

Electronic scientific and practical journal
**INTELLECTUALIZATION OF LOGISTICS
AND SUPPLY CHAIN MANAGEMENT**

#16 (2022)
December '22



WWW.SMART-SCM.ORG

ISSN 2708-3195

DOI.ORG/10.46783/SMART-SCM/2022-16

ISSN 2708-3195



9 772708 1319005



Electronic scientific and practical publication in economic sciences

Electronic scientifically and practical journal "Intellectualization of logistics and Supply Chain Management" included in the list of scientific publications of Ukraine in the field of economic sciences (category "B"): **Order of the Ministry of Education and Culture of Ukraine dated October 10, 2022 No. 894 (Appendix 2)**

Field of science: Economic.

Specialties: 051 – Economics; 073 – Management

ISSN 2708-3195

DOI: <https://doi.org/10.46783/smart-scm/2022-16>

The electronic magazine is included in the international scientometric databases:
Index Copernicus, Google Scholar

Released 6 times a year

№ 16 (2022)
December 2022

Kyiv - 2022

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In 2020, the International Center for Periodicals (ISSN International Center, Paris) included the Electronic Scientific and Practical Edition "Intellectualization of logistics and Supply Chain Management" in the international register of periodicals and provided it with a numerical code of international identification: ISSN 2708-3195 (Online).

Recommended for dissemination on the Internet by the Academic Council of the Department of Logistics NAU (No. 7 of February 26, 2020). Released 6 times a year. Editions references are required. The view of the editorial board does not always coincide with that of the authors.

Electronic scientifically and practical journal "Intellectualization of logistics and Supply Chain Management" included in the list of scientific publications of Ukraine in the field of economic sciences (category "B"): *Order of the Ministry of Education and Culture of Ukraine dated October 10, 2022 No. 894 (Appendix 2)*

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Specialties: 051 – Economics; 073 – Management

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DOI: <https://doi.org/10.46783/smart-scm/2022-16>

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тел.: (063) 593-30-41

<https://smart-scm.org>

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UDC 338.3:338.005.96

DOI: <https://doi.org/10.46783/smart-scm/2022-16-5>

JEL Classification: C67, D29, J29, L23.

Received: 28 November 2022

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TRANSFORMATION OF BUSINESS PROCESSES IN A CHANGING ENVIRONMENT

Oleksander Lysenko, Volodymyr Davydenko «*Transformation of business processes in a changing environment*». The article is devoted to the consideration of a step-by-step approach to the transformation of business processes. The relevance of the research is the possibility of urgent implementation of various technologies and approaches in business processes. The value characteristics in the production process are considered. Attention is focused on the need to take into consideration consumer values during production. It is noted that the transformation of business processes should take place in every organization that wants to remain competitive and popular among customers. A comparative characteristic of the expectations of consumers and producers is given. Attention is focused on fundamental changes in processes, ideas, technologies and employee management to implement new solutions that will help improve the productivity and efficiency of the company. The algorithm for implementing changes in business processes and tools that will be useful are proposed. The main tools for implementing business processes are identified. Step-by-step instructions for the transformation and implementation of business processes are given.

Keywords: business processes, consumer values, lean manufacturing, bottleneck analysis, continuous flow, planning, autonomization, SMART.

Олександр Лисенко, Володимир Давиденко. «Трансформація бізнес-процесів підприємства в мінливих умовах». Стаття присвячена розгляду покрокового підходу до трансформації бізнес-процесів. Актуальністю дослідження є можливість екстреного впровадження різних технологій та підходів в бізнес-процеси. Розглядаються ціннісні характеристики в процесі виробництва. Акцентується увага на необхідності врахування споживчих цінностей під час виробництва. Зауважено, що трансформація бізнес процесів повинна відбуватись в кожній організації, яка хоче залишатися конкурентоспроможною і популярною серед клієнтів. Наведено порівняльну характеристику очікувань споживачів та виробників. Зосереджено увагу на кардинальних змінах в процесах, ідеях, технологіях і

управлінні співробітниками для впровадження нових рішень, які допоможуть в поліпшенні продуктивності і ефективності компанії. Запропонований алгоритм впровадження змін в бізнес-процеси та інструменти, які стануть у нагоді. Визначені основні інструменти при запровадженні бізнес-процесів. Приведена покрокова інструкція з трансформації та запровадження бізнес-процесів.

