

Kenzhegaranova M.K.

On the questions of theories and technologies of continuous improvement

The article considers theories and technologies of continuous improvement. These theories allow organizations of all forms and types of economic activity grow and develop through management and implementation of continuous change. The article notes that success of the leading companies in the world does not only depend on the fact that they spend time on long-term improvements, but also on the fact that they carry out improvements in more than one area. Thus, understanding the essence of theories and techniques of continuous improvement, as well as their successful application creates opportunities for companies to increase their competitive advantage in the marketplace.

Key words: theories and technologies of continuous improvement, organizational changes, organizational change management, quality improvement.

Кенжеғаранова М.Қ.

Үзіліссіз жетілдіру теориялары мен технологиялары туралы

Мақалада үзіліссіз жетілдіру теориялары мен технологиялары қарастырылады. Өзгерістерді үнемі енгізу мен басқару арқылы және шаруашылық іс-әрекеттің барлық түрлерін, формаларын жетілдіруде осы қағидалар ұйымдардың өсуіне және дамуына үнемі ықпал етеді. Және осы мақалада әлемдегі басты компаниялардың табыстылығы – тек олардың жақсартуға ұзақ уақыт бөлуінде емес, сонымен қатар, олар жақсартуды белгілі бір аумақта жүргізуінде. Сондықтан да қағидалардың және үзіліссіз жетілдіру технологияларының негізін түсіну және оны дұрыс қолдана білу компаниялардың нарықта бәсекелестік артықшылығын жоғарылатады.

Түйін сөздер: үзіліссіз жетілдіру теориялары мен технологиялары, ұйымдастырушылық өзгерістер, ұйымдастырушылық өзгерістерді басқару, өндірісті ұлғайту, сапаны жоғарылату.

Кенжегаранова М.К.

К вопросу о теориях и технологиях непрерывного совершенствования

В статье рассматриваются теории и технологии непрерывного совершенствования. Эти теории позволяют организациям расти и развиваться за счет управления и внедрения постоянных изменений и совершенствования всех форм и видов хозяйственной деятельности. В статье отмечается, что успех ведущих компаний в мире зависит не только от того, что они тратят время на долгосрочные улучшения, но также и от того, что они выполняют улучшения в более чем одной области. Таким образом, понимание сущности теорий и технологий постоянного совершенствования, а также их успешное применение позволяет компаниям повысить свои конкурентные преимущества на рынке.

Ключевые слова: теории и технологии непрерывного совершенствования, организационные изменения, управление организационными изменениями, улучшение и повышение качества.

**ON THE QUESTIONS OF
THEORIES AND
TECHNOLOGIES
OF CONTINUOUS
IMPROVEMENT**

Theories and technologies of continuous improvement explain that organizations develop and grow through constant change and improvement of all forms and activities. The essence is in the fact that success of the leading companies in the global arena does not only depend on the fact that they spend time on long-term improvements, but also that they perform improvements in more than one area. Thus, organizations achieve a synergistic effect on a number of improvements taking place simultaneously in the same organization. Japanese management methods form essential framework for the theories and technologies of continuous improvement.

It is believed that Japanese approach to management (especially if it relates to quality) has a number of distinguishing features, but the comparative analysis shows that the theoretical principles are universal, and in this sense they are international. Quality management system of progressive foreign firms where these concepts have found the most complete and correct practical implementation are similar in nature.

Distinctive elements of the Japanese approach to quality management are the following:

- focus on the continuous improvement of processes and results of work in all divisions;
- focus on the quality control process, not on the product quality;
- focus on prevention to the acceptability of defects;
- a thorough research and analysis of emerging issues on the basis of the upstream (i.e. from a subsequent operation to the previous one);
- culturing the principle: «Your customer is the performer of the next manufacturing operation»;
- full consolidation of responsibility for the quality of the results of work for the direct perpetrator;
- active use of the human factor, the development of creative potential of employees, the cultivation of responsibility.

