Integrated System Reinforcement for Gentrification of Home Textile Industries

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Abstract

Home Textiles in India is one of the promising sectors which attracts foreign buyers and insists them to buy from make in India brand. There is affluence level of home textile in India and becoming more influenced by customers. The Home Textile products covers wide range from furnishing residences and commercial places. In the production of Home Textile, Industrial engineering plays a major role. There are many tools in Industrial engineering. With that, we had conducted a study on the gentrification of industrial production for better efficiency in the home textile industry. We made this study in different types of Home Textile Sectors. This study helps the industry to ensure the higher efficiency with right time and quality.

Keywords

Home Textiles, Quality, Industrial Engineering

Introduction

The Global Home Textile is the Most Profitable Business Segment in Textile Industry. The Home Textiles market in India is estimated at around Rs 17,000 Crores at is growing 9 percent annually. And majorly India is Recognized for its designs and variety of colors in the home textile. The growth of home textile in India by a customer looking for unique Products for their home furnishing Residence. The Online Retail of home textile is still Very massive. In the International Textile map, the Karur has become a synonym with home textile. The Karur is the major exporter in Tamil Nadu and has a variety of products in home textiles. Here we are focusing on three types of sectors and going through the studies and focusing on the Industrial Engineering terms. By having some modifications, the efficiency will change from their daily Target. Here we are analyzing the disadvantage or where the industry production efficiency is getting lagged and we are going through that and taking some studies from that giving some solutions. Fixing the SMV for certain products in the industry is the main thing for the production because the production Target is fully based on the SMV. And also we are correcting the Flow of the industry due to the lag inflow in most Industries.

Fixing the correct flow of industry is more efficient and effective for industry production. The Flow of production is presented in Fig1. And the Home textile values in recent year has been expressed in the below Fig2.