Ключові слова: бізнес-процеси, споживчі цінності, оцадне виробництво, аналіз вузьких місць, безперервний потік, планування, автономізація, SMART.

Александр Лысенко, Владимир Давиденко. «Трансформация бизнес-процессов предприятия в изменяющихся условиях». Статья посвящена рассмотрению пошагового подхода к трансформации бизнес-процессов. Актуальность исследования - возможность экстренного внедрения различных технологий и подходов в бизнес-процессы. Рассматриваются ценностные свойства в процессе производства. Акцентируется внимание на необходимости учета потребительских ценностей при производстве. Замечено, что трансформация бизнес-процессов должна происходить в каждой организации, которая хочет оставаться конкурентоспособной и популярной среди клиентов. Приведена сравнительная характеристика ожиданий потребителей и производителей. Сосредоточено внимание на кардинальных изменениях в процессах, идеях, технологиях и управлении сотрудниками по внедрению новых решений, которые помогут в улучшении производительности и эффективности компании. Предложен алгоритм внедрения изменений в бизнес-процессы и пригодящиеся инструменты. Определены основные инструменты при внедрении бизнес-процессов. Приведена пошаговая инструкция по трансформации и внедрению бизнес-процессов.

Ключевые слова: бизнес-процессы, потребительские ценности, экономное производство, анализ узких мест, непрерывный поток, планирование, автономизация, SMART.

Introduction. Under different conditions of influence of external and internal risks on the company's activities, there may be a need for rapid transformation of business processes. However, usually enterprises do not have an understanding of where to start and what the first step should be. Therefore, there is a need to have an understanding of the step-by-step approach to the implementation of business processes at the enterprise.

At the first stage, it is necessary to fully track the process of creating value for the consumer, from start to finish and establish communication with consumers and employees of all services and departments of the enterprise that have close interaction.

For effective and useful interaction, there is a need for close communication between managers of the enterprise and consumers, as well as accompanying companies that face the flow of value creation in various services and departments.

At the first stage, it is quite important to formulate the main purpose of the process. This is the value that the consumer wants to receive and what the company must achieve in terms of return on its investment to survive and succeed. To be sustainable, any process of production or provision must lead to the achievement of this purpose. Develop indicators to assess the extent to which this purpose is achieved.

A useful step would be to measure the ability of the current process to provide the consumer with exactly what they need, when they need it, for example, by measuring the probability that the consumer will always find the desired product they need in the store. What we can measure, we can improve. Further, it is necessary to determine to what extent this process solves the problem in full: how many calls to the help desk or repair bureau does the consumer have to make to get the desired value? You can also calculate the total cycle time and inventory in the

process that is required to provide the service level. These are quite large indicators of employee time loss and overall process costs. At the same time, it must be remembered that most of the time is spent on management processes.

The next step is to compare the costs of the processes with what the consumer is ready to pay for. Then it will become clear what time interval we have between acceptable and unacceptable results. It may be quite reasonable to implement a management system in accordance with the requirements of ISO standards, which implement a process approach to management.

The process can be in one of three conditions:

- the way we think he is;
- just the way he is;
- the way it should be.

Usually, these are three completely different processes.

The next stage is the analysis of the workplace. To do this, it is necessary to conduct a face-to-face interview with the direct performers. Document all the steps that are performed during this process from start to finish by the manufacturer, consumer, and supplier. Both supplier and consumer can be both external and internal. The main thing is to describe not what should happen, but what actually happens, based on direct observations.

In any company, the process as it actually is, is somewhat different from what it should be. Often this difference is huge, and it is very useful to identify it. Describing what should happen instead of what actually happens to improve the process is not only useless, but also harmful.

