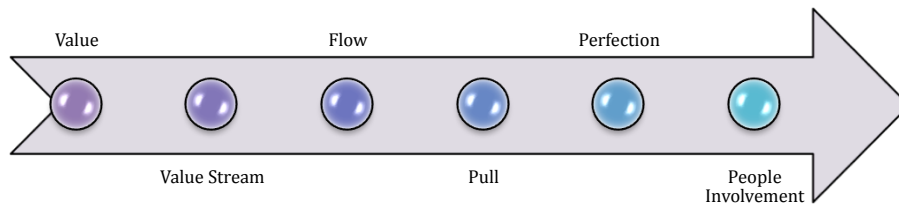


Figure 5.8. Six factors (Kudryashov 2012, p.63)

Thus, the questions used in the interviews were divided into four blocks, covering the above principles, namely, as employees understand the production process as a whole, how they understand the value creation process of the product, how they are involved in this process, what their expectations they associate with the company.

1. How participants understand the process of creating a product in general? What are the basic steps of creating a product they release?
2. How do they understand their place in the process of creating a product? What do they evaluate from their point of view of the importance of this stage? How do they rate their competence? What are the difficulties? What are their relationships with colleagues in the chain? What kind of DMP (decision makers), they can call?
3. How do they assess the activity of the enterprise as a whole? Why? What are the forecasts for the next few years?

4. What they believe is necessary to change the company? What is missing? Are they willing to participate in the process of enterprise development? What is for them the company as a whole, just a job, and a part of life, the meaning of life?

Full list of issues can be seen in Annex 1. Interviews were conducted in the period 2013 - 2014's. Venue of the interviews was the administrative building of the enterprise in Syasstroy. The format of the interview was "face to face". All the interviews were in Russian, and were recorded on tape. It is assumed that interview should involve representatives of various levels of management and product development areas, those that form the so-called value chain. So the information of the background of the interviewees is provided in Table 5.1.

№	Position	Gender	Age	Years of experience in SPPM
1	Production Director	male	38	13
2	Chief Engineer	male	45	20
3	Chief Technologist	male	57	3
4	Chief Power Engineer	female	58	37
5	Head of Supply Chain Department	female	62	8
6	HR Specialist	female	64	32
7	CFO	female	45	22
8	Head of IT Department	male	29	5
9	Head of Paper Machines Department	male	38	18
10	Foreman of Paper Machines Plot	male	55	36
11	Head of Consumer Products Department	male	36	14
12	Foreman of Consumer Products Plot	female	57	13
13	Sales Director	male	37	2
14	Head of Marketing Department	male	38	8
15	Lawyer	female	34	14
16	Head of Security Service	male	53	8
17	Head of Quality Department	female	53	27

Table 5.1. Interview participants

A total number of participants was 17 people. The average interview duration was 1 hour 30 minutes. The total duration was 22 hours and 45 minutes. During the interviews, additional questions were used in order to clarify the position of the respondents on some issues.

5.5 Given data

The first group of questions showed that the majority of participants identified four main stages of the process of creating a product. There are wood preparation, pulping, papermaking, production of finished products. Although several participants separately identified the production process by-products, such as lignosulfonates and fodder shivering. One of the participants expressed the view that "despite the fact that these products are sub products, but functioning of the whole technological chain depends on the ability to manage them".

Opinions on the question "What is the main product" were divided into the proportion of 70 to 30. 70 per cent of respondents confirmed that the finished products (toilet paper, napkins, paper towels) are the main products. 30 percent suggested that the base paper is the main product, and finished products are helping the company "to fill in production capacity" or "gives flexibility in the formation of the production program."

At the same time on the question: what kind of product for the company is more profitable, 90 percent said that they do not know. "Unfortunately, this information is closed from us, but sometimes we hear that a particular product is the worst, but specific figures are not available to us." Despite the fact that 70% of the respondents expressed that the finished products are the main products, however, half of them suggested that the base paper is a more cost-effective product. One of the participants said: " The workshop on production of finished products is the largest in terms of number of people working there. There are more than 300 people, I've visited other enterprises, including those in Europe, and there is a fraction of the workers, i.e. much less. That is why I doubt that the finished product is more effective. " Also, one of the interviewees made an interesting observation: "I've never seen before that transfer shifts were conducted on the stopped equipment, exactly the same situation with a lunch break and cleaning it is the loss of working time, unfortunately no one is interested the main thing is the execution of the production plan "

The second set of questions showed that the assessment of participation in the process of creating the final product is minimal. Each of the participants in the interview said that the previous stage in the creation of a product is the most important. While the activities of each subsequent unit, in principle, depend on the outcome of the previous one, in other words, the quality of the product produced by the plot directly affects the outcome of further processing. So the employee of the final product workshop stated that he is totally dependent on the quality of the products that it receives from the workshop for the production of base paper. In turn, the participant of the workshop of the production base paper argued that the quality of its products depends on the production of pulp and so on.

On the question of whether they can directly or indirectly affect the quality of the products of their partners, all participants answered yes in theory, but in fact no. When asked why, all unambiguously answered that it is because of wrong motivation. Motivation is aimed at achieving the production plan, and does not take into account certain features of a certain workshop. "For example, in a workshop for the production of base paper in an attempt to reach the production plan it is sometime required to reduce the percentage of moisture on the paper, in order to increase the speed of the paper machine. It is not critical to the sale on the B2B paper market, however it significantly affects the processing of the final product on our own lines, which in turn reduces the speed lines" - said one of the interviewees.

On the question of how the quality department affects these questions, the answers were awesome, " they also all depend on the production plan results." One of the interesting responses was as follows: "in general the quality department in our company only fixes defects, although in principle its task is to prevent them And if the percentage of defects is above the average, they are forced to negotiate with the workshops". Even more surprising was the answer to the question "is the quality of products for you a motivating factor ": of course we get a bonus for the quality of products ...but in the case of achieving the performance of the plan".

During the interview, all participants identified only two individuals who make decisions. On the question of delegation of authority, 40% said that they have the authority, but it is very limited. 20% were undecided. 10% said that they did not have the authority, and, at best, they can give their expert assessment in decision-making processes. 30% said that they have the necessary powers to solve everyday problems.

The next group of questions gave an understanding of the current condition of the enterprise as a whole among the interviewees. 15 of 17 respondents said the current state of the enterprise is "chronically ill", but they noted that business is better than 10 years ago. Among the main problems they have identified the persistent lack of funding to address the current challenges, because of what the problems are not solved, but simply "are stopped".

Another problem was identified by five participants; too wide a range of products. "We produce more than 150 kinds of products, and more than 20 kinds of base-papers ... All that leads us to have huge balances in storage in the form of finished products as well as in base-paper and raw materials ...it leads to the big problems with production planning. On the one hand it is very good that we listen to the needs of the market, but on the other hand, all that hampers production and increases the risk of safety, for example. "

The next problem, which one of the participants identified, is the lack of information flows. "Today the company has two operating systems that are able to solve current problems, reduce the down time " of walking in the corridor ". But for some reason the staff prefer to use a spreadsheet format " Excel " that makes it impossible to correctly analyze the data, and also inhibits the development of information systems to the format of the ERP (Enterprise Resource Planning). Also there is a system of total dependence on the information that is stored with a particular person. As a result, information security is non-existent. "

Another weakness of the companies identified by half of the participants is the personnel. "Today, the company employs more than 2,000 people, of whom two-thirds are after 45 ". There is a very small number of young people. And

those that company has, they do not have a deep interest in the company. They would rather go just to "serve" their time. Apparently they earn basic income elsewhere. That is why among those who are ill or are on an educational leave, 60% are young people. Among the middle aged people a large percentage is alcohol-addicted".

The last group of questions was devoted to the respondent's opinions on what is necessary to change in the company and in its activities. First and foremost, the majority of respondents in varying degrees, identified indifference of employees. The reason, according to the respondents, is the closed position of the top managers and the high degree of bureaucracy, as well as the lack of funds. Therefore many of the initiatives are damped at the first level of management, at the level of foreman. "If one says what is necessary to change, it is primarily relevant to their duties. Today people are totally indifferent, if the floor is covered with garbage, then no one would ever think to pick it up, simply bypass as an obstacle ... The same applies to their appearance, in case of their coveralls, and condition of workplaces ... everywhere there are absolutely unnecessary things, you know how in the garage there is all that can be useful someday" - told one of the interviewees.

"It seems to me that, despite the apparent indifference, people are willing to do something, they just do not understand how they can do something .. It's no secret that our solutions are changing fast enough and frankly, sometimes people doing absolutely unnecessary work in workshops there aren't someone who could organize people properly too large gap between wages and the hierarchy of power "- was the opinion of another respondent.

However, all respondents unanimously expressed their willingness to participate in change, regardless of the material benefits. The most abundant opinion was that the situation could be remedied by the arrival of large investors, such as foreign companies. On the question whether they meet the competences level of foreign companies, the majority responded negatively. "I think our level of competence today is lower than our competitors, companies such as SCA. There are several reasons, firstly our working day is organized so that just physically there is no strength enough for training. Secondly, it is

difficult to find even one day to visit another company and discover how other companies manage their everyday activities "- told one of the respondents.

5.6 Main outputs from the interviews

Based on the data obtained in the course of the interviews, there are several major factors that directly or indirectly affect the quality of work nowadays.

Insufficient mechanism of the management decisions is a factor. In many cases, the decision-making process is significantly bureaucratic. Business processes and workflows are not formalized enough, that gives rise to an uncoordinated and conflicting decisions. Lack of harmonization of strategic and operational planning and management is evidence.

There is a lack of a clear division of the boundaries between authority and responsibility when units of "SPPM" interact in their daily activities. The undeveloped system of delegation responsibility and monitoring the effectiveness of management decisions leads to the excessive centralization of management. There are no mechanisms to increase the interest of each business unit in the processes of creation of any product or service of SPPM.

