

A Study on the Application of Operations Management in a Garment Industry

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ABSTRACT

Operations management focuses on carefully managing the processes to produce and distribute products and services. Major, overall activities often include product creation, development, production and distribution. . India's textiles sector is one of the oldest industries in Indian economy dating back several centuries. In this paper, a detailed study is done on the functioning of CAD, cutting and production department of a garment industry in Tamil Nadu.

Keywords: CAD room, cutting room, production department.

I.INTRODUCTION

Operation is concerned with the transformation of inputs into the required output or services. Management is the continuous process, which combines and transforms various resources used in the operations system of the organization into value added services. Operation Management is the set of interrelated management activities, which are involved in manufacturing of certain products or services. It is a field of management that deals with effective planning, scheduling, use and control of a manufacturing or service organisation. According to S. Buffa 'production or operation management deals with decision making related to production process so that the resulting goods and services are produced according to specifications ,in the amount and by the schedule demanded and at a minimum cost'. The Association of Operation Management defines operation management as 'the field of study that focuses on the effective planning ,scheduling, use and control of manufacturing or service organisations through the study of concepts from design engineering, industrial engineering, MIS, quality management, production management, industrial management and other functions as they affect the organisation'. Operation management is the business function that manages that part of a business that transforms raw materials and human inputs in to goods and services of higher value. It is a business activity that deals with the production of goods and services. The term operation includes management of materials, machines, and inventory control and storage functions. Operations management includes a set of activities performed to manage the available resources in an efficient manner in order to convert inputs in to desired outputs. Operations in an organization can be categorised into manufacturing operations and service operations. Manufacturing operations is a conversion process that includes manufacturing yields a tangible output: a product, whereas, a conversion process that includes service yields an intangible output: a deed, a performance, an effort.

Operation managers are concerned with planning, organizing, and controlling the activities which affect human behaviour through models. India's textiles sector is one of the oldest industries in Indian economy dating back several centuries. Even today, textiles sector is one of the largest contributors to India's exports with approximately 13 per cent of total exports. The textiles industry is also labour intensive and is one of the largest employers. The textile industry has two broad segments. First, the unorganised sector consists of handloom, handicrafts and sericulture, which are operated on a small scale and through traditional tools and methods. The second is the organised sector consisting of spinning, apparel and garments segment which apply modern machinery and techniques such as economies of scale.

Karur is a city in the Kongu Nadu region of India in state of Tamil Nadu. Karur is one of the oldest towns in Tamil Nadu and has played a very significant role in the history and culture of the Tamils. Karur is a major home textile centre and has five major product groups — bed linens, kitchen linens, toilet linens, table linens and wall hangings. The town generates around ₹ 6000 crores in foreign exchange through direct and indirect exports. Allied industries like ginning and spinning mills, dyeing factories and weaving employ around 300,000 people in and around Karur. Handloom Exports from Karur began on a modest scale with just 15 exporters in 1975 Karur is also home to an integrated textile park, the ₹ 130 crore Karur Textile Park Limited (KTPL) a premier facility of its kind in the country for its technical and ancillary facilities. Overall, according to the recent status Karur makes around Rs 6,000 crore (\$300 million) a year in foreign exchange through direct and indirect exports. With associated industries like ginning and

spinning mills, dyeing factories, weaving, around 3.5 lakh people are labouring in and around the place called the “Karur” or in this made-up manufacturing hub. On the international textile map, Karur has become synonymous with handloom “made-ups” as Tirupur in the hosiery product. The weaving industry came to Karur from Kerala and has earned a reputation for its high quality handloom products today. Today Karur has thousands of exporters and also their products are being exported to the International leading chain stores. Due to this healthy atmosphere India is enormously gaining its foreign exchange in recent period. Now let’s study the following departments of one such garment industry of karur.

II. CAD ROOM

Vijaya Mohini Mills has its own CAD department for various styles of garments and are made with help of optitex software package.