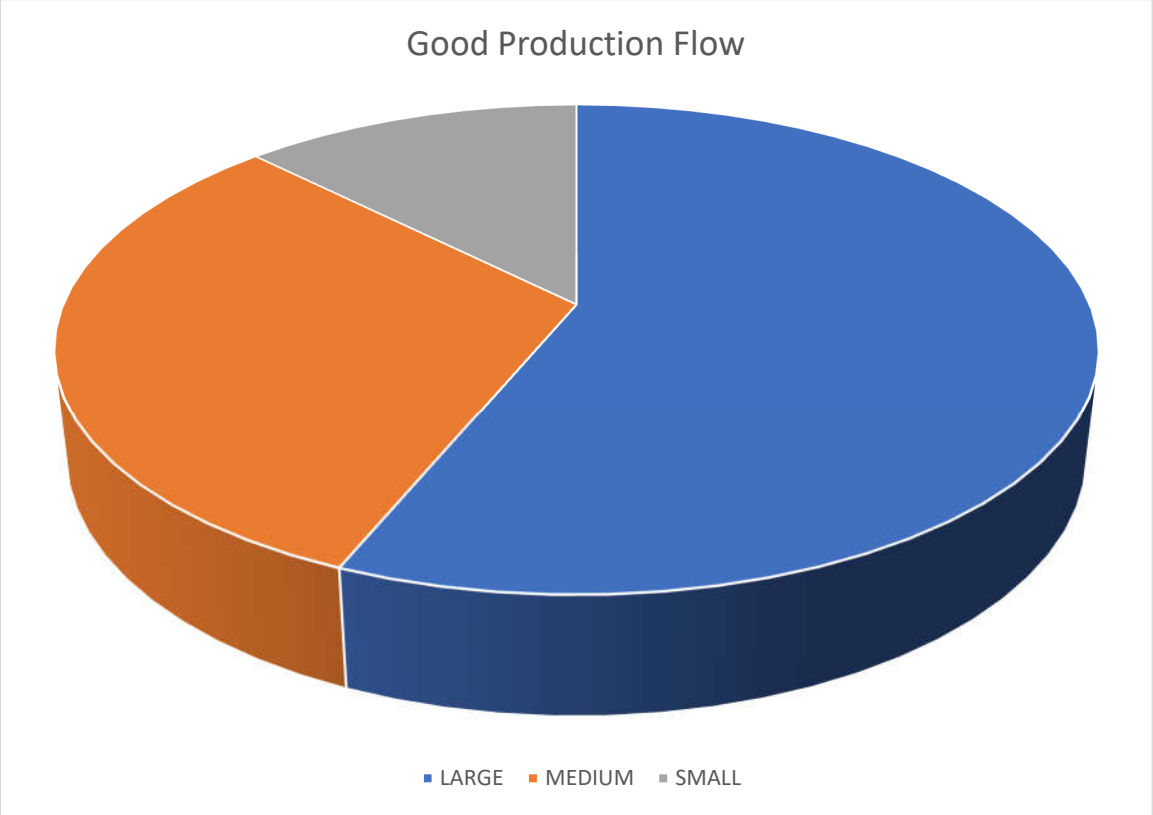

Fig 1: Percentage of Sectors

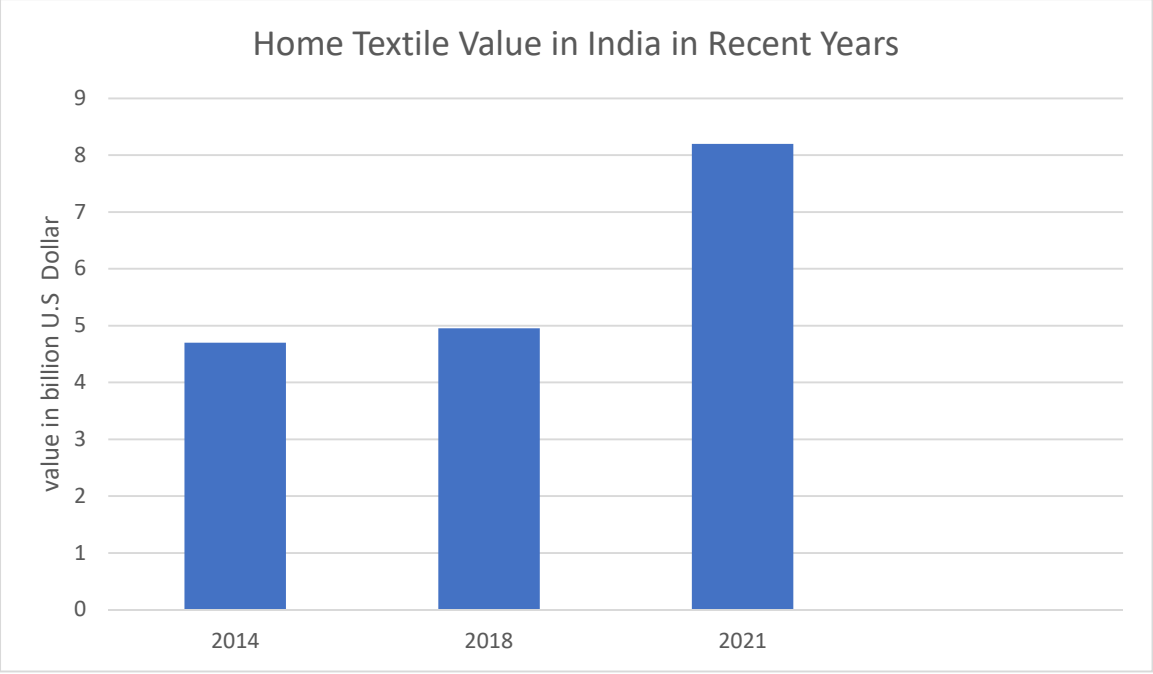

Fig 2: Home Textile Value In Recent Years

In recent 2021 the home textile value crosses more than 8billion us dollars which makes the value of textile more from the past years.

The domestic Home Textiles market is estimated t 40,800 crore by 2021.