Quality management activities have fragmentary nature. The currently existing elements of the quality management system in the structural units of SPPM are not integrated into a single system and are not intended to achieve corporate strategic goals.

There is a lack of unified methodological approaches to the diagnosis of the quality and system of formalized service quality indicators of SPPM, in addition there are no defined criteria for assessing the quality of service and efficiency in terms of financial results of SPPM for each of the processes.

Using outdated regulations and not meeting the modern requirements of technical regulations is not conducive to the effective implementation of technological processes. This does not provide them with flexible optimization in order to improve the quality and efficiency of resource usage.

There is imperfection of existing systems of internal marketing at SPPM.

There is an ineffective management of the information flows. The collection and analysis of information, as well as internal statistical reporting is not fully optimized, there is no single system that provides measurement, collection and analysis of information about the quality of services and processes that can promptly and objectively assess the performance of SPPM and effectively manage resources and processes.

There is an imperfection and opacity of the current system of employee motivation. The current motivation system does not allow to achieve the required exist level of employees interest in the quality of internal or final products of SPPM. There is no correlation between the levels of quality and motivation based on the system of indicators, providing motivation for each employee doing the job.

Summarizing these findings, there are three key points. The existing quality management system does not fulfill its primary tasks, process control and loss prevention. The nature of the service quality is aimed at fixing manufacturing defects. The main goal of the company's quality system today is to match a specified percentage of defects, rather than trying to reduce them as a whole. The second important point is the lack of involvement of staff in the process of any improvements. There are two negative factors: improper motivation aimed only to obtain material values and lack of leadership institute. Finally, the third important point is quite on authoritarian way of enterprise management, where decision-making is concentrated in the hands of two key persons. All control is a top-down and bottom-up movement is quite bureaucratic. In addition, there are no clear boundaries between departments' responsibilities in their daily activities.

6 Case of KBR East company

This section presents the case of KBR. The information about the company in the world and the history of the company in Russia will be presented at the beginning. Then the information about the system and the principles of quality management in the company will be provided. The method of data collection was the interviews with CEO George Braddy and employees. Also, as a source of information, the materials provided by Dmitry Timokhin, who is the head of quality department were used, as well as my personal visits to the plant in 2013-2015 gave insights to the study.

6.1 KBR profile

The history of the company is more than 100 years, since its establishment in 1901 by Morris W. Kellogg. That year in New York he opened a tiny pipe fabrication business, which would become a world-class engineering firm. Over a century of history M.W. Kellogg underwent numerous acquisitions and name changes from 1944 through the late 1980s, when it was acquired by Dresser Industries, a provider of integrated services and project management for the oil and gas industry. Ten years later, Halliburton acquired Dresser, and combined it with M.W. Kellogg and Brown & Root to create a new, larger subsidiary — Kellogg Brown & Root (KBR). (KBR.)

Finally, in 2006, KBR separated from Halliburton and completed a successful initial public offering on the New York Stock Exchange. Today, KBR employs approximately 27,000 people. The headquarters are situated in Houston (US), but KBR operates in more than 70 countries on six continents and is considered one of the world's premier engineering, procurement and construction (EPC) and services companies. Among their services are the following: Engineering, Procurement, Construction, Design/build, Proprietary process technologies, Program and project management, Operations and maintenance, Logistics management and support. (Ibid.)

6.2 KBR in Russia

In 2012 the company celebrated the 10th anniversary of its activities in the Russian market. Nowadays, the KBR is a general contractor and partner of International Paper (IP), one of the largest companies in the pulp and paper market (Ibid).

In their turn, the IP activity in Russia began in 1998, when Svetogorsk pulp and paper mill had become part of International Paper. Svetogorsk pulp and paper mill, founded in 1887, it is the main enterprise of Svetogorsk, where about 16,000 people live (International Paper). It is a similar situation with the case of Syassky PPM, as well as industry affiliation, and that is one of the reasons why this case was chosen.

The most important area of services provided by the company for IP is the management of equipment reliability, with the formation of the corresponding service culture with an emphasis on maintaining the "health" of equipment instead of repair and response to failure. A strategic choice of KBR is the movement on the way of continuous improvement. This is the active implementation of the enterprise practices "lean production", including the organization of the working space by the 5S system, methods of analysis and problem solving, general maintenance of equipment, quick changeover and others (Figure 6.1).

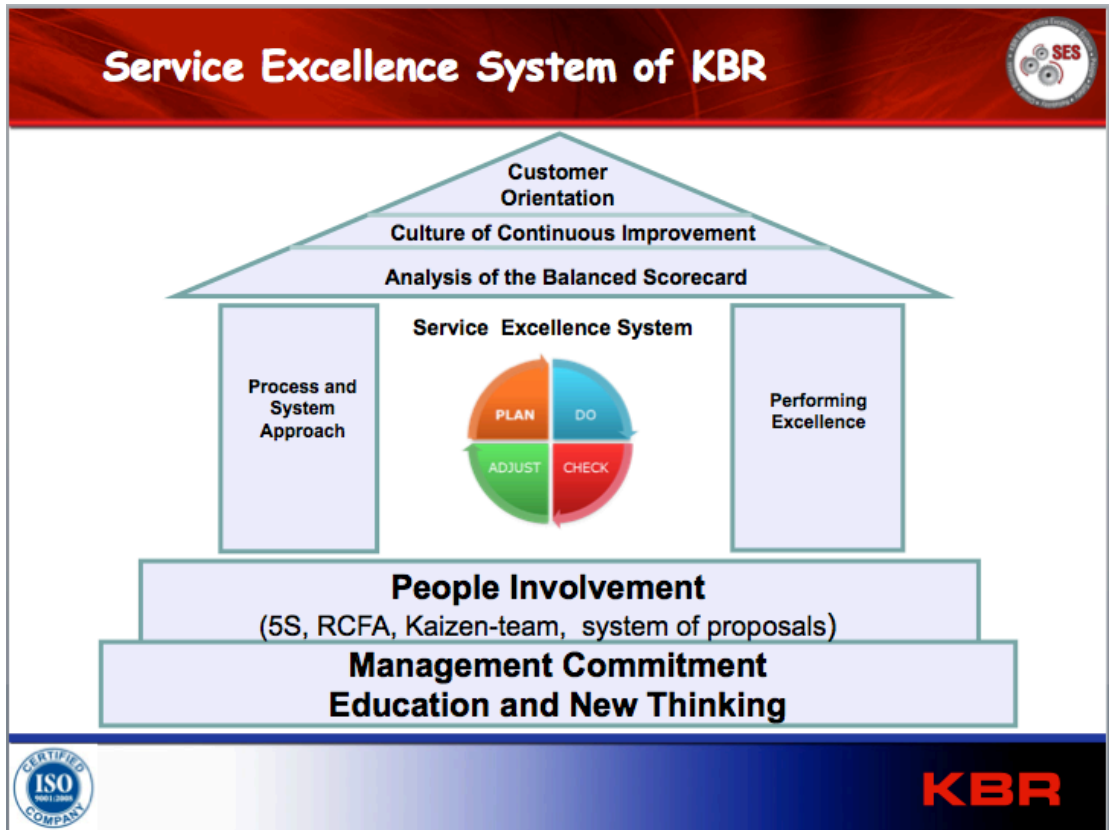


Figure 6.1. Service Excellence System of KBR (KBR Internal Materials)

6.3 QM is a philosophy

KBR East is located in Svetogorsk (Russia), provides maintenance, construction, engineering, and consulting services across Russia. They have over 750 technical, professional, and subject matter experts.



George Brady has been the CEO of KBR East since 2009. Before that he worked in various positions at companies such as Scott Paper, Georgia-Pacific LLC, Bowater Newsprint, Life Cycle Engineering. In 1996 he graduated from the University of Alabama, in 2008 from the University of Villanova. He was educated in the field of quality management system of lean production and Lean Six Sigma.

Figure 6.2. George Brady CEO of KBR East (Russia)

According to Mr Brady, one can give any definition of the concept of quality management. In the literature, there can be found hundreds of them, but the essence of these definitions it is a philosophy, based on which whole business of the company is constructed. At the heart of the philosophy, there are simple and clear principles: transparency and clarity of all processes, the fight against loss and decision-making based on facts, statistics, and the use of analysis tools. But most importantly, the foundation of all the changes and improvements is the involvement of all employees in this process (Brady 2014).

"When I came in 2009 to this position, I could clearly see the perplexity of staff. They did not have at all any system of coordinates, just the absence of any motivation other than salary. Correspondingly, the most important task was to bring people into a single system. Based on my own experience and experience of my colleagues, I can say that the workers do not need loud slogans or demonstration of complex methodologies, they need simple and clear tasks, which can solve their problems at the same time "- Mr. Brady said during the interview.

According to Mr. Brady, the 5S system is an effective tool. From the words of Mr. Brady, it is nothing like just putting things in order around you, and that is clear and simple for workers. In fact, the first step is nothing new. The new idea here is that action leads to behaviour change of the employees. This arises from the learning process, and If learning has been taken successfully, the organisational behaviour will be lifted to a dynamic and challenge-seeking level. This will influence the top management in defining their vision. Built on firm foundations, the new vision will establish a new culture within the organisation. 5S is a powerful quality tool for everyone to get involved in the improvement process. (Brady 2014)

Indeed, according to Olofsson, the 5S system is able to unite people in a desire to make their workplace better, which brings a sense of pride in the results of the work with their own hands (Olofsson 2015, p. 15). In turn, it increases the motivation and sense of morality in general, that is why 5S is often the first step

on the way to other concepts such as Lean and World Class Manufacturing (Olofsson 2015, p. 22).

Despite the fact that today the technologies determine much more than earlier, including the quality of the business, but people are still doing business. Exactly the people are the key to the successful implementation of any system - concluded Mr. Brady. (Brady 2014.)

