

# Manpower Utilisation and Increasing Productivity in Garment Industry

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**Abstract:** Earlier days, the essential need of attire was to cover and protect the body from climatic changes. Yet, today individuals turned out to be more caring about the solace of wearing and furthermore the sturdiness of the article of clothing. In a day, one needs unique clothing at various occasions. In this manner, piece of clothing industry began considering utilization of modernization, different designing apparatuses and procedures in piece of clothing fabricating for expanding the profitability and productivity. This is the study to improve productivity and how to utilise the manpower efficiently. It leads the industry in productivity, quality, and on time delivery. These are the main criteria to make the industry profitable and good standard.

**Keywords:** clothing, utilization, productivity, profitability, quality.

## 1. Introduction

The Textile and Garment industry can be extensively separated into two portions - yarn and fiber, and handled textures and attire. It contributes 14% to modern creation and 4 percent to GDP. With more than 45 million individuals, the business is perhaps the biggest wellspring of work age in the country. The business represents almost 13% of complete fares. India represents around 14% of the world's creation of material filaments and yarns (biggest maker of jute, second biggest maker of silk and cotton, and third biggest in cellulosic fiber). India has the most elevated loom limit (counting hand looms) with 63% of the world's portion of the overall industry. The homegrown material and clothing industry in India is assessed to reach US\$ 141 billion by 2021 from US\$ 86 billion in 2016. Expanded infiltration of coordinated retail, ideal socioeconomics, and rising pay levels are probably going to drive interest for materials. India is the world's second biggest exporter of materials and apparel. In this article, Top 20 different ways of profitability improvement are talked about that will absolutely assist manufacturing plants with boosting up current work efficiency. Every one of the implies that had been clarified here can be executed in light of the fact that the vast majority of these are inside your scope. Machine efficiency just as work profitability increases when an industrial facility creates more pieces by the current assets (Labor, time and apparatus). At the point when I investigate the cycles and activities during my visit to production lines, I discover

improvement potential is there. The vast majority of the tips referenced in this article are essentially on efficient tips, discipline, and appropriate arranging. To get a great outcome you may require outside proposal and backing however without the outer assistance, you can definitely get quantifiable improvement once you start your excursion. Efficiency, in basic words, is the connection among yield and information. The yield in articles of clothing plants can be bits of completed pieces of clothing. The yield of areas or divisions inside the article of clothing processing plants could be: meters of the texture investigated in the texture review segment, cut segments in the cutting room, number of articles of clothing pressed in the pressing segment, etc. It communicates the connection between the amount of labor and products delivered (yield) and the amount of work, capital, land, energy, and different assets to create it. The solitary significant proportion of mechanical seriousness is efficiency (Khurana and Talbot, 1998) and thus this point is generally examined particularly in the assembling area because of its strong connection to the authoritative benefit. Therefore, there is a scope of examination contemplates across the world to distinguish the different explanations behind low efficiency and profitability.

## 2. Work Methodology

### 1) Follow standard operating procedure

Analyzing the presence workflow and methods followed by the operators. Setting up a standard operating procedure (SOP). After creating a standard operating procedure go to the workstation and follow the movements of the operator like pick up, align, sewing, checking, disposing during the time of conducting the time, motion study. These are checklists, and follow the movements of the operator and compare to it, if anything is wrong with the SOP that unnecessary movement increases the cycle time, it affects the line flow and productivity. After finding that unwanted movement by the operator, we need to correct it based on the SOP.

### 2) Hourly production tracking

Every employee is different, one mistake reduces the line flow, so we need to track the line flow every hour (Fig1). Is there any deviation in the line flow and address the problem? It gives an efficient line flow, so tracing the hourly production is

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very important. If not tracking hourly, we will be facing the loss in production at the end of the session. The hourly tracking system helps us in two ways: first, a low efficient operator is monitored in a regular manner that helps to enhance the operator efficiency gradually, second gives an idea to improve the method and reduces the cycle time.