We evaluate whether each step that is performed during this process creates value for both the consumer and the supplier. On this basis, depending on the situation, we calculate the ratio of the time of value creation to the total duration of the process compare the "working work" that creates

value and all the work, time, materials, energy resources, etc.

The main tasks at this stage are to briefly formulate the purpose of the process, to develop a few simple indicators of the current performance in comparison with the needs of the consumer and the supplier, and to draw up a simple map that allows anyone to assess the current state of the process at a glance.

Analysis of recent research and publications. The relevance of the study of opportunities and approaches to the transformation of business processes of enterprises is due to the rapid response to the changing conditions of the internal and external environments.

Research and proposals in the field of transformation of business processes of enterprises are based on the practical experience of researchers and thorough theoretical research of scientists who studied the specified direction, namely in the works of D. Bauden, M. Prensky, D. Robertson, D. Tapscott, Sh. Stromayera, K. Shukets, Daniel Roos and others [3,6].

The purpose and tasks of the research. The purpose of this article is to study the possibilities of transforming business processes of an enterprise in changing conditions and to propose a step-by-step algorithm for implementing business processes.

The main part of the research. However, the real purpose is not only to describe the process, but also to radically improve it. The main thing is to understand how to visualize it competently, simply and correctly.

An example of visualization of the process of creating value for the consumer is shown in Figure 1.

Practice shows that the most convenient option for describing and "reading" processes is the graphical method. It has several key advantages:

- Simplicity and integrity of the picture. One diagram shows all participants and the logic of their interaction.

- Easy navigation. Instead of twenty pages of text, you get one page with a diagram that puts everything in its place.
- Sufficient detailing. You choose a sufficient level of detail, if desired, the schemes can be detailed several levels deeper or supported by text explanations of individual blocks.
- Easy to automate. A flowchart is the primary technical task for automation, which

contains clear logic and shows the complexity of the process;

- Everyone understands their part of the process. This is one of the most important points, because when visualizing the schemes, each participant sees himself as part of the system and understands how the team and the success of the process depends on him.