6.4 5S

Dmitry Timokhin, who is the head of the quality department of KBR, said that the approach of 5S implementation really works. « A little over three years were needed to us and we were able to unite the people, to involve them in the process of improvement. Today we operate in such a concept as a development plan for the year, which is developed by our employees (Figure 6.3). I can not imagine that the plan would have been launched 3 years ago, it would not have been clear to staff. Today, they operate by these terms independently»- told he during the interview (Timokhin 2014).

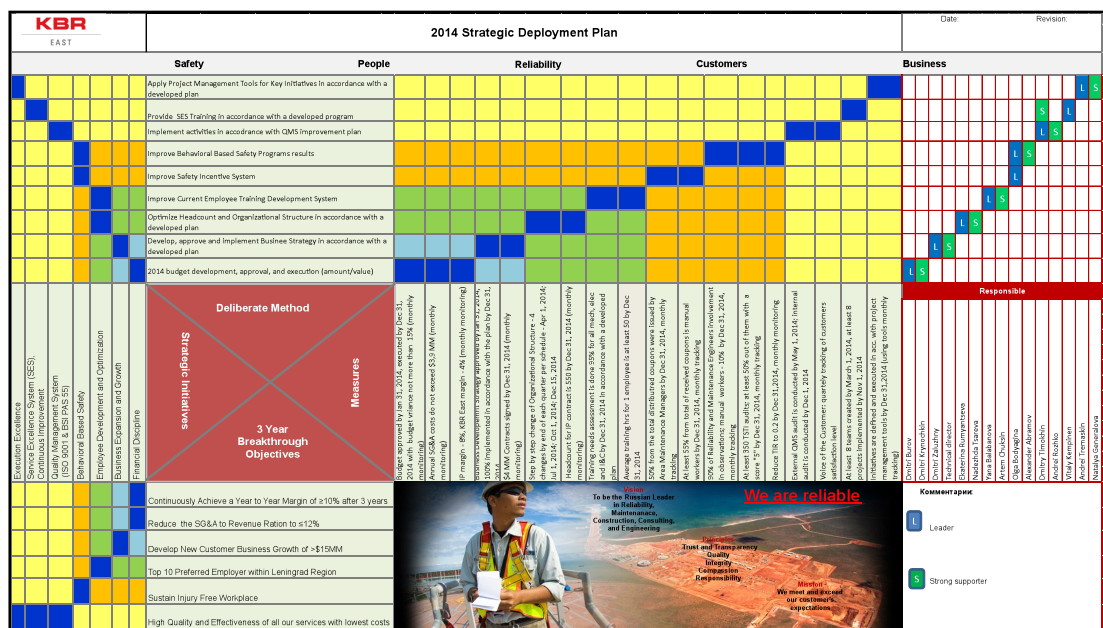


Figure 6.3. Strategic Development Plan of KBR (KBR Internal Materials)

According to Mr. Timokhin, the 5S system consists of five steps. These are sorting, simplifying, systematic cleaning, standardizing and sustaining. In general, there is a sequence of steps, each of which has its own task. Sorting aims to eliminate unnecessary items from the work area and complete an initial cleaning. All items used in the work can be divided into several groups (Figure 6.4). The first group of items is the things that are regularly used and these kinds of things have to be always at hand. This reduces time on search and time for the movement of workers. The second group of items is items used at regular intervals. For example cleaning equipment or special tools. There should be organized a special place for these type of things. The next group of items, which are used rarely or not at all, should be removed from the working area. (Timokhin 2014.)

The next step is simplifying. It means, finding a place for everything. Everything should be in place, clean and ready to use. Simplification is organizing the workplace to ensure safety and effectiveness (Figure 6.5).

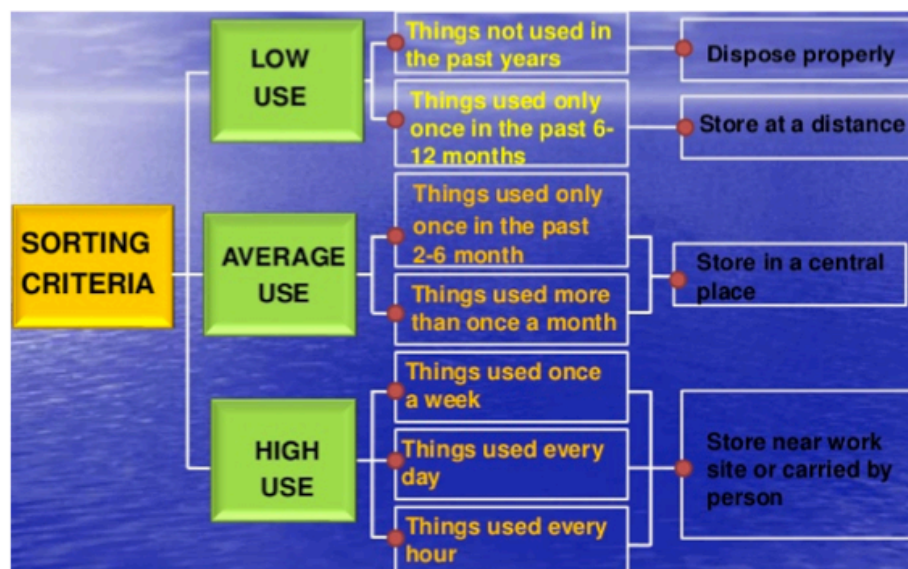


Figure 6.4. Sorting criteria (KBR Internal Materials)

The third step is to organize a systematic inspection for cleaning. Regular daily cleaning and inspection of work areas and equipment will help to understand the current status and determine if a corrective action is required. The idea is make daily cleaning and inspections easier. The steps of systematic cleaning are to identify points to check for performance, to determine acceptable performance, to mark equipment and controls with visual indicators, and to conduct daily cleaning and visual checks. (Timokhin 2014.)

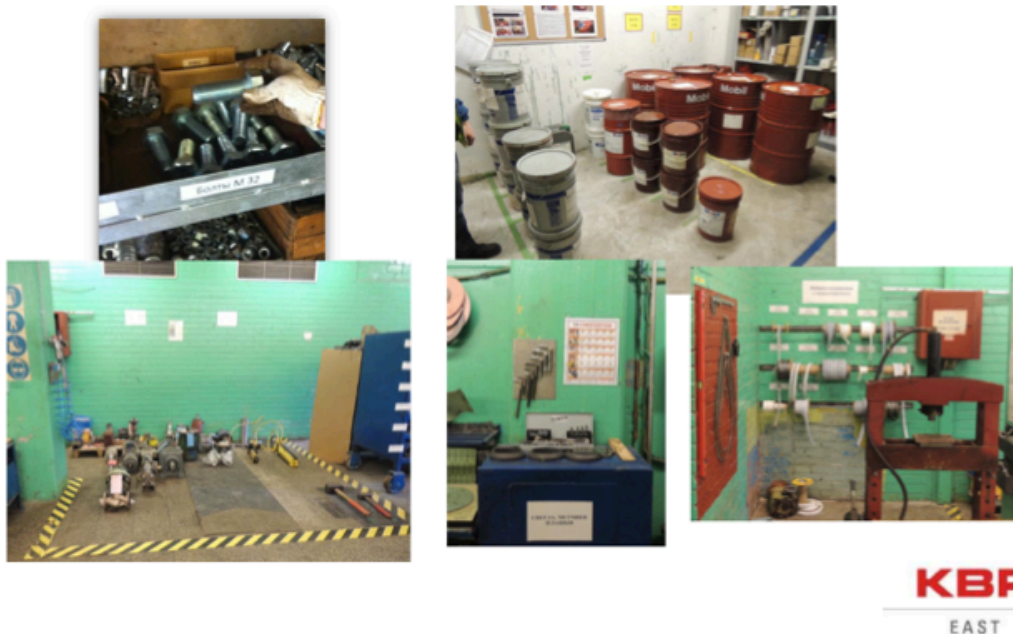


Figure 6.5. Simplifying (KBR Internal Materials)

The fourth step consolidates results. This step forms the standards that apply to all areas. Since the workplace team establishes the standards, everyone should have had some involvement in establishing the 5S system in their work area. Still, it is important to make these standards very clear. The stages of standardization are: Setting a routine check-list for each workspace, which will show what the command should be checked during self-examination; Introducing a multi-level audit where each level in the organization has a role in ensuring that 5S is maintained in working areas and that the 5S system develops and strengthens; Establishing and documenting standard methods, including regulations and circulars, across similar work areas (Figure 6.6).



Figure 6.6. Standardization (KBR Internal Materials)

Lastly, the fifth step must bring sustainability. If all the steps are done correctly, you will be able to visually see that everything is in its place. That is important, but not sufficient. A more systematic way to prevent backsliding and to support continuous improvement is needed. The steps of sustaining are: establishing and supporting workgroup on improvements, based on identified leaders in the implementation of the four steps; regular audits, using the 5S checklist; addressing backsliding and new opportunities found during routine checks; conducting scheduled, routine checks by team leads or supervisors or by people from outside of the workgroup. It is through sustaining activities that the practice of 5S is refined. When items are not returned to their homes, the cause is most likely to be that the home was inconvenient. When the work team addresses these problems, they improve the sustainability of 5S and, more importantly, they improve safety, morale, and productivity. (Timokhin 2014.)

6.5 Obstacles in the implementation of 5S

Despite the simplicity of the model, the implementation of the system often results in failure. Often, companies mistakenly view 5S as just a housekeeping activity. Apart from that, there is a number of obstacles in the implementation that leads to failures. According to a study conducted by Anthony Manos and Jennifer Molski there are: 1) lack of management support, 2) not enough time, and 3) resistance to change (Manos & Molski 2011, p.5).

Other barriers, which were identified by researchers are poor communication, the poor training and awareness of 5S and a significant barrier is the space between managerial level and shop floor employees (Ghodrati & Zulkifli 2012, p. 12).

