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REORGANIZATION OF THE TECHNOLOGICAL FLOW AT CLOTHING COMPANY THROUGH THE PRODUCTION SCHEDULE

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Abstract: *One of the main difficulties that light industry, namely clothing manufacturing sector faces today is inadequate organization of production processes. This is one of the most common and most serious obstacles in companies in the country, leading to low productivity. In order to reveal the causes of the problem and to develop solutions for change, it is proposed to conduct a study of a company facing difficulties in organizing the production process. It is important that the method/tool applied for the study is able to solve the problems occurring in the production process with minimum effort and maximum efficiency. The study was conducted within the process of manufacturing of a model of special clothing, namely clothing for doctors. The study was conducted within February-March 2016 at a clothing company of the Republic of Moldova. The study conducted shows that the transport issue in the technological flow can be solved by applying the production schedule, which eventually increases labor productivity by eliminating the time necessary to transport the labor object from one place of work to another, leading to economic growth considerable for the company. Following the assessments referring to the proposed improvements to organize the technological flow, there should be a 20% reduction in manufacturing time of a product, which will directly increase the revenue of the company by at least 10%.*

Key words: *movement, route, change, way, job, revenue.*

1. INTRODUCTION

One of the main difficulties that light industry, namely clothing manufacturing sector faces today is inadequate organization of production processes. This is one of the most common and most serious obstacles in companies in the country, leading to low productivity. In order to reveal the causes of the problem and to develop solutions for change, it is proposed to conduct a study of a company facing difficulties in organizing the production process.

Currently, there are several methods used for the study of the organization of production processes [1-7]. Variety of methods is explained by many problems arising within production process, as well as by various ways of solving them. The appropriate solution method is being chosen in terms of the problems that need to be addressed. It is important that the method/tool applied for the study is able to solve the problems occurring in the production process with minimum effort and maximum efficiency. The choice of the tools that will be applied in processes is a very important step in the study of labor, because the whole study conducted will depend on the method/tool [1].

The tools, commonly used in the labor study, are presented in the table 1 [2-5].

Table 1: *Methods of study of the production process and means for recording and analyzing methods*

No.	Name of the method	Means for recording and analyzing methods
1	General analysis of the process implementation	The general scheme of the process implementation.
2	Detailed analysis of the process implementation	Detailed chart of the process implementation.
3	Analysis of movements	The general scheme of the process implementation. Detailed chart of the process implementation. Production schedule. Wire diagram.
4	Analysis of arrangements	Arrangement plan. Reduced methods (models). Link method. Method of fictitious ranges.

The main purpose of the labor study is to increase labor productivity by reducing arduousness and efforts made to achieve the expected results [6]. Accordingly, a logical scheme has been established to render the close link between the labor study and the overall objective of each organization: increased revenues.

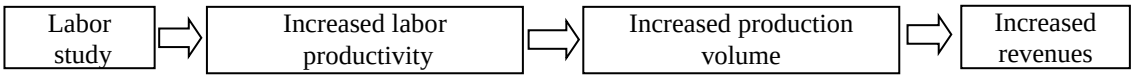


Fig. 1: *Influence of the labor study on economic efficiency of processes*

The labor study influences productivity by reducing the length of the production cycle and the time of processing or transportation, having an essential effect on the results, obtained within the production process [7].

2. REORGANIZATION OF THE TECHNOLOGICAL FLOW AT CLOTHING COMPANY THROUGH THE PRODUCTION SCHEDULE

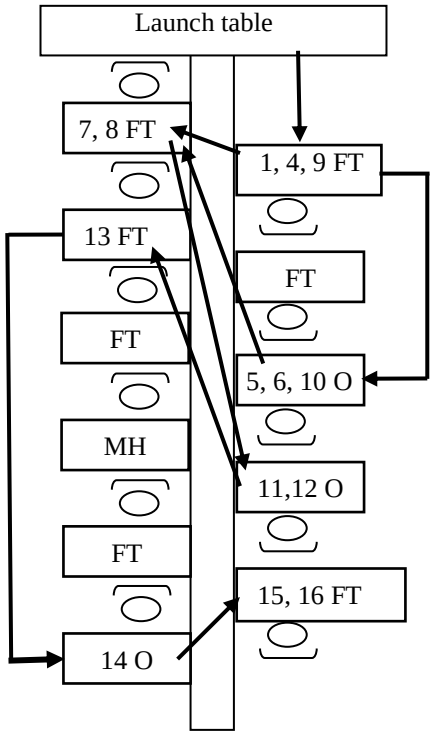
Of all the existing methods the best appropriate one to organize the technological flow in terms of the way the labor object goes through is the production schedule.