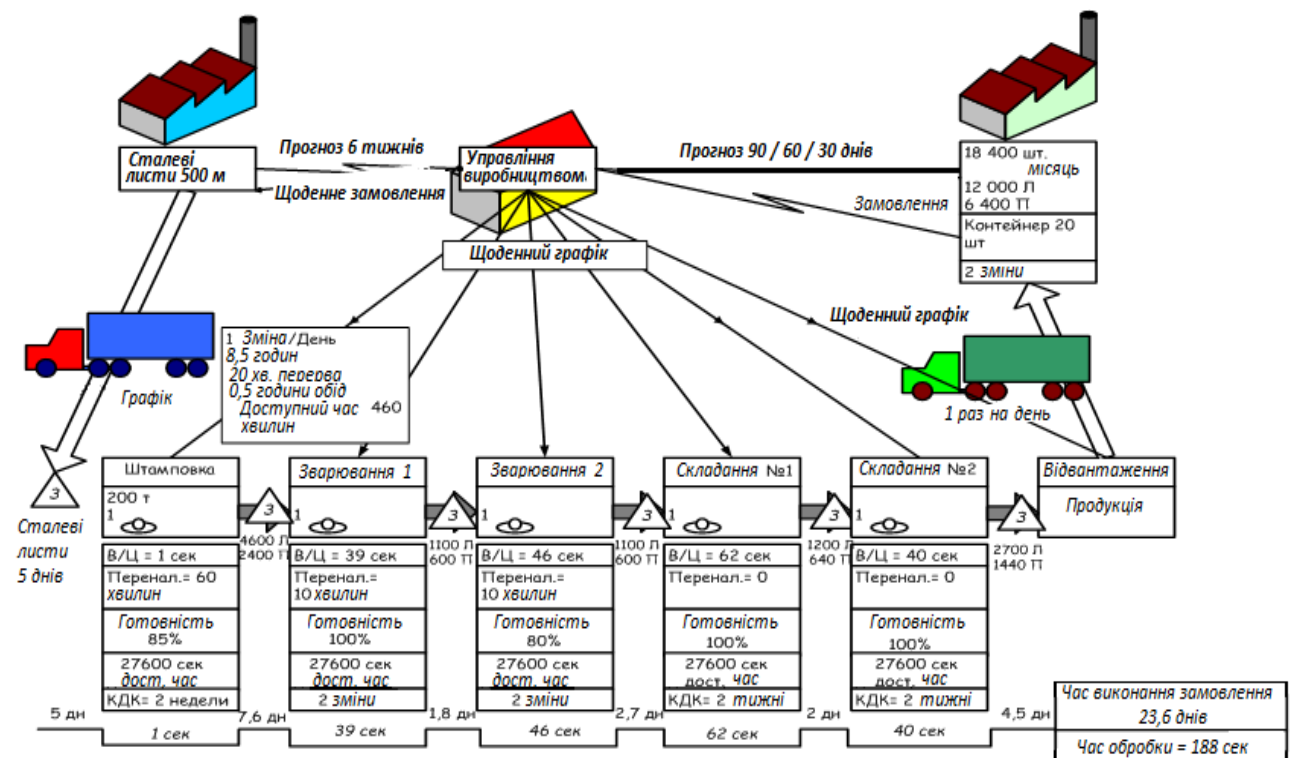


Figure 1 – The process of creating value for the consumer

People who create added value for the customer do their job well only under three conditions: if they can see the whole process and their contribution to the final result, if they understand its logic and the need for change, and if they believe in the benefits of the new process.

The only way to fulfill all three conditions is to involve people who actually deal with the process in analyzing its current state and designing a better process. Reasonable motivation will not hurt. What is profitable for the company should be profitable for the employee [1].

According to the American psychologist B. Skinner "A person who has been punished

does not become less inclined to behave as before, at best he or she learns how to avoid punishment" [9].

A positive aspect that actively shapes the employee's behavior in the desired direction, increases self-esteem, motivates the acquisition of new skills, increases initiative.

Very rarely do people believe that they were punished fairly, so in the long term, negative experiences cause open or hidden resistance.

Revising the process will help impact jobs and change the boundaries of the organization directly.

Analysis of the capabilities of man and technology shows that technology should be

given greater preference: in the development of standard solutions, taking into account the general rules; in mathematical calculations according to certain formulas or rules, when performing standard and repeated movements or actions (especially when there is a shortage of time and in uncomfortable conditions), when it is necessary to store a large amount of information in memory (especially RAM); when it is necessary to recognize an object in the absence of large interference; when a quick reaction and significant forceful influences are required in the process of.

A human should be preferred if it is necessary to: make a message or make a decision based on a limited number of factors (incomplete information); recognize an object in conditions of significant obstacles; react to random and unforeseen circumstances; solve tasks that cannot be algorithmized or tasks of high responsibility (due to the high cost of an error). Man and machine complement each other in their capabilities. If the parameters of the machine do not match the parameters of the human, then fatigue increases, the number of errors and accidents increases.

Ergonomic indicators of a person are used to assess the consistency of his capabilities with the requirements due to the specifics of technology and the environment.

Usually, a person performs his functions at the workplace in an area equipped with technical means. It is necessary to check whether the workplace is adapted for a specific type of work and employees of a certain qualification.

Another necessary approach is to make some simple but important decisions are:

- What to do with "extra" people?
- How will the working methods change?

- How to implement and launch organizational changes?

- How to explain to people why it is necessary?

- How to prevent sabotage?

Whenever possible, the savings in material and labour costs should be used to expand the business in order to rationally use the freed-up resources for improvement.

If this is not possible and the company simply cannot survive without rapid cost reduction, make it clear to employees from the beginning.

In any case, never provide false information. Do not subject employees to slow torture by firing them as the process improves: one by one and each time calling the current reduction the last one. They may respond to this tactic with hidden sabotage, gradually reducing the effectiveness of the new process [2].

A similar approach is needed to employees of other companies involved in our value stream (outsourcers). It may be possible to keep everyone in their current place. It is likely that former partners will be able to perform their previous tasks, but better. At the same time, if the analysis of the value stream shows that some work and even companies can be avoided, then this truth will have to be accepted.