Dmitry Timokhin also confirms that these factors are the main risks in the implementation of 5S. "In the case of KBR, we used a number of tools in order to avoid these risks. First of all, we have not experienced problems with the support of management, as the main initiative came directly from Mr. Brady. In cases with other companies, I recommend starting with the involvement of top management, they need to "be got sick" by this idea, and here it is needed the help of professionals in this area to achieve it " - said Mr. Timokhin. (Timokhin 2014.)

Secondly, we have launched some PR campaign. The basic idea was to bring to the workers the need for change with the idea to improve safety in the workplace. Mr. Brady personally met with workers to convey to them this idea. Next, using various means (Internet, personal meetings, direct telephone line), we have provided feedback directly to Mr. Brady "- continued Mr. Timokhin (Ibid).

"Next, we launched a pilot area in which we tried to work out all steps of implementation, taking into account the specifics of the company. But the most interesting thing that we found that people watching the pilot site have begun to

change some things independently at their workplace. Today, almost 90% of production sites have implemented a 5S system" - told Mr. Timokhin. (Ibid.)

"Of course, we are faced with a situation of backsliding and made sure that this situation can be overcome only by training and by practice regular audits. In addition, a very useful tool is the visualization and information desks (Figure 6.7)" - summed up Mr. Timokhin (Ibid).

Exactly the same findings were reported in the study conducted by Manos & Molski . Among the means to overcome these obstacles, respondents singled out training and coaching, show the benefits, audits and reward, communication and sharing best practices (Manos & Molski 2011, p.6).



Figure 6.7. Information desk (KBR Internal Materials)

6.6 Benefits of 5S

What are the other benefits of the introduction of 5S? According to Olofsson, one can highlight the direct and indirect benefits from the implementation of the system. The direct benefits it considers are improved safety, wellbeing and productivity. The indirect benefit is building the foundation for further improving the company (Olofsson 2015, p. 13).

Olofsson stresses that safety is improved by being serious about keeping everything in order. When everyone starts following the routines and rules, a safe and secure circle is created (Olofsson 2015, p. 14). In case of wellbeing, he notes that working in a functional and clean place, which was done personally by employees, creates good feelings and pride, and it increases motivation and morality of the staff (Olofsson 2015, p. 15).

With regard to productivity Olofsson identifies three main reasons that affect productivity growth. These are increased productivity and quality by making fewer mistakes, increased productivity by better reliability and increased productivity by less searching (Olofsson 2015, pp. 17-19).

As for the indirect benefits, Olofsson pays attention to the fact that working after a standard that is always being improved is a supporting pillar of successful concepts like Lean Manufacturing and Total Quality Management, so one can consider 5S as the first step on this way (Olofsson 2015, p. 21).

In turn, Mr. Brady said, despite the fact that the main task was to engage staff with the idea to do the work safely, he can confirm that the implementation of 5S brought both tangible and intangible benefits (Figure 6.8). First of all, an indicator of material benefits can be measured as a ROI (return on invest), which was 1.5. Among the intangible benefits can be identified: increasing the involvement of staff in improving; improved safety, increasing customer satisfaction, improving the company's reputation, and improving production standards. (Brady 2014.)

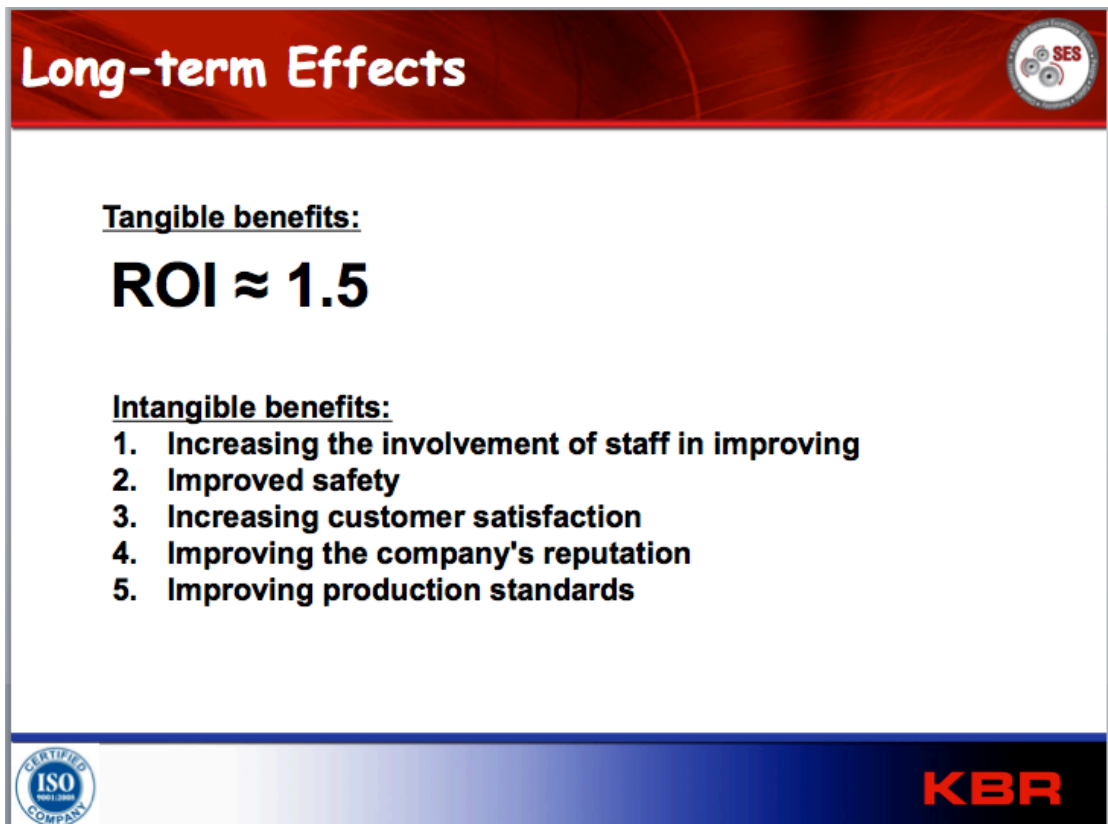


Figure 6.8. 5S long-term effects (KBR Internal Materials)

6.7 Main findings of the KBR case study

Summarizing the findings one can distinguish the following:

1. The main driver of change has been the CEO commitment to the principles of total quality management
2. The main objective was to involve staff in the process of change
3. The 5S system has been chosen as the most appropriate tool to achieve the objective
4. The criterion for the choice of 5S was the ease of implementation, as well as a visual opportunity to observe the results achieved

5. PR campaign of the agenda was conducted in order to avoid well-known obstacles
6. The idea of work safety was selected as agenda
7. A pilot site was originally selected to run the system
8. In order to avoid backsliding the following tools were used: regular coaching and training, regular audits, development of regulations for the daily self-assessment, direct communication with top management, the elicitation of the leaders and the creation of working groups headed by the leaders, a system of incentives and rewards.

7 Expert opinion

This section is dedicated to the expert opinion. First, information will be provided directly from an expert. Having more than 20 years of experience in various countries and being expert in the field of 5S implementation and research, professor Samuel Ho was chosen to give an expert opinion in this study. The following discussion focuses directly on the 5S system.

7.1 Who is Mr. Ho

Professor Samuel K. M. Ho (PhD in Mangt., FIQA, ISO9000 Lead Auditor, EQA Assessor) is the Professor of Strategic and Quality Management of the International Management Centres, UK. Before that, he was the Professor of Strategy and Quality at the Luton Business School, the first professor in that discipline in the UK. In 1987-88, he was awarded the Oshikawa Fellowship by the Asian Productivity Organization to do research in South East Asia and Japan. (CMQR.)

He has improved and defined its terms in English/Chinese and developed the world's first 5-S Audit Checklist, which was used for training in Malaysia under an Asian Development Bank Quality Expert assignment in 1993-94 at SIRIM.

In 1998, he successfully bid for a HK\$4.6 million project from the Industrial Support Fund to train 2,500 people over a 2-year period to become the world's first 5-S Lead Auditors. The response since launch has exceeded all expectations, and as a result, the HK 5-S Association has been founded by Prof. Ho in May 1999, and has now over 10,000 members. Furthermore, a 5-S Company Certification scheme has been launched since 2001, and by now 80 firms of all kinds have registered, all recorded substantial improvement in

safety, hygiene, quality, productivity, image and competitiveness. He has been the Principal Consultant to the Tao Heung Group on 5-S and ICSS since 2001. In 2003, basing on the 5-S foundation and the ICSS framework, he had successfully led the Tao Heung Group to win 4 awards from the CRE Award. (Zoominfo 2015.)

7.2 Why 5S works

According to Ho, 5S is actually what every business wants. To achieve those vital performance benefits it just happens that you need to Sort, Straighten, Shine, Standardize and Sustain in order to create the right workplace situation that will deliver the competitive performance a business needs. 5S does not require major investment and deep theoretical knowledge. The system is based on simple steps that you need to perform on a daily basis. The key here is the concept daily. All that ultimately leads to the formation of self-discipline among the workers. (Ho 2010, p.45.)

“Self-discipline means instilling the ability of doing things the way they are supposed to be done”(Ho 2010, p.47). In other words, the goal is to make the workplace with good habits. It is based on the involvement and training how it should be done. So it breaks the old bad habits and form new attitudes. Daily activities and practice create the discipline, which is an integral part of production safety and productivity (Ibid).

Ho suggests, based on McGregor's "X" and "Y" theories of human behavior and also "Z" Ouchi theory that " In order to make a successful and painless transition from Theory X to Theory Y and then to Theory Z, organizations should install some degree of discipline in the form of procedures and work instructions. Consequently, self-discipline should be encouraged. Finally, the employees will develop their own self-discipline framework. Ouchi has refined McGregor's theory, as he found out that self-discipline is important for organizational success". (Ho 2014, p.273.)

