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## **Design and Management Structure of Garment Enterprises Based on Digital Technologies**

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### **ABSTRACT**

The article describes the components of automated design systems, their stages, procedures, project operations, design route, design result, and a series of project documents reflecting project solutions at the staged or final stage, as well as the final description of the object based on these documents.

**Keywords:** Procedures, project operations, design route, CALS, ERP, SCADA technologies, efficiency, resources, parameters, information.

In the article, the components of automated design systems include its steps, procedures, design operations, design route, design result and a series of project documents reflecting the design solutions in the step-by-step or final step and the final description of the object based on these documents.

The requirements for the quality of the project and its quick implementation increase depending on the complexity of the project objects and their importance. Meeting these requirements due to the increase in the number of workers and employees does not solve the problem, because in this case there is little opportunity to conduct project work in parallel, and the number of engineering personnel is bounded.

Solving the problem through the automation of project processes and the introduction of information technologies into production will give good results. Information technology (IT) is the technology of data management and processing using computer technology. IT usually means computer technologies. IT allows using computers, storing, changing, sorting, processing, transmitting and receiving data through software tools.

Today, the effectiveness of the work of sewing industry enterprises largely depends on their provision of high-quality technical and software tools. This, in turn, is due to the compatibility of technological processes and the automation of the work of production units, as well as their ability to work together is determined.

Modern computerized systems include automated design systems (ALT or SAD), automated production control systems (ISHBAT), integrated ALT and includes modern technological equipment based on electronic computing. It is known that a company that produces a new product two weeks before its competitors will have a 50% share of the market.

In the production of modern clothes, it is necessary to quickly take into account the changes in demand and demand, to apply advanced industrial technologies, and to introduce new models into production. to reduce labor and material costs and, as a result, to increase the quality of the product and reduce the time it takes to introduce it into production, mainly by introducing automated systems into the sewing process is done in return. The customer who invested in the implementation of ALT is interested in the efficiency of the system, the self-recovery of the technology and the period of implementation. Therefore, achieving an increase in production efficiency depends primarily on the rapid fulfillment of orders and the reduction of costs of raw materials. This issue, which was very difficult at first, can now be easily solved with the introduction of information technologies.

All project organizations, product design teams, and project teams in manufacturing industries. For example, aerospace equipment, aircraft engineering and equipment, automobiles, furniture, consumer goods, includes clothing and footwear, or other types of technical objects. production areas.

As a result of the use of automated systems in industry, the following results are obtained:

- ✓ increase labor productivity and quality of work of engineers;
- ✓ creation of a systematic technology connecting object design processes;
- ✓ improvement of parameters of project objects;
- ✓ to increase the technical and economic performance of the project objects, their usage pictures;
- ✓ opportunities to save resources during the design and preparation process;
- ✓ reducing project creation periods.

ALT acts as a designer's tool or tool by effectively combining human thinking and computer capabilities. The components of ALT include its steps, procedures, project operations, design route.

Automated enterprise management systems are a powerful tool for business development and adaptation of the enterprise to market conditions. Currently, there are a number of information technologies for the automatic management of sewing enterprises in the world, and they include SALS, ERP, SSADA technologies. it is permissible to emphasize.

Information technologies used in sewing production include:

- technologies for analyzing business processes and reengineering them are a set of organizational methods for fundamentally changing the structure of the enterprise in order to increase the efficiency of the enterprise. These technologies provide an opportunity to switch from paper document exchange to electronic document exchange and introduce new methods of production;
- technologies for providing information about the product in electronic form are a set of methods for providing information related to the life cycle processes of the product in electronic form. These technologies are designed to automate certain processes;
- technologies for gathering (integrating) information about the product;
- technologies for gathering information in electronic form related to product life cycle processes within a single information field.

Management of sewing enterprises based on digital technologies is the technology of data management and processing using computing and computer technology. IT usually means computer technologies.

IT enables the use of computers at every stage of modern production, storing, changing, sorting, processing, transmitting and receiving data through software tools. One of the main tasks of the sewing industry is to create and implement technologies that ensure rapid changes in production and increase the competitiveness of products. The use of IT serves to improve the performance of these tasks and the efficiency of production. As reasons for the creation and development of automated information systems in the enterprises of the sewing industry, the expansion of the product range and its quick (operational) accounting is important.

Investments in light industrial enterprises, as well as foreign investments, play an important role in the rapid introduction of IT. IT is becoming one of the conditions and criteria for modernization of production with new techniques and technologies. Introduction of IT in sewing enterprises - acceleration of business processes and optimization of the structure of production costs; saving the salary fund due to reducing the number of employees; reduce the number of unsold goods in the warehouse; it allows to increase the speed and quality of customer service and, as a result, comprehensive management of the sewing enterprise in an automated way.

Designing - designing an object that does not yet exist, based on its initial characteristics and operating algorithm, to develop this object in accordance with specific conditions, and to create its image, drawings and description is a process. The design process takes several steps: research, research, calculation, construction.