When we understand the purpose, process and people, it will be time to redesign the value stream so that it provides consumers with exactly what they want at a lower cost.

It is very important to understand what consumer expectations coincide with ours.

As shown in Figure 2, only in one position our aspirations coincide with the aspirations of the consumer / customer - to get a quality product or service.

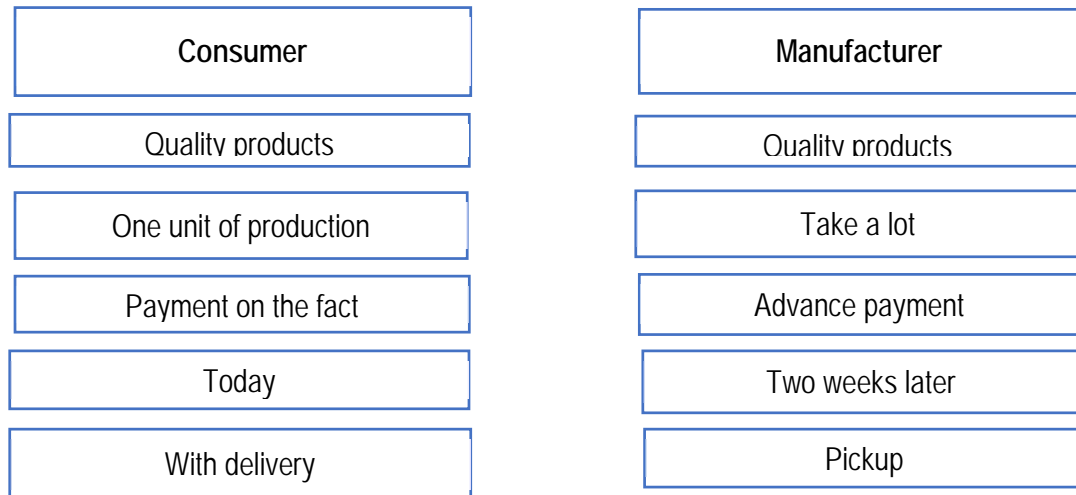


Figure 2 – Expectations of consumers and producers

It is necessary to develop a program to minimize the total costs of the consumer (financial costs plus time and nerves), as well as the total costs of suppliers. Also: give the consumer exactly what he wants; give the consumer value exactly where he wants; give the consumer value exactly when he wants. The following approaches can be proposed for this purpose:

- rationally organize workplaces;
- define (visualize) the value stream and eliminate all unnecessary steps;
- combine all steps into a continuous flow;
- create conditions under which consumers could extract value from the flow [3];
- continuous improvement will not be superfluous.

The main goal is to evaluate the whole process in terms of the possibility of achieving these goals, adjusting it if necessary.

In the future, we can offer a step-by-step algorithm for implementing business processes:

- Choosing a leader who is ready to take responsibility for implementing changes.
- Getting knowledge about "Lean Manufacturing", and as close as possible to the original source, not distorted [1]. In the future, this knowledge should become a new system of values of the leader, which he will

implement holistically, and not as point half-measures.

- Identification of the most critical segments of the company's activities.
- Identification of losses wherever it is possible to do so and their elimination (time, energy, materials, semi-finished products, excess stocks, excess processing, etc.).
- Creating maps: current and future state of the accountable object/process.
- Practical implementation work, which is highly desirable to make visible to all stakeholders.
- Combining the results achieved in different directions.

In the process of implementing business processes, it is desirable to use lean manufacturing tools, which will allow:

- reduce the cost of product quality;
- transparency of production and management processes;
- increasing the level of customer satisfaction with the products of the enterprise;
- increasing the involvement of employees in the production process and strengthening their motivation;
- reduction of resource losses.

When it becomes clear which of the areas is currently the highest priority for the company, but insufficiently developed, you can begin to select tools to improve this particular segment. The main thing is not to forget about staff training, familiarization with

changes and expected results [4]. Therefore, it is worth using the following tools for effective transformation of business processes.