Thus one can consider that the 5S system could be viewed as such tool, which secure this transition.

7.3 5S is the foundation to continuous improvement

Ho says that the events of recent years in all areas of life (political, economic, social and technological factors) have undergone significant changes, which led to a paradigm shift in the process of strategic change of companies (Figure 7.1). He argues: "The new idea here is that action leads to behaviour change of the employees. This arises from the learning process". (Ho 2007, p. 2.) If the learning process is built properly it will inevitably lead to a change in behavior, corporate vision and culture in general. Ho confirms that by example of 'Kaizen': "Being action oriented, 5-S is a powerful quality tool for everyone to get involved in the improvement process. Therefore, it is a very effective way to implement the new management paradigm."(ibid.)

The traditional strategic change process

Vision ==> Mission ==> Behaviour ==> Action ==> Culture

A new paradigm is:

Action ==> Behaviour ==> Mission ==> Vision ==> Culture

Figure 7.1. New paradigm (Ho 2007, p.2)

Based on the experience derived from the implementation of the comprehensive quality management system and through in-depth research in Hong Kong, Japan and the UK, Ho has identified the 5-S practice as the step number one for a TQM/BE programme (Figure 7.2). He realized that "5-S is an important step towards process improvement, the key to ISO 9000, ISO 14000 and OHSAS 18001 and can be used as an integrating tool towards "Business Excellence"" (Figure 7.3). (Ho 2007, p.2.)

5-S → ISO 9000 / ISO 14000 / OHSAS 18001 (6-σ) → TQM/BE

Figure 7.2. From 5S to TQM (Ho 2007, p.2)

To understand how this model works, it is necessary to look at each step in detail. The implementation of 5S in addition to the staff involvement and

motivation brings clarity to existing business processes. BPR causes re-defining and designing your business process effectively in order to meet the business objectives in accordance with the needs of your customers. QCCs encourage the employees to participate in continuous improvement. They improve human resources capability to achieve the business objectives. ISO unites the practises of the three previous steps, creating a quality management system. TPM is a logical step, where lie the approach of 5S and the procedures required by ISO standards. In case of successful implementation of these five steps the company is ready to reach TQM. (Ho 1999, p.75.)

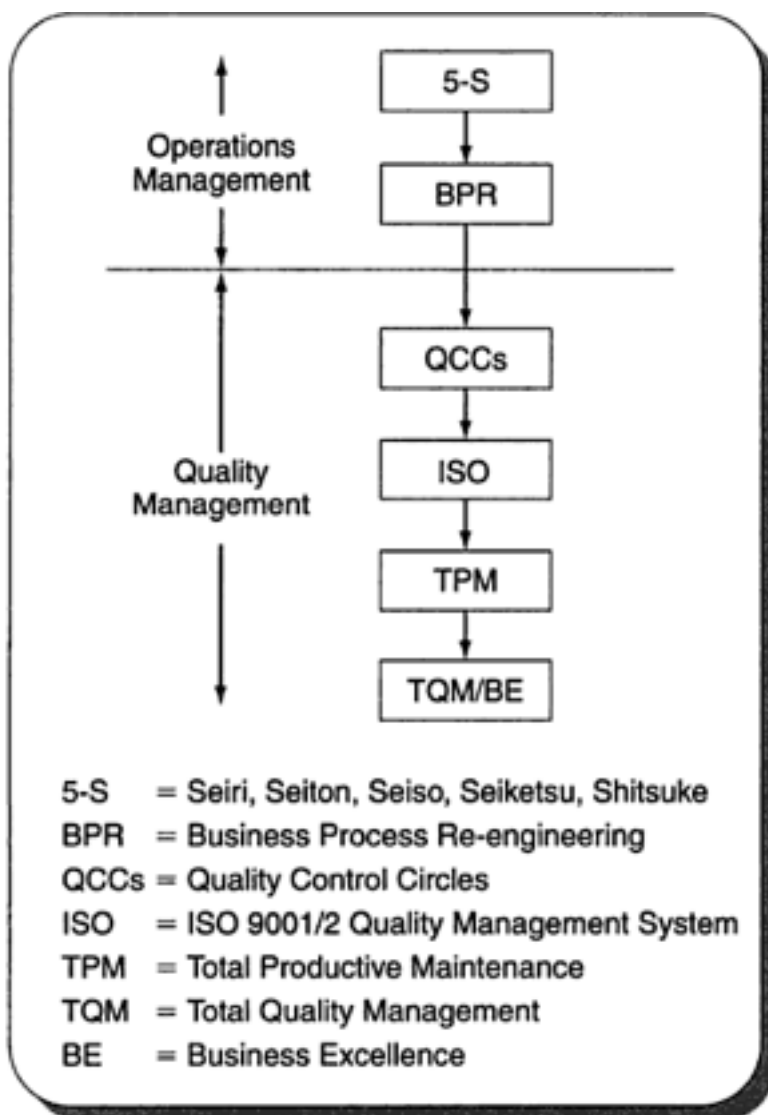


Figure 7.3. TQMEX model (Ho 1999, p.70)

7.4 Summary of the section

Taking into account the vast experience of Professor Ho in the field of research and practical implementation of 5S, one can agree with his opinion that this model can be applied to achieve certain goals. These tasks include the desire to involve staff in the process of change and improvements; attempt to change the behavior of the workers, which ultimately leads to changes in production culture generally and can serve as a foundation for further continuous improvement and the creation of a quality management system in the company.

8 Data analysis

The literature review, which was carried out in the second section of this study, led to the following conclusions:

All methods are based on the main principles:

- Reduction of waste and defects
- The processes and standardization
- Customer focus
- Involvement of all employees in process improvement
- Continuity of action

It was also found out that for the company to reach the successful implementation of a particular model, it is needed to determine the current state of affairs in the company. And based on this finding to select the most suitable approach.

The case study of Syassky PPM revealed that the company has not a quality management system. Efforts of the quality department aimed only at identifying defects. The process of identifying the causes and the correction process is missing. In addition, there is no engagement and motivation of staff in the process of improvement, there is only one objective to execute the production plan. Further, the company has a quite authoritarian management style; as a consequence there are no clear lines of responsibilities between departments.

The case study of KBR showed that the company had more or less similar problems. The implementation of the 5S program really helped to solve these problems. Furthermore, the time needed to set this system was much lower than expected. However, in the case of KBR there was a major driver the CEO, who is committed to the philosophy of quality management and has the necessary knowledge and practical experience.

The expert's opinion confirmed that the 5S system is a successful tool, particularly for solving problems similar to those, which were found in the case study of Syassky PPM. Moreover, he argues that 5S is the foundation for further improvements and from this point the company can move towards total quality management.

Thus, it can be assumed that the 5S system may be seen as the first step of Syassky PPM in the process of improving their efficiency, especially considering the factor that the 5S model is simple and does not require large investments in comparison with other methods. However, one must take into account the factor that if KBR did not require the involvement of specialists to implement this approach, due to CEO experience, in case of SPPM, it will be necessary to attract professionals. Firstly, experts will be required for the formation of a positive attitude of the top management of the company, because there is now quite a skeptical attitude to such instruments. Secondly, experts will be required in the process of implementation and training of employees. Also in the case of SPPM, it is necessary to analyze the idea of the agenda. What kind of images will reflect needs and expectations of employees, which can be grouped under the idea of the introduction of 5S?

Hence, the road map might look as shown in Figure 8.1.

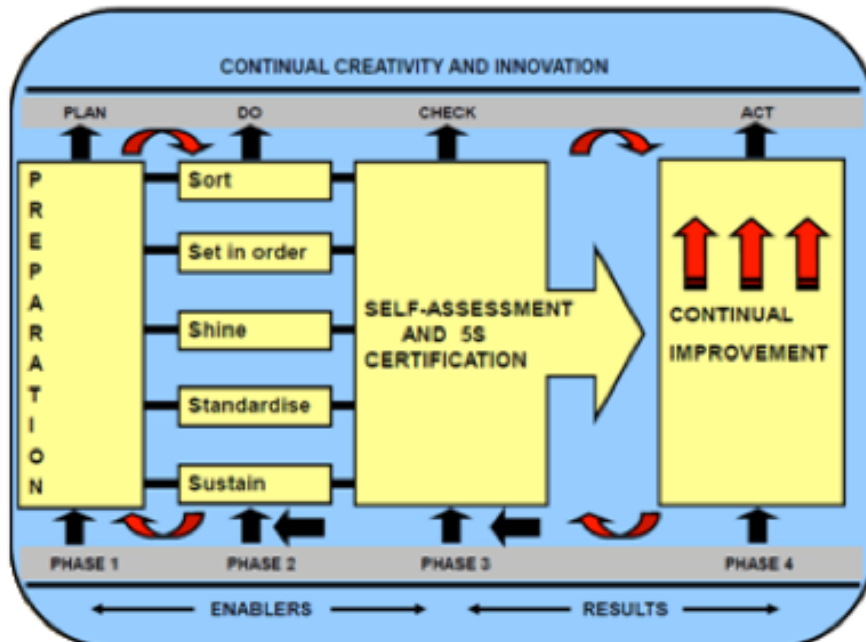


Figure 8.1. Road map

The first phase is preparation that will include:

- The choice and involvement of experts
- Coaching of top managers
- Selection of the pilot area
- The development of an implementation plan
- The choice of the agenda
- PR campaign
- Setting feedback instruments

The second phase is the implementation of the 5S system. The second phase will require the establishment of a working group directly on a selected plot, as well as conducting regular audits. The result of the successful completion of the second phase will be the standardization process on the basis of which the employees will be able to carry out daily self-assessment in accordance with the standards. This is the third phase. Finally, standardization and transition to a daily self-assessment system will lead to sustainability of the system and will change behavior of the employees, and as a consequence will change a

production culture in general. Upon successful introduction, the company will be able to see the clarity of the existing production processes, and will be able to detect existing losses, so it can be considered as the driver for continuous improvement. This is the fourth phase.