The basic concept of the «Japanese miracle» is a perfect technology, including production technology, management and maintenance. Many firms have widely adopted computing and microprocessor technology, advanced materials, automated design systems, widely use statistical methods that are fully computerized. A characteristic feature of the design quality control system

in recent years is that its composition includes a communication system and a user communication system for providers.

Solutions to the problem of further improving the quality of managers of firms see only in cooperation, mutual trust of suppliers, producers and consumers. The main thing they see in the mandatory establishment of the causes of inadequate quality, regardless of where they are found - from the supplier or the consumer, and the implementation of joint activities to address the identified causes as soon as possible.

Creating a network of suppliers implies responsibility and a serious commitment on behalf of the company management and workers. Network is connected with the organization on a subcontracting condition and effectively provides assurance to subsystems. It also provides financial, technical and organizational support to establishing quality control in the modernization of production

facilities, and so on. For this purpose, special programs for the review of the state of affairs from suppliers in the field of quality products, the study of their production capacity, training and education, development and other activities that affect the quality of products supplied are always in place.

The concepts of total quality management (TQM), Kaizen, lean production (Lean production, Toyota Production System - TPS), Kanban, 6 sigma, etc. are examples of the implementation of incremental changes in the organization. Basic ideas and principles of the theories and technologies of constant improvements have been originally used in industrial organizations, and in spite of this, they are widely used in other areas as well.

In order to understand the content of the theories of continuous improvement, it is necessary to refer to the history of documented quality systems, which consist of five stages (so-called five-star quality, Table 1)

Table 1 – Description of quality systems and key changes in management science

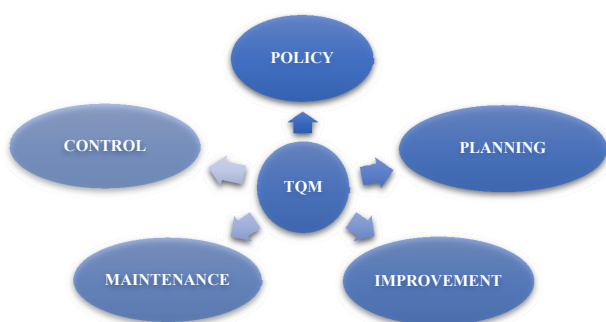
Phase	Brief description of the phase	Key changes
First phase Since 1905	Organizational changes took place thanks to Taylor, who proved at considered management as a science. The system set the requirements in the form of technical and production standards for workers. Quality products tested were identified by inspectors and workers were fined for defects.	Management has become science. There were standards and quality requirements. There was a vocational training (for example, how to work with the measuring and control equipment).
Second phase 1924	This stage was marked by further developments - W. Shewhart control charts and the teachings of W. Edwards Deming in the field of quality improvement (14 principles of quality improvement). There were the basics of statistical quality control and training of workers included a study of statistical methods of analysis.	It became clear that it is necessary to control the process. Orientation to customer requirements (teachings of J. Juran). Complicated labor motivation and tougher quality requirements required analysis of the processes and the use of control charts.
Third phase 1950-s	A. Feigenbaum (American scientist) proposed the concept of (universal) quality control (Total Quality Control). K. Ishikawa (Japanese professor) continued the idea of TQC and the quality of the work in question as the main task of management. F. Crosby (Germany) announces a program of «zero defects»	The advent of universal quality control at all stages of production. Systematization of complaints and consumer complaints. moral motivation of employees has been increased
Forth phase 1980-s	In the 80-s of the last century there was a shift from TQC to TQM (Total Quality Management) - Total Quality Management. TQM is a system of building requirements within the organization in such a way that allows satisfying the demands of customers by continuously improving the quality and implementing changes in the organizational culture.	The appearance of TQM (Total Quality Management) - Total Quality Management. There was the ideology of «continuous improvement.» The role of human and training has increased. Relationships between suppliers and customers thanks to ISO 9000 have changed