1. Correct organization of the workplace [5,6]

- Sort and remove what is not used
- Arrange in a convenient order what is used
- Maintain cleanliness and order
- Create control standards
- To improve using the established standards.

The result of the implementation is a fairly quick detection of problems in production caused by improper organization of the workplace and minimizing them (for example, getting rid of tools that were used a month ago, and now only make you spend time searching for the right one among them).

2. Do not let the reject to the next operation.

This is a system of actions that immediately informs about the problem that has arisen in the production process and allows you to stop the process before the detected defect becomes widespread. Timely elimination of the problem, which allows in the future not to spend resources on eliminating the consequences of the error on a global scale.

3. Bottleneck analysis.

Finding the bottleneck of production, which does not allow to create more products in less time. Expansion of the "bottle neck" improves the productivity of production facilities. There is an improvement of the weak element in production.

4. Continuous flow

Building production flows in an optimal way. The process, built correctly, does not involve filling the "buffer" and long stops between production stages. As a result - elimination of such losses as ill-conceived transportation, excessive stocks, irrational waste of time.

5. Planning.

Ability to plan orders in a special way. Customer orders are divided into several small lots, which are built in a certain order. It

becomes possible to produce different products as quickly as possible and reduce the likelihood of risks of disruption of the production process at different stages and disruption of the timing of the transfer of the finished product to the customer.

This tool leads to the fact that the need to have a stock of materials and production time is reduced. It allows to reduce losses due to the fact that each type of product is produced more often, and stocks (in other words, frozen assets) are reduced to the necessary minimum. Even in the event of a forced stop of the line, all the products required by the customer are available.

6. Deployment of the policy.

The management sets goals for each of the employees, they move in this direction. Sufficient communication between management and employees allows to reduce losses. The principle "Do as I do" works very effectively.

7. Autonomization.

One employee can control the operation of several devices at once. This leads to lower production costs and minimizes the cost of eliminating errors (compared to if they were detected not immediately, but only at the end of the production cycle).

8. Continuous improvement.

The use of this tool is to unite the efforts of all employees of the enterprise in the direction of forming a special corporate culture and achieving common goals. It is important not to lose suggestions from employees for improvement. The experience gained in the company should work for the company. The synergistic effect of combining the efforts of employees invested in cost reduction becomes, in fact, the "perpetual motion machine" of the progress of lean production for the enterprise.

9. Exactly on time.

Production and delivery system are based on "pulling" the quantity of products required by the client at a given time. At the same time, the forecasted demand is practically not taken into account. Requires the availability of such

systems as "ContinuousFlow", "Kanban", "Takttime" and "Heijunka" [3].

This method is most effective when it is necessary to reduce the number of manufactured products, raw material stocks and the size of the production facility. Promotes optimization of financial flows.

10. Extraction system.

No unit of production is put into production until there is a demand for it. The request comes from the next operation in the value stream, and the request for finished products comes from the consumer/customer. This reduces the number of losses and excess inventory. It positively affects the results of inventory in the warehouse.

11. Key performance indicators (KPIs).

The metrics system is used to analyze the priority segments of the company's activities. It is a powerful stimulator of employee growth. Key indicators that can be changed by employees allow to timely identify potential losses and risks, to achieve strategic goals set for the company.

12. Losses.

Getting rid of everything that is not of value to the customer/consumer. After finding out about all possible types of losses, they should be timely identified and minimized, improving the quality of work of personnel, equipment and the organization in general.

13. The cycle of continuous improvement Plan-Do-Check-Act.

This is an iterative method that allows you to implement all kinds of improvements and/or make changes:

- Plan (creating a detailed plan)
- Do (implement the plan)
- Check (control of achievements)
- Actions (review of the performed actions from the point of view of efficiency, development of more productive actions, if necessary, elimination of the causes that lead to errors at each stage, implementation of changes, new try).

We document both effective solutions and mistakes. We regularly enter the results into the knowledge base.

The principle of continuous improvement allows you to use a systematic approach to solving problems, implement improvements, reduce losses and conduct experiments.