9 Conclusion

Summing up, in the course of the study, answering the main question of the study, the main prerequisites for the implementation of quality systems in Russia were discovered. There is the inefficiency of the state in combination with high level of corruption. The existence of a primitive raw materials economy hinders a) innovation development, b) massive growing of the middle class, and c) improving the living standards of the people. There is a lack or low levels of internal competition caused by the dominance of state-owned companies as well as demographic risk. The existing experience in the construction of such systems in the period of socialist development of the country, which were later found applied in other countries. Then Russia occupies an intermediate position on the mental map of the world, which leads to flexibility in the choice of methods and models.

Based on the literature review, as a theoretical part, and the study of two cases SPPM and KBR as an empirical part, the understanding was reached that given the similarity of the prerequisites as well as the industry affiliation, the 5S system is an acceptable tool for the first step on the road to efficiency of the SPPM.

Further, taking into account the findings of the KBR case study as well as the expert's opinion possible steps of implementation of this system was shown.

However, there were a few questions that emerged during the study and that require a separate research. First, against the backdrop of a huge number of examples of well-functioning models of quality management as well as prerequisites for implementing them in Russia, which were found in this study, there is quite a skeptical attitude of the top managers to use such tools. The question arises: What are the factors that form this attitude of top management? Is it the result of lack of information or is there a gap in education or is there may be something else?

Secondly, in the case of Russia, there is not really a clear understanding of the process of selecting ideas for the agenda. What are the motivators that can really reflect the expectations of employees in today's environment, especially when we are talking about companies around which a city was formed?

The answers to these questions will help practitioners in the field of quality management to find the most suitable approach for companies that have decided to look inside the company with the idea to be more effective.

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Acur, N. & Englyst, L. 2006. Assessment of strategy formulation: how to ensure quality in process and outcome. INTERNATIONAL JOURNAL OF OPERATIONS & PRODUCTION MANAGEMENT, 26(1), pp. 69-91.

American Society for Quality. <http://asq.org/learn-about-quality/continuous-improvement/overview/overview.html>. Accessed on 10.05.2014.

Atkinson, R. 2013. Competitiveness, Innovation and Productivity: Clearing up the Confusion. THE INFORMATION TECHNOLOGY & INNOVATION FOUNDATION.

Baranov, N. 2010. The political grounds of Russia's modernization. BULLETIN OF PHILOSOPHY AND SOCIOLOGY AT KSU, KURSK, 2010, №2, pp.140-143.

Brady, G. 2014. Interview. Study the experience of the KBR, November 2014, Svetogorsk, Russia.

Bernolak, I. 1997. Effective measurement and successful elements of company productivity: The basis of competitiveness and world prosperity. INTERNATIONAL JOURNAL OF PRODUCTION ECONOMICS, 52(1-2), pp. 203-213.

Bergquist, B., Garvare R. & Klefsjö, B. 2007. Invited chapter, Chapter twelve: Quality Management for Tomorrow. Edited by: Foley, K., Hensler, D., Jonkers, J., in Quality Management and Organizational Excellence: Oxymorons, Empty Boxes or Significant Contributions to Management Thought and Practice? SAI GLOBAL LTD., SYDNEY.

Bergquist, B., Garvare, R., Eriksson, H., Hallencreutz, J., Langstrand, J., Vanhatalo, E., Zobel, T. 2012. Alive and kicking– but will quality management be around tomorrow? A SWEDISH ACADEMIA PERSPECTIVE, QUALITY INNOVATION PROSPERITY, XVI/2–2012, pp.1-18.

Bessant, J. , Caffyn, S. , Gallagher, M. 1999. An evolutionary model of continuous improvement behaviour. TECHNOVATION, 21 (2001), p.p. 67–77.

Bessonova, E. 2010. The Impact of Internal Competition and Foreign Investments on the Efficiency of Russian Industrial Enterprises. JOURNAL PRIKLADNAYA EKONOMETRIKA, NO 1, pp. 106—127.

Bliakhman, L., Gazizullin, N. 2014. Theoretical foundation of the transition to socio-innovative systematic economy. JOURNAL PROBLEMS OF MODERN ECONOMICS, ISSUE N 3 (51), 2014, pp. 7-14.

Bhuiyan, N. & Baghel, A. 2005. An overview of continuous improvement: from the past to the present. *MANAGEMENT DECISION*, VOL. 43, NO. 5, pp. 761-771.

Castells, M. 2001. 'Information technology and global capitalism'. In W. Hutton and A. Giddens, (eds.), *On The Edge, Living with global capitalism*, LONDON: VINTAGE.

Center for Management Quality Research.
<http://www.cmqr.mit.edu.au/staff/sam.html>. Accessed on 12.09.2015.

Chen Yen-Tsang, João Mário Csillag, Siegler, J., Batista, M. 2012. Behavioral Operations: Applying the Theory of Reasoned Action in Continuous Improvement Capabilities. XXXVI ENCONTRO DA ANPAD, RIO DE JANEIRO, 22-26 September 2012.

Cole, R. 2001. From Continuous Improvement to Continuous Innovation. *QMJ*, VOL. 8, № 4, 2001, ASQ, pp.7-21.

Creswell, J. 2003. *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. SAGE PUBLICATIONS.

Creswell, J. 2007. *Qualitative Inquiry & Research Design: Choosing Among Five Approaches*. SAGE.

Crotty, M. 1998. *The Foundations of Social Research: Meaning and Perspective in the Research Process*. SAGE.

Dabhilkar, M. & Bengtsson, L. 2004. CONTINUOUS IMPROVEMENTS IN SWEDEN: RESULTS OF THE 2ND INTERNATIONAL CONTINUOUS IMPROVEMENT SURVEY. *CINET 2004*, p.p. 114-126, ISBN 1-74108-069-X.

Dale, B., Van der Wiele, T. & Van Iwaarden, J. 2007. *Managing quality*. 5TH ED, BLACKWELL PUBLISHING LTD.

El-Namrouy, K., AbuShaaban M. 2013. Seven Wastes Elimination Targeted by Lean Manufacturing Case Study "Gaza Strip Manufacturing Firms". *INTERNATIONAL JOURNAL OF ECONOMICS, FINANCE AND MANAGEMENT SCIENCES*, VOL. 1, NO. 2, 2013, pp. 68-80.

Eurostat. 2013. Key figures on Europe. Online Eurostat yearbook, minimum wages, available at:
<http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tps00155&plugin=1>. Accessed on 10.05.2014

Feilzer, M. 2010. Doing mixed methods research pragmatically: Implications for the rediscovery of pragmatism as a research paradigm. *JOURNAL OF MIXED METHODS RESEARCH*, VOL.4, pp. 6 – 16.

Feld, W. 2001. Lean Manufacturing: Tools, Techniques, and How to Use Them. CRC PRESS.

Fey, C. & Denison, D. 2003. Organizational Culture and Effectiveness: Can American Theory Be Applied in Russia? ORGANIZATION SCIENCE, NOV/DEC 2003, VOL. 14, ISSUE 6, pp. 686-706

Financial Times Global 500. 2013. <http://www.ft.com/indepth/ft500>. Accessed on 10.05.2014

Fisher, N. & Nair, V. 2009. Quality management and quality practice: Perspectives on their history and their future. APPL. STOCHASTIC MODELS BUS. IND. 2009; 25: pp.1–28.

Freedom House. <https://freedomhouse.org/>. Accessed on 23.02.2015

FREEDOM HOUSE REPORT. 2015. Freedom in the World 2015. <https://freedomhouse.org/report/freedom-world/freedom-world-2015#.VOs1rShG89U>. Accessed on 23.02.2015

FTS, Federal Tariff Service. <http://www.fstrf.ru/eng>. Accessed on 20.06 2015

G20. <https://g20.org/>. Accessed on 20.02.2015

Gershon, M. 2010. Choosing Which Process Improvement Methodology to Implement. JOURNAL OF APPLIED BUSINESS & ECONOMICS, VOL. 10, ISSUE 5, pp. 61-69.

Ghodrati, A. & Zulkifli, N. 2012. A Review on 5S Implementation in Industrial and Business Organizations. OSR JOURNAL OF BUSINESS AND MANAGEMENT (IOSR-JBM) ISSN: 2278-487X, VOLUME 5, ISSUE 3 (NOV. - DEC. 2012), pp. 11-13.

Gorshkov, M., Tikhonova, N. & Krumm, R. 2010. Are the Russian society ready to modernization. MOSCOW: PUBLISHING HOUSE "VES MIR".

Gupta, A. 2013. Environmental and pest analysis: An approach to external business environment. MERIT RESEARCH JOURNAL OF ART, SOCIAL SCIENCE AND HUMANITIES ,VOL. 1(2) pp. 013-017, <http://www.meritresearchjournals.org/assh/index.html>. Accessed on 21.06.2014

Hale, D. 2010. An Introduction to triangulation. UNAIDS Monitoring and Evaluation Fundamentals.

Hammer, M. & Champy, J. 1993. Reengineering the Corporation: A Manifesto for Business Revolution. NEW YORK: HARPERCOLLINS.

Hayes R., Pisano, G., Upton, D. & Wheelwright, S. 2005. Operations, Strategy, and Technology: Pursuing the competitive edge. JOHN WILEY & SONS, N.J.

Ho, S. 1999. Operations and Quality Management. INTERNATIONAL THOMSON BUSINESS PRESS.

Ho, S. 2007. Business Excellence through 5-S and 6-Sigma. 2007 OXFORD BUSINESS & ECONOMICS CONFERENCE, ISBN : 978-0-9742114-7-3.