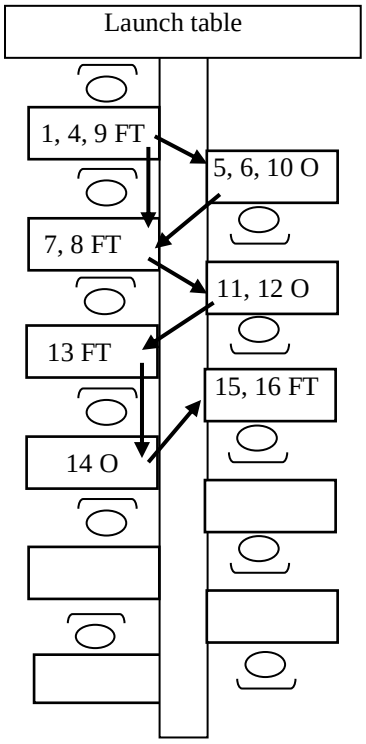
The need to study the movement of labor objects within the production process results from the fact that it tends to obtain beneficial options for movement or displacement by: avoiding unnecessary transport; avoiding returns in the flow; avoiding agglomerations; reducing distances. In order to achieve higher labor productivity at closing companies it is necessary for the production process of the technological flow to be organized as efficiently as possible. Therefore, it is proposed to efficiently organize the production process by determining the optimal route of transportation of materials and semi-finished materials within technological flows.

The study was conducted within the process of manufacturing of a model of special clothing, namely clothing for doctors (fig. 2). The study was conducted within February-March 2016 at a clothing company of the Republic of Moldova. Direct observations within the company subject to study revealed the following problems: lack of staff to manage and coordinate the production process; time standards inconsistent with reality; uneven division of labor; failure to comply with the consecutive order of technological operations; incorrect arrangement of operations for the technological flow.

Fig. 2: *Clothing for doctors*

To address the aforementioned situations it is proposed to establish a production schedule of the technological flow (fig. 3). The analysis of the existing production schedule shows that the routes the labor object goes through within the technological flow are too long and unjustified, to walk certain jobs, with the presence of a number of returns and inappropriate distribution of work tasks in the process, contradicting the rules to design the flows of materials and conditions for efficient organization of processes.





Where: **FT** – sewing machine with flat table; **MH** – sewing machine with handle; **SM** – special machine; **I** - in-between table; **O** – overlock sewing machine; 1, 2…n – number of the operation of technological order

Fig. 3: *Production schedule, existing method*

Fig. 4: *Production schedule, improved method*

A method for relocation of equipment and distribution of tasks within the flow, for the model analyzed, is shown in the figure 4. The improvement of the production schedule involved the relocation of equipment and redistribution of work tasks within the technological flow, taking into

account the existing work method, making no changes in the workload of employees. In such a manner only overlock sewing machines that represent key points that need to be changed to launch this model were relocated. Within the technological flow they are related to the distribution of tasks at places of work and allow transmitting the milestone package on the table located between the two rows of equipment. Making these changes enabled to organize the flow in such a way that any movement within the technological flow is logical, with rational consumption of time on the part of workers, providing a significant increase in labor productivity.

3. CONCLUSIONS

Organization of the production process is a very important step within each industrial company; therefore it is necessary that the company's management periodically, depending on the situation, reorganizes the production process for its proper functioning.

The use of labor study methods enables to organize the production process in an efficient manner, allowing to increase the use of the company's available resources.

The study carried out and the improvements in the technological flow for the model analyzed shows that the route the labor object goes through has significantly reduced from 23 m initially to 11 m in the improved version. This results in saving working time of executors or master transporting the labor object from one place of work to another. The benefits of reducing the distance, traversed by the labor object, implies not only saving time, but also creating a psychological environment favorable to workers, as they are no longer encumbered by transmission of milestones package for long distances, that needs to be taken from the place of work, as it is possible to pass it from hand to hand without considerable effort.

The study conducted shows that the transport issue in the technological flow can be solved by applying the production schedule, which eventually increases labor productivity by eliminating the time necessary to transport the labor object from one place of work to another, leading to economic growth considerable for the company.

Following the assessments referring to the proposed improvements to organize the technological flow, there should be a 20% reduction in manufacturing time of a product, which will directly increase the revenue of the company by at least 10%.

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