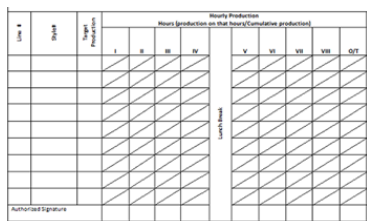


Fig. 1. Hourly production tracking sheet

3) *Workstation layout*

Ergonomics is most important to work. The workstation layout is the process of the operator picking up doing some work and disposing of the material. The efficient layout defined as the time requirement of picking up and disposing time will be minimum. The operator can reach the tool (Trimmer, scissor, etc) easily. At the time of workstation design, the components to be maintained nearer to the needle, the direction of the component placed, picked and disposed also should be accessible, in assembly the plane table is in exact position to the table it gives the sliding the component easily to the needle point. The primary purpose of the workstation layout is to reduce the component handling time. The secondary purpose is that the operator works in the place for nearly 8 hrs so the layout can work comfortably without fatigue.

4) *Efficient line layout*

Basically line layout defines placing the machines as per our requirement, but technically reduces the transportation time of line flow to the maximum extent. Mainly the layout depends on the no of preparatory process, as per the style requires a lot of preparatory process, so the preparatory process does not merge to the assembly line and it also not affecting the pitch time and SAM. Placing the preparatory process on either side of the assembly line. Making the parts as separate sections gives better efficiency (Fig 2).

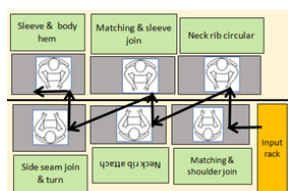


Fig. 2. Section layout

5) *Line balancing*

It is very important to balance the line, the productivity is based on the line balancing, the need of line balancing is to avoid the idle time of the operator and utilizing the operator to the maximum. If the line is balanced properly the flow will be very smooth and there is no waiting for work. During line setting we should know the skill data of every operator for choosing the operator for matching the particular work so skill

data is required for every operator. Training the operator for our demand skill which skill is required. The line setting is done by taking a capacity study and finding the bottleneck in the line. We plan to minimize the WIP level in bottleneck operation. Balancing to be done once, some extra pieces from the same operator in the defined time.

6) *Proper guide, attachments, work aids, optimum pressure foot and folders*

These are a few sorts of efficient gadgets that work with the administrator to play out their work successfully with less exertion. In the event that work helps are utilized successfully, activity process duration can be decreased additional time than existing process duration. In new and little plants where there is no accomplished specialized individual for the most part not mindful about the utilization and accessibility of work helps. So their administrators sew pieces of clothing free hand. Work efficiency is equivalently higher for the industrial facilities that broadly use work helps than the individuals who don't utilize work helps for the comparable items. Envelopes and connections are additionally useful in creating predictable sewing quality. Then again work helps, aides and apparatuses lessen administrator's development and weight lifting.

7) *Educate the sewing operators*

Quality is very important in the garment industry .Operators play an important role in the garment industry so educate properly to sew the garment. Most of the operators are not educated so teach them basically things like working functions, machines and safety guidelines. Then teach them motion study. Some of the operators working low efficiently, point out the operators. Find the problem and educate the operator .Most of the time low efficient operator problems are giving the number of bursts is high , pick and disposal time is high , sewing slowly , sewing fastly with quality issues. To educate the operator properly with a good method. This will improve quality.

8) *Individual operator target*

Rather than giving an equivalent work to all operators in a line, give work according to the operator expertise level and limit. Set feasible work for every operator. This will help improve the operator's individual productivity. Use stunts for expanding the work bit by bit. Deal with the operator who is under target. Focus under the target operator and improve them as well. End of the week line will get efficient.

9) *Sewing floor tracking system*

Garment industries are working like a time based industry. This tracking system will help to find the wasting time like machine problems, cutting delay, quality issues etc. Tracking system containing such as hourly production report, line balancing report, line WIP, quality report and line efficiency. This data is easy to find and solve the problem within a time. This will improve the productivity as well as efficiency.