Ho, S. 2010. From 5-S to construction excellence. JOURNAL MASTER BUILDERS, № 4, 2010, pp. 44-48.

Ho, S. 2014. The Green 5-S Model for Organisational Learning and Development. Chapter 15, pp. 268-284 of the book: Learning Models for Innovations in Organizations: examining Roles of knowledge Transfer and Human Resources. Directed by Lindsay Johnston. Published by Business Science Reference, USA.

Imai, M. 1997. Gemba Kaizen: A Commonsense, Low-Cost Approach to Management. MCGRAW-HILL PUBLISHING COMPANY.

Inozemtsev, V. 2014. Obsessed by "superpower status". NEWSPAPER "MOSKOVSKY KOMSOMOLETS", №26579 , 23 JULY 2014, p. 3.

International Organization for Standardization.
<http://www.iso.org/iso/home/standards/management-standards.htm>. Accessed on 12.06.2014.

Institute of Demography (IDEM). National Research University Higher School of Economics <http://www.hse.ru/en/demo/>. Accessed on 15.01.2015.

Institute of Management Development. <http://www.imd.org/>. Accessed on 22.02.2015.

Institute of Management Development. 2014. IMD World Competitiveness Yearbook 2014 Results. Available on: <http://www.imd.org/wcc/news-wcy-ranking/>. Accessed on 22.02.2015.

International Paper. <http://www.internationalpaper.com/>. Accessed on 24.11.2014 .

Internet portal of the world economy. <http://www.ereport.ru/>. Accessed on 22.02.2015.

Jones, A. 2006. Dictionary of Globalization. UK: POLITY PRESS.

Juran, J. & Blanton Godfrey, B. 1998. JURAN'S QUALITY HANDBOOK. 5TH ED., MCGRAW-HILL.

Kane, M., Ivanov, V., Koreshkov, V. & Skhirtladze A. 2008. Sistemy, metody i instrumenty menedzhmenta kachestva. Russian edition. Study Guide PUBLISHING HOUSE: PETER, ST. PETERSBURG.

KBR East company, <http://www.kbr-east.com/>. Accessed on 28.11.2014.

KBR , Internal Materials.

Klefsjö, B., Bergquist, B. & Edgeman, R. 2006. Six Sigma and Total Quality Management: Different Day, Same Soup? INTERNATIONAL JOURNAL OF SIX SIGMA AND COMPETITIVE ADVANTAGE, 2(2), pp.162-178.

Klefsjö, B., Bergquist, B. & Garvare, R. 2008. Quality Management and Business Excellence, Customers and Stakeholders – Do we Agree on What We are Talking About, and Does it Matter? THE TQM JOURNAL, 20(2), pp.120-129.

KOF Swiss Economic Institute. <http://globalization.kof.ethz.ch/>. Accessed on 20.02.2015

KOF Swiss Economic Institute. 2014. KOF Index of Globalization available on:http://globalization.kof.ethz.ch/media/filer_public/2014/04/15/rankings_2014.pdf. Access on 20.02.2015.

Kohlbacher, F. 2006. The Use of Qualitative Content Analysis in Case Study Research. FORUM: QUALITATIVE SOCIAL RESEARCH SOZIALFORSCHUNG, VOLUME 7, NO. 1, ART. 21 JANUARY 2006.

Kudrin, A. & Gurevich E. 2014. A New Growth Model for the Russian Economy. JOURNAL "VOPROSY EKONOMIKI", № 12, 2014, pp. 4-36.

Kudryashov, A. 2012. Lean Manufacturing: IMPLEMENTATION CHALLENGES. BULLETIN OF THE UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANISATION, Russia, number 6, 2012, pp. 60- 69.

Kulikov, S. 2014. 85 years later. JOURNAL CBK, № 4, 2014, pp. 14-17

Latfullin, G. & Gromova, O. 2004. Organizational Behavior. UNIVERSITY TEXTBOOK. PUBLISHING HOUSE "PETER". Available on <http://www.litmir.me/br/?b=133675>. Accessed on 20.12.2014.

Lesonline. Internet portal for the wood industry. http://www.lesonline.ru/analitic/?cat_id=12&id=272592. Accessed on 20.12.2014.

Manos, A. & Molski, J. 2011. The very best of 5S. 5S Benchmarking Survey Report. Publisher: ANTHONY MANOS.

Maslow, D., Chileshe, N., Watson, P. & Belokorovin, E. 2005. THE DEPLOYMENT OF TOTAL QUALITY MANAGEMENT (TQM): THE RUSSIAN EXPERIENCE. In: Khosrowshahi, F (Ed.), 21st Annual ARCOM Conference, 7-9 September 2005, SOAS, University of London, Association of Researchers in

Construction Management, Vol. 1, pp. 201-214.

Mardani, A. & Kazemilari, M. 2012. Relationship between national culture and TQM implementation. Case study: Iranian multinational electrical manufacturing companies. ASIAN JOURNAL OF MANAGEMENT RESEARCH ,VOLUME 3 ISSUE 1, 2012, pp. 293-312.

Marshall, C. & Rossman, G. 1999. "Designing Qualitative Research". 3 RD EDITION, SAGE PUBLICATIONS, LONDON, UK.

Martínez-Lorente, A., Dewhurst, F. & Dale, B., 1998. "Total quality management: origins and evolution of the term". THE TQM MAGAZINE, VOL. 10, ISSUE: 5, pp.378 – 386

McDonald, P. & Temple, J. 2008. Demographic and Labour Supply Futures for Australia. AUSTRALIAN DEMOGRAPHIC AND SOCIAL RESEARCH INSTITUTE, Final report.

McKinsey Global Institute. 2009. Lean Russia: Sustaining economic growth through improved productivity. WASHINGTON, D.C.: MCKINSEY & COMPANY, INC.

Message from the President of the Russian Federation Medvedev D. to the Federal Assembly of the Russian Federation on 12 November 2009. Official web site of the President of Russia Medvedev D. 2009.
<http://www.kremlin.ru/transcripts/5979>. Accessed on 28.02.2015

Migranyan, A. 2006. Putin's reforms state structure Russian policy. LECTURES / ED. NIKONOVA M. 2006.

Mishin, V. 2005. Upravlenie kachestvom. Russian edition. PUBLISHING HOUSE UNITY. MOSCOW. ISBN 5-238-00857-0.

Naryshkin, S. 2007. The Innovation Constituent of Investment Process. JOURNAL VOPROSY ECONOMIKI, №5, 2007, pp. 52-64.

Nayyar, N. 2006. Globalization, History and Development: A Tale of Two Centuries. CAMBRIDGE JOURNAL OF ECONOMICS, № 30.

Neely, A., Adams, C., & Kennerley, M. 2002. The Performance Prism: The scorecard for measuring and managing business success. FINANCIAL TIMES PRENTICE HALL LONDON.

Neely, A., Gregory, M., & Platts, K. 2005. Performance measurement system design: a literature review and research agenda. INTERNATIONAL JOURNAL OF OPERATIONS & PRODUCTION MANAGEMENT, 25(12), pp. 1228-1263.

Nigmatulin, B. 2013. How much high electricity prices are dangerous. "EXPERT", № 16 (848), APRIL 2013, available at
<http://ipem.ru/news/publications/633.html> . Accessed on 28.02.2015

OECD. 2011. Labour productivity levels in the total economy. Available at <http://stats.oecd.org/Index.aspx?DatasetCode=LEVEL> . Accessed on 10.03.2015

Olofsson, O. 2015. Succeeding with 5S. PUBLISHED BY WCM CONSULTING AB.

Ouchi, F. 2004. A Literature Review on the Use of Expert Opinion in Probabilistic Risk. Analysis. WORLD BANK POLICY RESEARCH WORKING PAPER 3201, February 2004.

Pankaj, M., Singh, M., & A Shrouy, V. 2013. A Review: Literature Survey for the Implementation of Kaizen. INTERNATIONAL JOURNAL OF ENGINEERING AND INNOVATIVE TECHNOLOGY (IJEIT), VOLUME 3, ISSUE 1, JULY 2013, pp.57-60.

Paraschivescu, A. 2013. Japanese Quality Science and Culture. ECONOMY TRANSDISCIPLINARITY COGNITION, VOL. 16, ISSUE 1/2013, pp.43-49.

Peng, G.& Nunes, M. 2007. Using PEST Analysis as a Tool for Refining and Focusing Contexts for Information Systems Research. ECRM 2007: 6TH EUROPEAN CONFERENCE ON RESEARCH METHODOLOGY FOR BUSINESS AND MANAGEMENT STUDIES, pp. 229-237.

Pirasteh, R. & Fox, R. 2010. Profitability with No Boundaries: Optimizing TOC and Lean Six Sigma. AMERICAN SOCIETY FOR QUALITY. QUALITY PRESS, MILWAUKEE 53203.

Porter, M. 1990. "The Competitive Advantage of Nations. HARVARD BUSINESS REVIEW, MARCH 1990.

PP&S, inc. 2013. White paper. Quality Management: Then, Now and Toward the Future. Available at http://www.pp-s.com/Files/PPSWP_QMSbeyondprod.pdf . Accessed on 12.06.2014.

Qamar, B. 2012. Towards a hybrid model of strategic change: Combining revolutionary and evolutionary approaches together. INTERNATIONAL JOURNAL OF MANAGEMENT AND STRATEGY, VOL. NO.3, ISSUE 5, JULY-DEC.2012, pp. 1-10.

Radnor, Z. 2010. Review of Business Process Improvement Methodologies in Public Services. ADVANCED INSTITUTE OF MANAGEMENT RESEARCH.

Rath & Strong. 2003. Rath & Strong's Six Sigma Leadership Handbook. JOHN WILEY & SONS, INC., HOBOKEN, NEW JERSEY.

Reid, D. & Sanders, N. 2011. Operations Management: An Integrated

Approach. FOURTH EDITION, JOHN WILEY & SONS, INC.