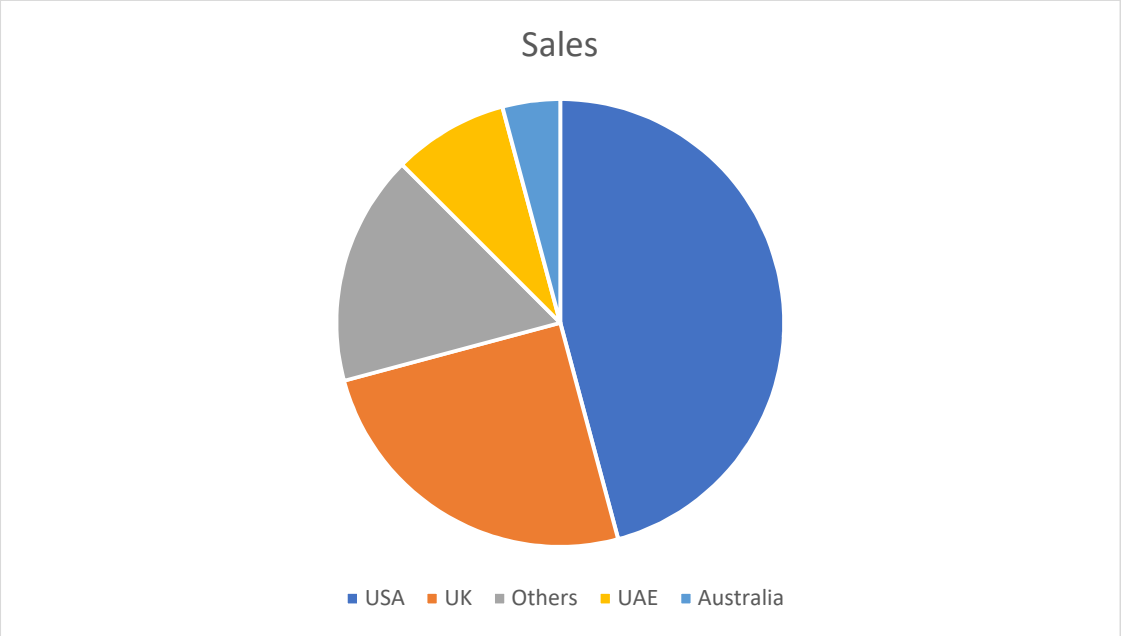

Fig 3 : India Major Market For Home Textile

Methodology

Theoretical Methods

- SMV
- Work Study
- Time Study
- Motion Study
- Material Study

Practical Methods

- Workman Ship
- Proper Training
- Structurisation of Industry

- Flow of the Process for Product

SMV

The SMV is a standard allowed minute for certain products which makes the product target for certain shift hours.

The SMV for a Product has changed according to the number of operations, length of seams, fabric types, stitching accuracy needed, and sewing technology has been used.

The SMV has been achieved fully by the naturally skilled and experienced workers without exertion provided.

The SMV has been calculated with the proper workers, Machines with the allowances.

These are the Allowances that we have been considered.

1. Machine allowances
2. Relaxation allowance
3. Interference allowance
4. Process allowance
5. Special allowance

These allowances have been considered while SMV has been fixed for certain products.

Standard Allowed Minute = (Basic minute + Bundle allowances + machine and personal fatigue allowances)

The SMV for a Few basic home textile products which we have worked on has been shown in the below table.

Table 1. SMV For Medium Level Industry

SECTION	PRODUCTS	OPERATION	OUR SAM	TARGET
STITCHING	Swaddle	NA	1.58	38pieces
STITCHING	Burby Bib	Marking	0.35	160pieces
STITCHING	Burby Bib	Dummy Stitch	0.401	150pieces

STITCHING	Burby Bib	label attaching	0.608	100pieces
STITCHING	Burby Bib	Piping	0.38	150pieces
STITCHING	Burby Bib	Reworking the end	0.75	80pieces
STITCHING	Burby Bib	joining the end by SNL	0.45	131Pieces
STITCHING	Burby Bib	final finish by a padlock	0.36	154pieces
Checking/packing	Swaddle	Trimming	1.501	40pieces
Checking/packing	Swaddle	Checking	1.25	48pieces
Checking/packing	Swaddle	Sizing average	0.49	115Pieces
Checking/packing	Swaddle	Final Checking	0.59	101pieces
Checking/packing	Burby Bib	Final Checking	0.66	90pieces