Continuation of table 1

Phase	Brief description of the phase	Key changes
Fifth phase 1990-s	Этот этап ознаменован появлением стандартов серии ИСО 14000. Эти серии стандартов устанавливали требования к системам управления с точки зрения безопасности продукции и защиты экологии. This stage is marked by the appearance of ISO 14000 series This series standards specify requirements for management systems in terms of product safety and environmental protection.	The influence of society on the organization has increased. Corporate quality management systems appeared.
Note - based on sources [1 - 2]		

This way the basic concept which is based on the theory and technology of continuous improvement is Total Quality Management. There are many definitions of TQM. According to Kanji «Total quality management - a system of actions aimed at achieving the satisfaction and delight of consumers (clients), the growth opportunities of workers, higher, long-term revenue and lower costs» [3].

Quality assurance is part of TQM and is a system of measures to ensure customer confidence in the quality of the production (Picture 1).



Picture 1 – Key elements of TQM

Note – based on source [4]

TQM as a management system is focused on continuous improvement of quality, in other words TQM philosophy is based on the principle - no limits to improvement. Despite the fact that achieving zero defects is impossible, TQM advocates for zero defects and problems and dwells on the progress.

Also «kaizen», the method used in Japanese companies is noteworthy to mention. “Kaizen” in Japanese means “continuous improvement.” It is a system of interrelated activities that increase

and improve the quality, technology, processes, productivity, leadership, and other areas of the organization.

It is the process of improving the participation of all - from senior managers to technical personnel even involved in cleaning and maintaining the cleanliness of the office and industrial premises. The kaizen system focuses on staff and each employee offers an improvement in the organization’s activities on a regular basis.

Minor improvements is the essence of kaizen, since a large number of small changes eventually lead to large-scale changes.

Thus kaizen is a collection of unique practices and management techniques that have received worldwide recognition. Under the “umbrella” of kaizen several well-known tools and ideas business improvement are placed (Kanban, quality circles, the system of offers and improvements, automation and robotization, zero defects, 6 Sigma, the work in small groups, standardized work, just in time), which eventually turned into self-management concept.

The concept of “kaizen” is interesting because it involves the institutionalization (consolidation) of organizational changes, as well as helps managers to build a strategy for change in the organization.

Next a comparative analysis – strengths and weaknesses of the theories and techniques of continuous improvement are presented.

TQM is an approach of managing an organization aimed at maintaining quality, constant organizational change and improvement. It involves all members of the organization to meet customer needs. Its advantages:

- Commitment to continuous improvement and focus on the culture of organizational changes;
- Reduces costs;

– Improves the quality of all processes within the organization;

- Increases attention to consumers customers;
- Involves long-term planning.

Disadvantages of TQM:

– Despite the focus on consumers inadequate market research may become a failure of total quality management;

– Time costs (the amount of time spent on the changes and improvements often de-motivate employees);

– High degree of formalization of procedures and processes.

Kaizen – a continuous process of improvement and changes of all kinds of resources at an enterprise. Its advantages:

– It is possible to apply the method to any organization (from small to large);

- Small investments;
- Focus on development.

The disadvantage of the method is the need to have an established system of motivation to maintain a corporate culture and small, but numerous changes in the organization.

JIT (just-in-time) - logistics concept involves organizing the movement of goods and materials to the site accurately and on time. Its advantages:

Creation of conditions of a continuous-flow production);

- Decreases costs by optimizing extra costs;
- Reduces costs at an inventory level;

The disadvantage of the method is the fact that lack of inventory may lead to queues. Also, it is sometimes difficult to ensure a perfect consistency between the stages of production of goods.

Kanban a method of provision an organization or a production facility with material resources only in the right quantity and at a certain time. Its advantages:

- Low costs of storage of goods and materials;
- Reduction of the production cycle;
- Rapid turnover of assets and stocks.