Ritchie, J. & Lewis, J. 2003. QUALITATIVE RESEARCH PRACTICE: A Guide for Social Science Students and Researchers. SAGE PUBLICATIONS.

Roghanian, P., Rasli, A., Kazemi, M. & Gheysari H. 2012. Productivity Tools: TPM and TQM. IJFPSS, VOL 2, NO.4, PP. 65-69, DEC , 2012.

Rosstat (Russia).

http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/population/demography/. Accessed on 12.01.2015

Rowe, G. & Wright, G. 2001. Expert Opinions in Forecasting: The Role of the Delphi Technique. INTERNATIONAL SERIES IN OPERATIONS RESEARCH & MANAGEMENT SCIENCE VOLUME 30, 2001, pp. 125-144.

Sai Global. <https://www.saiglobal.com/> . Accessed on 12.01.2015

Sánchez, J. 2012. Assessing Sustainability of the Continuous Improvement Through the Identification of Enabling and Inhibiting Factors. Dissertation submitted to the faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of Doctor of Philosophy In Wood Science and Forest Products, August 9, 2012 Blacksburg, VA. Available at http://scholar.lib.vt.edu/theses/available/etd-08222012-183238/unrestricted/Madrigal_J_D_2012_f1.pdf . Accessed on 14.06.2014.

Saunders, M., Lewis, P. & Thornhill, A. 2009. Research methods for business students. FIFTH EDITION, PRENTICE HALL, FINANCIAL TIMES.

Sower, V. & Fair, F. 2005. There is More to Quality than Continuous Improvement: Listening to Plato. SAM HOUSTON STATE UNIVERSITY, QMJ VOL. 12, №. 1, ASQ 2005, pp. 8-20.

Sayssky Pulp and Paper Mill. <http://syas.ru/eng/index.html>. Accessed on 25.09.2015.

Syassky PPM internal materials.

Strategy 2020: New Growth Model - a new social policy. INTERIM REPORT ON THE WORK OF THE EXPERTs on topical issues of socio-economic strategies RUSSIA FOR THE PERIOD TO 2020.

Tangen, S. 2005. Evaluation and Revision of Performance Measurement Systems. A Doctoral Thesis, Woxén Centrum Department of Production Engineering Royal Institute of Technology Stockholm, Sweden, ISBN 91-7283-860-4.

Tashakkori, A. & Teddlie, C. 2003. Handbook of mixed methods in social and behavioral research. THOUSAND OAKS, CA: SAGE.

Thawesaengskulthai, N. 2007. Selecting Quality Management and Improvement Initiatives: Case studies of industries in Thailand. Thesis submitted to the University of Nottingham for the degree of Doctor of Philosophy.

The World Bank. <http://www.worldbank.org/>. Accessed on 21.02.2015.

The World Bank. 2015. Doing Business 2015, Going Beyond Efficiency. Available on:
<http://www.doingbusiness.org/~media/GIAWB/Doing%20Business/Documents/Annual-Reports/English/DB15-Full-Report.pdf>. Accessed on 21.02.2015.

The World Economic Forum. <http://www.weforum.org/>. Accessed on 21.02.2015.

The World Economic Forum. 2015. The Global Competitiveness Report 2014 – 2015. Available on:
http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2014-15.pdf. Accessed on 21.02.2015.

Timokhin, D. 2014. Interview. Study the experience of the KBR. November 2014, Svetogorsk, Russia.

TRANSPARENCY INTERNATIONAL. <http://www.transparency.org/>. Accessed on 23.02.2015.

TRANSPARENCY INTERNATIONAL. 2014. CORRUPTION PERCEPTIONS INDEX 2014: RESULTS. Available on:
<http://www.transparency.org/cpi2014/results>. Accessed on 23.02.2015.

Tushman, M. & O'Reilly, C. 2013. Organizational Ambidexterity: Past, Present and Future. Academy of Management Perspectives. Available at
http://www.hbs.edu/faculty/Publication%20Files/O'Reilly%20and%20Tushman%20AMP%20Ms%20051413_c66b0c53-5fcd-46d5-aa16-943eab6aa4a1.pdf. Accessed on 25.04.2014.

UNCTAD. 2011. World Investment Report 2011. Available at
http://unctad.org/en/Pages/DIAE/World%20Investment%20Report/WIR2011_WebFlyer.aspx. Accessed on 24.04.2014.

UN Population Division. 2011. World Population Prospects The 2010 Revision. [http:// www.unpopulation.org](http://www.unpopulation.org). Accessed on 12.01.2015.

US Census Bureau. <http://www.census.gov>. Accessed on 12.01.2015.

Voronina, A. & Pykhteev, Y. 2014. Innovative potential as a foundation of the long-term growth of the Russian economy. Journal PROBLEMS OF MODERN ECONOMICS, N 3 (51), 2014, pp. 25-30.

Ward & Rivani. 2005. An Overview of Strategy Development Models and the Ward-Rivani Model.

Womack, J. & Jones, D. 1996. Lean Thinking: Banish Waste and Create Wealth in Your Corporation. SIMON & SCHUSTER, NEW YORK.

Yin, R. 2003. Case study research, design and methods. (3rd ed., vol. 5). THOUSAND OAKS: SAGE.

Yuksel, I. 2012. Developing a Multi-Criteria Decision Making Model for PESTEL Analysis. INTERNATIONAL JOURNAL OF BUSINESS AND MANAGEMENT, VOL. 7, NO. 24, 2012, pp. 52-66.

Zoominfo. <http://www.zoominfo.com/p/Samuel-Ho/42716863> . Accessed on 19.09.2015.

24/7 Wall St., LLC. www.247wallst.com. Accessed on 01.03.2015.

24/7 Wall St., LLC. 2012. Report: The World's Most Resource-Rich Countries. Available on <http://247wallst.com/special-report/2012/04/18/the-worlds-most-resource-rich-countries/>. Accessed on 01.03.2015.

Appendix 1 Study plan

Method: Semi-structured individual interviews, participants will be offered the same issues affecting the object of study, use of a "conversational method" and all will be recorded on tape, duration 1 hour 30 minutes.

The purpose of the survey (interview) among 20 employees involved in the chain of products is to find out:

1. How participants understand the process of creating a product in general? What are the basic steps of creating a product they release?
2. How do they understand their place in the process of creating a product? What do they evaluate from their point of view of the importance of this stage? How do they rate their competence? What are the difficulties? What are their relationships with colleagues in the chain? What kind of DMP (decision makers), they can call?
3. How do they assess the activity of the enterprise as a whole? Why? What are the forecasts for the next few years?
4. What they believe is necessary to change the company? What is missing? Are they willing to participate in the process of enterprise development? What is for them the company as a whole, just a job, a part of life, the meaning of life?

Practical application:

- The ability to configure the information flows
- Identification and assessment of competence of participants the process of creating products
- Identification of weak areas
- Definition of the algorithm for further work
- Assessment of the relationship of the atmosphere in the company

- Identification of potential team members for processes of modernization

Thus formed four groups of questions. There are five questions in each group.

It is assumed that interview should involve representatives of various levels of management and product development areas, those that form the so-called value chain:

List of participants:

1. Production Director
2. Chief Engineer
3. Chief Technologist
4. Chief Power Engineer
5. Head of Logistic Department
6. Head of Supply Department
7. HR Specialist
8. CFO
9. Head of IT Department
10. Heads of production departments
11. Masters of production plots
12. Sales Director
13. Head of Marketing Department
14. Lawyer
15. Head of Security Service

Sets of questions:

Zero Group:

1. Name
2. Age and marital status
3. Education
4. How many years of experience for the enterprise
5. How was he/she hired by the company.

The first group of questions:

1. Could you describe the company which you represent as much as the whole process?
2. If I understood you correctly that you selected a few basic steps of creating the final product, please repeat them again?
3. How do you think these phases could exist independently?
4. In your opinion what is the main stage?
5. How do you evaluate, what is the main product for the enterprise, or what product do you think the company should produce in large quantities?

The second group of questions:

1. So you're working for the position Could you describe your functional, in other words, your responsibilities? We have talked with you about the stages of production, how would you assess the contribution of your plot to the common cause, well, like a percentage?
2. How do you assess your personal contribution? What prevents you open up to 100%?

3 Ok. If we were talking about sports, such as the baton and tried to shift it to the production process, as you see who should pass the baton to you and whom you should send it?

4 Continuing this theme, today your "band" is working harmoniously and can claim to be champions or is there something that prevents this?

5 Well, if draw the line under the allegory of our sport, you certainly know that every team has a coach, administrator or other person who helps team to achieve the results, so would you call somebody in the enterprise who can be classified as "decision makers"?

The third group of questions:

1. You participate in a company's life, you know all about "inside" situation of company as you see what are conditions, which the enterprise has today?

2. You said that the company is today , Why do you think so?

3. Well, let's fantasize in 5-10 years that could happen here, from your point of view?

4. Good, in connection with this what are your plans?

5. It is remarkable, and what do you think it is a common opinion about the company or is it merely your personal opinion?

The fourth group of questions:

1. It was an interesting part of our communication, if I understood you correctly that the company needed urgent action to upgrade it or it is the disease, which tends to come and go?

2. Continuing this analogy do you think the company should wait for help from the outside, the arrival of the new owner, such as purchase of company to the foreign partners, or it is able to solve problems, perhaps with the assistance of experts (doctors)?

3. Well, are you personally willing to participate in this "therapy"?

4. Do you have specific suggestions or thoughts on this?

5. And the last question, let's consider that the company was bought by foreign concern, do you know that there are certain requirements for the competence level of employees, how do you think you meet these requirements?

It is allow for the possibility of additional questions during the interview, for disclosing in more detail the relationship participant.

The evaluation of the data is in the form of qualitative research, identifying the general trend in the percentage each of items of the practical application of this research.