Table 2. SMV For High-level Industry

PRODUCT	Size	MACHINE	T/R-1 FN	T/R-2 AB	T/R-3 AN	Actual SAM	Our SAM	
Kitchen Towel(28/07/2021)	50x70cm	M/c-1	1.08Min	1.08Min	1.02Min	1.14	1.12	
Kitchen Towel(28/07/2021)	50x70cm	M/c-9	49.86Sec	50.00Sec	50.00Sec	1.14	1.12	
Kitchen Towel(28/07/2021)	50x70cm	M/c-20	49.54Sec	45.54Sec	48.00Sec	1.14	1.12	
K/T (double Side stitch and Tag,Hanger placement)	50x70cm	M/c-114	25.5Sec					
K/T (double Side stitch and Tag,Hanger placement)	50x70cm	M/c-111	46Sec					
K/T (double Side stitch and Tag,Hanger placement)	50x70cm	M/c-117	64Sec					
Cushion Cover (28/07/2021)	45x45cm	M/c-65	1.49Min			2.54	2.15-2.18	
Cushion Cover (28/07/2021)	45x45cm	M/c-83	2.34Min			2.54	2.15-2.18	
K/T (30/07/2021)	50x70cm	M/c-9	50Sec	1.02Min	59Sec	1.14	1.12	
K/T(30/07/2021)	50x70cm	M/c-25	1.10Min	55Sec	59Sec	1.14	1.12	
K/T(30/07/2021)	50x70cm	M/c-26	59Sec	54Sec	55Sec	1.14	1.12	
Cushion Cover (30/07/2021)	45x45cm	M/c-67`	1.58Min			2.54	2.15-2.18	
Cushion Cover(30/07/2021)	45x45cm	M/c-80	2.18Min			2.54	2.15-2.18	
Table Cloth(30/07/2021)	130x180cm	m/c-4	3.25Min	3.42Min	3.44Min	4.24		Folding Of T/c=18Sec
Table Cloth(30/07/2021)	130x180cm	m/c-23	2.25Min	2.30Min		4.24		
K/T (double Side stitch and Tag,Hanger placement)(3:	50x70cm	M/c-24	41.0Sec					
K/T (double Side stitch and Tag,Hanger placement)(3:	50x70cm	m/c-25	33Sec					
K/T (double Side stitch and Tag,Hanger placement)(3:	50x70cm	m/c-8	31Sec					
K/T (double Side stitch and Tag,Hanger placement)(3:	50x70cm	m/c-31	39Sec					
K/T(02/08/2021)Reguar Running	50x70cm	m/c-8	45.55Sec	48.77Sec	42.56Sec	1.04		
K/T(02/08/2021)Reguar Running	50x70cm	m/c-1	1.00Min	59.54Sec	59	1.04		
K/T(02/08/2021)Reguar Running	50x70cm	m/c-15	42Sec	Mainte	47Sec	1.04		
K/T(02/08/2021)Reguar Running	50x70cm	m/c-17	44Sec	50Sec	47Sec	1.04		
K/T(02/08/2021)Reguar Running	50x70cm	m/c-18	53.29sec	55.89Sec	46.39	1.04		
K/T(02/08/2021)Reguar Running	50x70cm	m/c-19	49.66Sec	48Sec	44Sec	1.04		
K/T(02/08/2021)Reguar Running	50x70cm	m/c-20	50.61Sec	50Sec	48.89Sec	1.04		
K/T(Non Regular)	50x70cm	m/c-118	1.01Min			1.04		
K/T(Non Regular)	50x70cm	m/c-110	1.01Min			1.04		
K/T(Non Regular)	50x70cm	m/c-109	1.07Min			1.04		

Proper Training for the industry & workers

The Line Supervisor is in charge to feed the materials and training the Tailors.

Employers are the most precious ones for the industry so we always need a focus on that precious one.

Regular training for the staff and employers is a must to be aware of the product and industry growth.

By knowing these all they all can contribute more to the growth of the company as well as production efficiency.

By bringing the new article the employers need to know the full requirements of the product so that we need to instruct how to make this product and from that, we can fix SMV and give the Target.

Workers also need some motivation so it's our responsibility to make them stress-free because we needed good products of good quality.

Employers who are undergoing regular training activities can show their skills in production and also can work with fulfillment with motivation.

Even there is some enormous process to make the valuable training an effective one.

The organization should ensure that their employees are in good health manner in both physically and mentally wise.

While giving the training the organization also ensures that the training process is effective and useful for their industry.

So in this, we have given a training schedule for the industry to make their employees active and also to motivated.

Training should be done in a frequent manner which helps the management to make the production in a good manner and also within a well effective manner.

The flow of Industry

This flow of industry which we have framed for effective products for all types of home textile industries.

- First of all Need a production Sheet that wants to have the order quantity and variety of the products and counts which need in a particular variety.
- Need a proper production date in each section.
- Want to have a pre-production sample and also want approval for bulk productions.