10) *Operator motivation*

Operator Motivation is a part company development. Operators are a real asset of the garment industry. They will invest enough energy into the work. Motivate the operator through grade changing, bonus method, incentive, increments and encouraging their works. This will help to motivate the operator and they are interested in doing their work. End of the

day company and operators are benefited.

### 3. Conclusion

In this article, we conduct a lot of studies and apply the above techniques, SOP. It gives results gradually, the other important thing is tracking daily with the above technique at the same time to ensure applied things are sustaining or not. At the end of the month (last week) give a good result as shown in figure 3. The suggestive techniques developed in this article cover a comprehensive series of aspects in minimizing reworks in the sewing section of apparel industries by ensuring quality Production also helps to improve productivity. Productivity helps to reduce the cost of product and Quality is ultimately given customer satisfaction. Great Quality expands the worth of an item or administration, sets up brand name, and develops a decent standing for the piece of clothing exporter, which thus brings about purchaser fulfillment, high deals. The investigation unmistakably demonstrates that disposing of non-beneficial exercises will improve the efficiency of the attire producing industry.

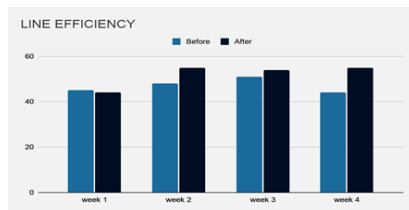


Fig. 3. Result of a month

### References

- [1] Rajesh Bheda, A.S. Narag, M.L. Singla, Apparel manufacturing: a strategy for productivity improvement, *Journal of Fashion Marketing and Management: An International Journal*, vol. 7, no. 1, pp.12-22, 2003.
- [2] Mustafa A., Locating defects on shirt collars using image processing, *International Journal of Clothing Science & Technology*, vol.10, pp. 365–378, 1998.
- [3] Pazireh, E., A. H. Sadeghi, and S. Shokohyar, Analyzing the enhancement of production efficiency using FMEA through simulation-based optimization technique: A case study in apparel manufacturing, *Journal of Textile Institute*, vol. 4, no. 1, pp. 19-24, 2017.
- [4] Yuen, C. W. M., et al. Application of smart system to textile industry: Preliminary design of a smart hanger for garment inspection, *Journal of the Textile Institute*, vol. 99, no. 6, pp. 203-222, 2008.
- [5] Choy, R., & Loker, S., Mass Customization of Wedding Gowns: Design Involvement on the Internet, *Clothing and Textiles Research Journal*, vol. 22, no. 1, pp. 79–87, 2004.
- [6] R.N. Joshi, S.P. Singh, Estimation of total factor productivity in the Indian garment industry, *Journal of Fashion Marketing and Management: An International Journal*, vol. 14, no. 1, pp. 145-160. 2010.
- [7] Pranjali Chandurkar, Madhuri Kakde, Abhishek Bhadane, Improve Productivity with Help of Industrial Engineering Techniques, *International Journal of Textile Engineering and Processes*, vol. 1, no. 4 ,pp. 35 -41. 2015.
- [8] May-Plumlee, T., & Little, T. J., Proactive product development integrating consumer requirements. *International Journal of Clothing Sciences and Technology*, vol. 18, no. 4, pp. 53–66. 2006.
- [9] Suprit Borse, Venkatesh Shrinivasan, V.S. Shivankar, Improving the Garment Productivity by Using New Designs of Folder, *International Journal on Textile Engineering and Processes*, vol. 2, no. 2, pp. 61-65. 2016.
- [10] Jung-ha Yang, Doris H. Kincade, Jessie H. Chen-Yu, Types of Apparel Mass Customization and Levels of Modularity and Variety, *Clothing and Textiles Research Journal*, vol. 33, no. 3, pp. 199-212, 2015.
- [11] Dinesh Seth, Vaibhav Gupta, Application of Value Stream Mapping for Lean Operations and Cycle Time Reduction: An Indian Case Study, *Journal of the Textile Institute*, vol. 16, no. 1, pp. 44-59, 2005.