14. Full efficiency of the equipment.

Allows you to track three types of losses related to the operation of equipment: quality, availability, productivity.

It allows to understand how efficiently the equipment is operated. This is a balanced indicator that allows to increase the profitability of production and improve its manufacturability. If the full efficiency of the equipment is 100%, it means that the company currently produces a product without defects, as quickly as possible given the available technologies, avoiding downtime.

15. Protection against errors.

This is the creation of methods that prevent errors in the production process. The main goal is to achieve "0% defect rate". The costs associated with error prevention are much lower than those that the company incurs during regular inspections and, even more so, when correcting defects detected for a long time. A risk and opportunity assessment will be useful.

16. Analysis of the main causes of non-compliance or 5 why.

If the identified factors have no place in production, then their identification is carried out according to the principle of "five why". That is, you need to ask the question "Why?" at least 5 times in relation to each factor that negatively affects the process. As a rule, such work is carried out in the form of brainstorming with the involvement of leading experts. Elimination of the main causes of problems allows to avoid similar situations in the future.

17. Visualization of production.

Simple indicators are used. With their help, information is exchanged, for example,

photos, graphs, diagrams, value stream maps, video fragments.

18. Map of the value stream.

One of the tools that allows you to visually separate processes that add value from those that do not. There are maps of the current state and maps of the future state. A convenient solution for planning changes that are subsequently planned.

19. General maintenance of equipment.

The most common causes of productivity drops include: breakdowns, set-ups, short stoppages, speed reductions, job failures, production failures. All these reasons are a call to action. Downtime can be reduced only if all problems are consistently eliminated. To do this, it is advisable to involve every employee of the company in the maintenance of equipment, not just technicians.

The purpose is to increase the service life of the equipment and its efficiency. Reducing the number of downtime, errors in equipment operation, accidents. Strengthening the sense of responsibility of each employee.

20. Beat time.

An indicator of the frequency with which the customer orders products. Also, the cycle time can reflect the time interval when the company provides the customer with the manufactured product/service.

21. Analysis of planned production time/consumer demand.

It allows to determine the required productivity of a certain production site in order to meet the needs of consumers. A portrait of the consumer may be useful, especially if it is a foreign consumer [7]. Who is the consumer who brings 80% of the profit? How often does he make an order?

22. Standardized work.

It is an instruction (usually documented) on how to perform a certain operation in a close to perfect way. This document is constantly analyzed and updated. If the company has the same equipment - it should work according to a single standardized method (optimal). Maximum efficiency is achieved when using interactive documents

that can be quickly modified and supplemented.

Expected result - losses are reduced (due to the application of only the best practices). The risks of creating a low-quality product are reduced.

23. SMART (Smart goals).

This acronym contains the following words: Specific, Measurable, Attainable, Relevant, and Time-Specific. It sounds like this: the goal is specific, measurable, attainable, relevant, and time-specific. With poorly thought-out communication or misunderstanding of tasks, losses inevitably occur. To eliminate this problem allows to set the right goal.

24. Fast reconfiguration.

This is a set of tools based on the principles of lean manufacturing, which allow much faster equipment debugging (up to 10 minutes). Reconfiguration is based on two actions: internal and external. Internal actions are associated with stopping the equipment, and external actions can be performed with the device running. The methodology involves the transformation of actions from internal to external. It becomes easier to produce small lots of products, the useful life of the equipment increases.

Conclusions. In modern conditions, the minimization of losses should be put at the forefront, which will subsequently lead to the same increase in profits. The main task of business is survival, and the main principle of business economy is not to maximize profits, but to prevent losses.

The most difficult thing for a company is radical changes in working methods. It is important to realize that careful implementation of changes is not an instant transformation, but a long way of learning, testing, analysis and improvement.

Practice shows that the achievement of the following results is real [8]:

- increase in labor productivity by 35-70%;
- reduction of production cycle time by 25-90%;
- reduction of rejects by 58-99%;

- increase in product quality by 40%;
- increase of the equipment operating time in good condition to 98.87%;
- release of production space by 25-50%.
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