As a periodically developing process in the design process, it is divided into the components of the click, period, project procedures and operations, and the design route.

In automatic design systems, it is necessary to take into account not only the rational distribution of work in production processes, but also the reasonable selection of training and problem-solving methods:

- ✓ improvement of design based on the use of digital methods and methods and computing tools;
- ✓ automating the processes of searching, processing and extracting information;
- ✓ use of optimization and multivariate design methods;
- ✓ effective use of mathematical models of designed objects, items and materials;
- ✓ creation of a data bank with systematized information in the description of the reference book, necessary for the automated design of objects;
- ✓ to improve the quality of the formation (officialization) of project documents;
- ✓ increasing the creative share of designers' work due to the automation of non-creative work;
- ✓ unification and standardization of design methods;
- ✓ training and retraining of specialists in the field of ALT;

It is necessary for the design departments to work in strong communication with the automated systems of different levels and different tasks.

Digital technologies, including artificial intelligence, big data and IoT (Internet of Things), have become one of the main drivers of innovation in the garment industry. These technologies provide an opportunity to optimize enterprise activities, increase product quality, and reduce costs.

Many studies emphasize the importance of digital transformation in enterprise activity. For example, Porter and Heppelmann (2014) considered the possibilities of increasing the

competitiveness of enterprises with the help of digital technologies. They analyzed the impact of digital technologies on product development and service delivery processes.

The introduction of digital technologies in the garment industry allows for more efficient production of products by automating production processes and simulating models (Niemann, 2018). They open up opportunities for data collection and analysis at every stage of the production process.

Upgrading the design and management structure of garment enterprises with the help of digital technologies will help to make their work more efficient. Zhang et al. (2020) conducted research on developing digital control models and evaluating their effectiveness. These studies show that the adoption and implementation of digital management models increases the overall efficiency of enterprise.

In the process of designing and managing sewing enterprises based on digital technologies, it is important to use several key methodologies:

- **Agile Methodology:** This methodology provides a fast and flexible approach. The garment industry requires quick response to changing market demands. With the Agile method, projects are carried out in stages, which improves the relationship between clients and workers.
- **Lean Manufacturing:** This approach focuses on the efficient use of resources and the reduction of waste. With Lean methodology, garment enterprises can optimize production processes and reduce costs.
- **Six Sigma:** This methodology is aimed at improving quality and increasing the efficiency of processes. With the help of the Six Sigma approach, garment enterprises can develop strategies aimed at identifying and eliminating defects in the production process.
- **Digital Twin Technologies:** Using this innovative approach, companies create their systems as a digital model. It allows you to simulate production processes and identify problems in them in advance.
- **ERP (Enterprise Resource Planning):** ERP systems combine all processes of the enterprise and allow real-time data management. This helps to allocate resources effectively and increase the overall efficiency of the enterprise.

Entering the design and management processes of garment enterprises on the basis of digital technologies leads to an increase in the overall efficiency of the industry and a strengthening of its competitiveness. Important results were obtained by analyzing these processes. Innovative approaches, such as 3D modeling and digital flexibility, allow garment enterprises to produce new products quickly and with high quality. This makes it possible to better meet the needs of customers.

Lean manufacturing and Six Sigma methodologies significantly increase production efficiency by optimizing processes, using resources efficiently, and reducing waste. This allows businesses to reduce costs and increase profits. With the help of agile methodology, garment enterprises have the opportunity to quickly adapt to market requirements. This is an important factor for success in a competitive environment.

Using the sigma approach, quality can be improved by identifying and eliminating defects in production processes. This serves to increase customer confidence and strengthen the brand's reputation. Integration of all processes and real-time data management with the help of ERP systems helps enterprises to improve management efficiency. It plays an important role in making strategic decisions.

As a result, design and management methodologies based on digital technologies increase the competitiveness of garment enterprises, optimize production processes, and expand opportunities to meet customer needs. These approaches create the necessary conditions for the

successful operation of enterprises in the future.

**CONCLUSION.** is that, fully covering the above-mentioned tasks, as a result of the application of automated systems in the manufacturing industry, the following results are obtained:

- ✓ increase labor productivity and quality of work of engineers;
- ✓ creation of a systematic technology connecting object design processes;
- ✓ improvement of parameters of project objects;
- ✓ increasing the technical and economic performance of the project objects, their use;
- ✓ opportunities to save resources during the design and preparation process;
- ✓ reducing project creation periods.

Digital technologies make it possible to make the design and management processes of garment enterprises more efficient and innovative. With the help of these technologies, enterprises expand the possibilities of quick and high-quality production of their products, efficient use of resources and adaptation to market requirements.

In conclusion, approaches such as integration of digital technologies, optimization of production processes and quality improvement will increase the competitiveness of the garment industry. As a result, businesses will have opportunities to reduce costs, increase profits, and gain customer trust.

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