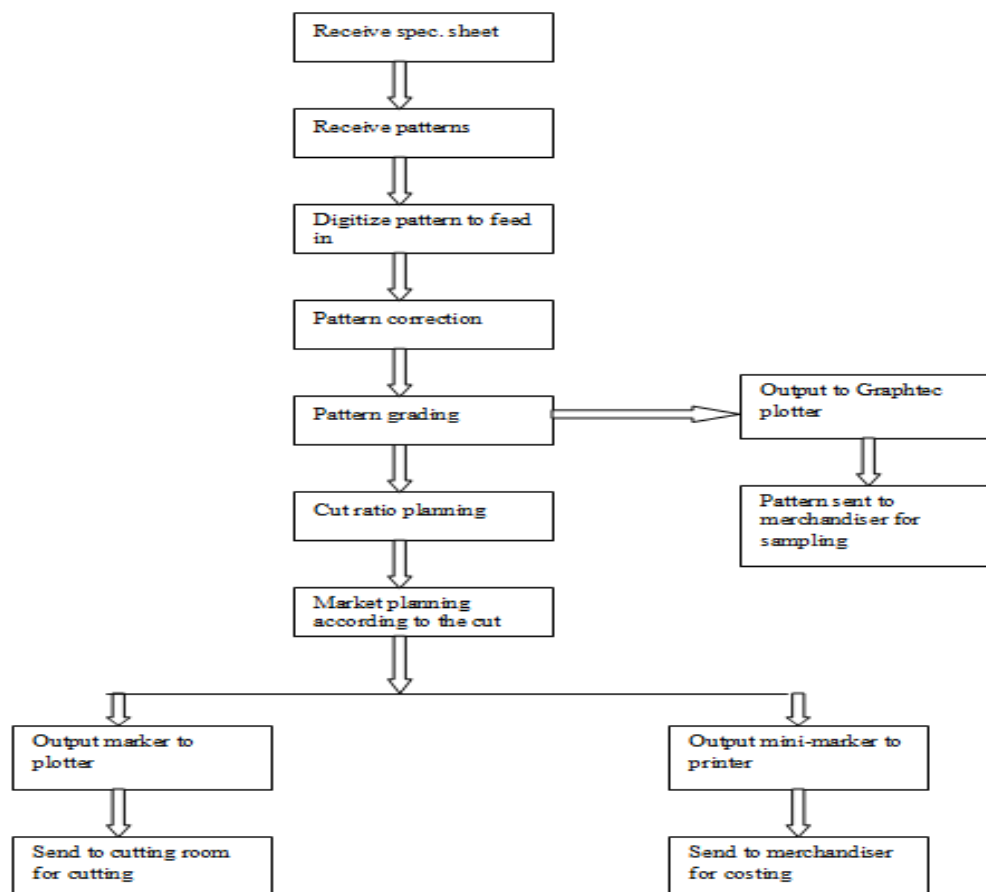
CAD department is responsible for the following functions:

- Determining cutting average for costing
- Making the most efficient cutting marker
- Development and alteration of patterns
- Development of size set pattern by grading
- Embroidery graphics making
- Digitizing the pattern

Firstly the merchandiser sends the following documents to the CAD room:

- Approved style sheet and specification sheet containing all the measurements
- Graded measurement specification sheet
- Fabric detail sheet containing information like fabric(open roll or folded form), roll size, GSM, type of fabric, style number, vendor, buyer etc.

Then the work of the CAD room begins.



III. CUTTING ROOM

Cutting department receives the order for cutting a garment style from the production manager. Cutting order is an authorization by the production manager to cut a given amount of styles from the spreads. It comes in form of a packaged file that carries the following details:

- Sampling average, weight of garment(basic fabric consumption only),and other trims averages.
- Measurement sheet
- Design worksheet of the garment
- Purchase order
- Fabric requisition sheet
- CAD minimarker
- Marker planning- length of lay etc, size ratio and colours in which the patterns are to be cut.

IV. SORTING AND TICKETING

The pieces cut out from the lay are now sorted out size wise. All the components of one garment size are brought together. It is very important to take care that pieces cut from two different bolts(bundles) of fabric are not mixed up. This is because within a lot there are bolt-to-bolt variations in the colour shade. The sorted pieces are now ticketed. Ticketing is the process of marking the cut components for shade matching precision, and sequence identification. The worker secures one end of the stack and puts on the ticket using ticket gun as he flips over the cut parts. The ticket contains the size, bundle number and piece number and serves as important means to track the parts of the garments in the assembly line from start to end.

V. CUT PANEL CHECKING

The ticketed panels are now sent to the checking area for inspection of every individual piece for any objectionable faults. Panels having faults like wrong grain line, in appropriate size, incorrect shape and any fabric defects like holes, cut, shade variations etc,that are not within the acceptable quality parameters, are removed from the cut lay. A cutting component checking report is filed for the total quality cut, checked and approved. The rejected pieces are sent back and an equal number of fresh panels are separately cut, replaced in the set and ticketed with the same number as the rejected ones.