However, there may be difficulties associated with the consistency between the stages of production, and consequently there is a risk of failure of production.

6 Sigma – a quality improvement process that enables to reduce a number of defects and statistical

deviations and errors in the firm. Its advantages:

– Versatility (can be applied to improve all business processes);

- Focus on the final result;
- Reduction of costs.

Disadvantages- it is difficult to build such a flawless system which will monitor everything and detect all errors.

Quality circles – meetings of workers in which they lead discussions, analyze and adjudicate issues of an organization. Advantages:

- Focus on specific practical problems;
- Improved employee morale of an organization.

Employees receive the opportunity to apply their knowledge in practice and share experiences with colleagues). However, one the biggest disadvantage is that quality circles imply devotion of employee time and this in turn may lead to great workload to them [5].

If there is trust and good relationships with suppliers then all aforementioned practices work successfully. They provide ways to improve the quality of products and services offered. Thus continuous improvement methods of management give significant savings of time and resources needed to carry out incoming inspection of materials and components coming from the vendor's.

All mentioned practices are targeted at creating the company's own subcontracting network which works with the customer on a long term basis. Japanese firms were able to prove that even in conditions of free competition similar principle is more effective than practiced in the West, (annual contest subcontractors).

Japanese techniques for improving the performance of organizations (compared to Western) imply incremental improvements and can be beneficial in terms of investments of resources. Improvement style of western companies, mainly associated with innovations requires large investments. Gradual improvements of Japanese organizations have been successful without significant material investments.

This way, theories and technologies of continuous improvement involve reliance on an ideal model, and the changes are implemented on the achieved results. It is noteworthy to say that changes are made gradually and continuously, rather than dramatically and immediately.

Литература

- 1 Ильенкова С. Д., Ильенкова Н.Д., Бандурин А. В., Ягудин С. Ю., Воронина Э. М., Квитко А. В., Кузнецов В. И., Мхитарян В. С., Шустерман Е. С. Управление качеством: учебник / под ред. С.Д. Ильенковой. – М.: ЮНИТИ, 1998. – 204 с.

- 2 Басовский Л. Е., Протасьев В. Б. Управление качеством: учебник. – М.: ИНФРА -М, 2001. – 212 с.
- 3 Kanji G. Total Quality Management and Statistical understanding // Total Quality Management. – 1994. – Vol. 5, # 3. – P. 35-58.
- 4 Ефремов В. С. Семь граней современного менеджмента // Менеджмент в России и за рубежом. – 1997. – № 7, 8. – С. 3–13.
- 5 Possible conflicts related to failures of programs and projects of improvements / changes. (Мишин В. М. Управление качеством: учебник для студентов вузов. – Изд. 2-е, перер. и доп. – М.: ЮНИТИ-ДАНА, 2005. – 463 с.

References

- 1 Ilenkova S. D., Ilenkova N.D., Bandurin A. V., Yagudin C. Yu., Voronina E. M., Kvitko A. V., Kuznetsov V. I., Mhitaryan V. S., Shusterman E. S. Upravlenie kachestvom: uchebnik / pod red. S.D. Ilenkovoy. – М.: YuNITI, 1998. – 204 с.
- 2 Basovskiy L. E., Protasev V. B. Upravlenie kachestvom: uchebnik. – М.: INFRA-М, 2001. – 212 с.
- 3 Kanji G. Total Quality Management and Statistical understanding // Total Quality Management. – 1994. – Vol. 5, # 3. – P. 35-58.
- 4 Efremov V. S. Sem graney sovremennogo menedzhmenta // Menedzhment v Rossii i za rubezhom. – 1997. – # 7, 8. – S. 3–13.
- 5 Possible conflicts related to failures of programs and projects of improvements / changes. (Mishin V. M. Upravlenie kachestvom: uchebnik dlya studentov vuzov. – Izd. 2-е, perer. i dop. – М.: YuNITI-DANA, 2005. – 463 с.