Other mendable faults are marked with an alteration sticker and passed on. These will be spotted out during garment finishing or washing.

VI. BUNDLING

The checked components of one style and in one size are now clubbed and bundled using ties. The size of bundle depends upon the requirement of the production plant. Each bundle will contain pieces of the same style and same size only. The cutting department issues the amount required by the production department when asked for.

VII. EMBROIDERY

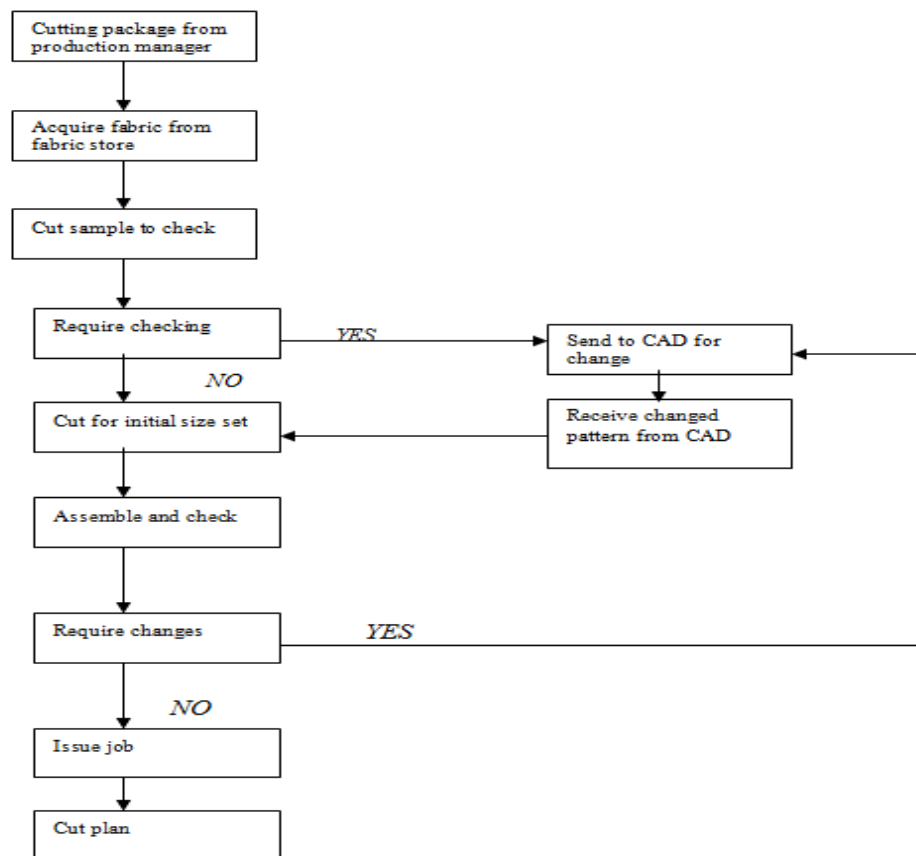
The cutting department is responsible for sending the cut components of a style for embroidery as stated in the production package. They check for any embroidery and follow up these departments accordingly. Blocks of panels are sent for embroidery, which are re-cut after receiving back. To avoid mixing of the patterns, the panels of the same size are stitched together temporarily before dispatch for the embroidery.

VIII. FUSING

Fusing is also carried out in the cutting room itself. The parts to be fused are separated from the bundle. The fusing material(like interlining) is cut according to the size of the components to be fused. The components along with the cut fusing material are kept between two paper sheets and the pack is passed through the fusing machine. By means of the temperature and the pressure fusing takes place at a particular speed and for a particular time. The pack comes out at the other end on the conveyors and the pieces are removed and re-bundled.

- Length of spreading table is 40 meter
- Width of spreading table is 6 feet(72")
- Height of spreading table is 3 feet(36")
- Table top type is plane, cardboard type
- Spreading mode is face one-way, nap one-way

- Number of clamps is 14
- Two air channels on the bottom side of the table surface along with 12 air nozzles per square meter.
- Five blow motors per table, is supplying air to the particular zone of the table



IX. PRODUCTION DEPARTMENT

The production floor does production in two types, once during pilot production where they have to produce about 150-200 garments for the new style this will take about 40-55 days.

The production floor will receive the details like:

- The style of the garment
- Number of operators required
- The batch for which the style has to be installed
- Any extra kind of machines that are to be used for the particular style
- Target for each day
- Break-up of the production quantity.

After receiving all these details they send a request for the cut parts from the cutting and sorting section and the request is sent to the accessory stores for all the accessories that are required for the particular style then they start the production for the new style.

Before starting the proper production the production floor does a process of batch-setting for the floor which is training the operators for the new style that has to be produced in bulk, this stitching session will go on for about for 3-4 days maximum. After this batch-setting process the production for the next day starts with a smaller commitment i.e. may be for 50 pieces for the entire day and then the production gradually increases from 50-100-150 and so on, this will make the operators learn slowly and precisely about the processes that has to be carried out for the particular style.

Once the cut parts is received from the cutting and sorting section then the parts are prepared and assembled according to the line that is planned. After the assembling of the parts is done then there will be a line checking where the shade matching and the measurements are checked and sent.

During the process of garment making there exists two types of checking

- In-process checking
- End line checking:- Here there exists both AQL audit and normal checking.

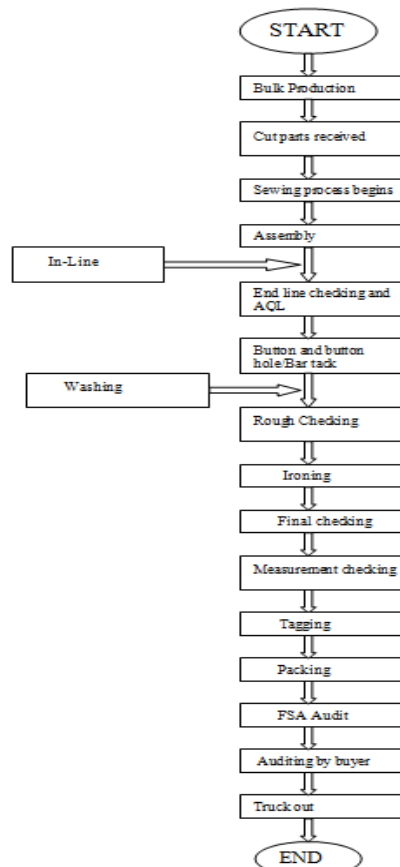
The garment making is divided into three different stages and at these three stages the checking is done.

The flow of material in the production floor is through the bundle system and each operator gets a bundle containing similar pieces and there will be about 15-20 pieces in each bundle and the operator completely finishes the job and sends it to the next operator to do the next operation on them. Each bundle will contain same component of different garments. The movement of the materials within the operators in a batch/line is generally zig-zag motion which is followed. The checking person will be present at a position where the garment is partially finished and it is as mentioned checked thrice in the line and sometimes more than three and this depends on the buyer as well as the number of components present in the garment.

The supervisor plays a vital role in the production floor. He/she manages the entire batch which is being allotted to them and they have the following functions to perform:

- They have to convey the proper stitching method to the operators.
- Guide the operators when they face difficulty in making an operation and teach them the most suitable and easy method of performing the task.
- Check if the entire operator in the batch/line is busy with the work being allocated to them.
- If the operator does not have any material to work on then the supervisor has to get him/her their material and ask them to work.
- Complain the production managers if the operators are not performing their best.
- Have to maintain a proper communication between the operators and the management.
- Should be in a position to tell the manger about each operator's skill level whenever asked for.
- When any operator is on leave then the supervisor has to make sure who can be a better person to fit into that vacant place.
- At times the supervisor himself sits and performs the operation if necessary.
- The supervisor should be in good terms with all the operators by having a friendly approach to them and also must make sure that none of them create any trouble for the factory at any time.

The production managers help the planning department during planning or allocating a particular line for the style by telling them the capacity of the line and also telling them about the skills of the operators.



CONCLUSION

Operations management is the business function that plans organises, co- ordinates, and controls, the resource needed to produce a company's goods and services. It is the process whereby resources, flowing within a defined system, are combined and transformed by a controlled manner to add value in accordance with policies communicated by management. The term operation includes management of materials, machines, and inventory control and storage functions. Operations in an organization can be categorised into manufacturing operations and service operations. Operation managers are concerned with planning, organizing, and controlling the activities which affect human behaviour through models. India's textiles sector is one of the largest contributors to India's exports with approximately 13 per cent of total exports. The textiles industry is also labour intensive and is one of the largest employers. Karur is a major home textile centre in Tamil Nadu. The town generates around ₹6000 crores in foreign exchange through direct and indirect exports. Allied industries like ginning and spinning mills, dyeing factories and weaving employ around 300,000 people in and around Karur. A systematic application of operations management leads to the production of high quality goods and services and ensures that the business operations are performed smoothly, efficiently, effectively.

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