- After issuing the order sheet to the factory the raw materials want to receive at the factory at the proper time before the production get starts.
- The raw Materials all materials from fabric to accessories or labels for packing must want to received at the starting stage or else it wants to be in the middle of the process because it doesn't want to stop the process at any point stage.
- After the fabrics are received the cutting work starts and in the cutting the first cut piece/Lay for printed/panel cut are you want to check by the section QC after the approval only bulk pieces should want to cut.
- Must thing does not bypass the approval or get approval after some bulk pieces get cut.
- After these the Cutting section wants to get high production so that we can excessively feed another department. Here we can fix the SMV value for certain products at the best SMV value.
- After the Cutting is finished we need to feed the pieces to the Stitching Department.
- In stitching they will receive the pieces and their QC will ensure the Quality of the pieces randomly to ensure the quality at a second checkpoint.
- After the pieces get received the stitching in charge wants to stitch the first piece and get approval from QC.
- After Getting approval the in charge can take some time and he/she wants to give the knowledge about the product and how the product wants to finish as the first piece approval piece to the Line Supervisors and also to the Tailors.
- After that the line supervisors want to feed the materials to the tailors with the help of helpers.
- In this part we are fixing the SAM value to the individual product so that here the timing plays a major role. we want to engage the tailors during working hours except for restroom and water allowance. So the feeding to the tailors wants to be clear also each line wants a QC personally to ensure the Quality on an Hour Basis.
- Especially for a baby product the Quality standards are more needed compared to the other home textile products. So here we are Introducing the "**TRAFFIC LIGHT SYSTEM"** which will indicate the hourly mistakes and if there is a deviation in a particular hour that tailor wants to watch at 7point system after that want to train that tailor about the mistake he did. So after these all things we can attain the Quality from Tailor Side.
- The Line Supervisor is the in charge to feed the materials to the Tailors (for ex: Product: Burby Bib

  Feeding To tailors: Fabric, Yarn, Labels 3 (Brand Label, Wash Care with Order month and year, Warning Label), Snap button (Male and Female), Piping Jersey Fabric).

  So these are the things the Line supervisor wants to feed to the tailors for this particular product so that he/she wants to know where the things want to issue to the particular product so that the line just wants to have the "**TRIM CARD**" for reference.

- The Line QC wants to know which requirement want to check on the particular product after the QC ensures Quality on the line the product will go to the next stage or else it doesn't want to move.
- After stitching is completed the product will move to the checking and packing. Their Qc wants to ensure the random pieces and they can get the product from the stitching department.
- In the checking/Packing Department Same as the Stitching the in charge want to teach knowledge about the product and how to check and trim the product and also how to pack the product to the workers and also to the line supervisor.
- Here also they can get first piece approval for Trimming/label checks and also for First Piece Packing Approval from the Authority.
- In checking and packing also we give an SMV for certain products so here also the workers don't want to roam unnecessarily. The Line Supervisor wants to Feed the Materials properly to workers and also their responsibility to attain the target given based on the SAM.
- The Checking/Packing is the main thing so here also we are recruiting the QC to ensure the quality. The Rework pieces want to be handover to the concerned department for the rework process. Here we want to display the most-needed accessories images to display in each line for their reference purpose.
- After the Random/Final inspection by Qc the piece want to move to the packing.
- From Packing also the Quality want to ensure and there also we need to display what are the accessories be in the packaging like brand tag, polybag, wafer seal, etc.,
- And we need to post the display like the how the product needs to be folded and want to pack in the Concern polybag which the buyer gave to us.
- After Ensuring the Quality of the packaging by Qc we can make carton boxes respectively. Then finally after the carton boxes get sealed we can make a final random inspection by Boxes. This wants to be checked by the QC to attain the final Checkpoint For the "**QUALITY**"

Things need to concentrate in these flow

- Need to follow this Target or else to the extent we need to attain 85 – 90% of these targets.
- We can also constantly revise these SAMs at a certain period based on the workers we have whether it may be a Company person or Contract persons.
- By following These SMV we can achieve our Daily Target and also we can finish our target without any Time.

Quality checkpoints:

- From the beginning of the Raw Materials
- Receiving the materials to the factory (Cutting/Fabric Storage)
- While Cutting
- Final checking at Cutting
- While Receiving at Stitching
- Inline at Stitching
- Final checking at Stitching
- While Receiving at Checking/Packing
- Inline at Checking
- Final Checking at checking
- While Receiving at Packing
- Inline of packing
- Final checking at Packing
- Final Inspection after carton Packed

Results & Discussion

These are the process and flow of the industry with their products which can make the product in proper flow and also the industry.

By following these points all three types of sectors can get high production efficiency with good quality of the product.

By this, we are attaining good products in the industry and by this, we are attaining our goal of us.

The points here we are mentioned are taken and implemented from our study and research of the industry.

By following and implementing these quality checkpoints, flow the industry can attain better efficiency.

In the initial stage, it is difficult to follow for the industry because they have attached to different manner but after implementing and used to it they can make a good amount of product with the good quality.

There are some defects at the management level so we are given some techniques to rectify the management problems.

From these all the production of the industry will be increase by more than of 85% from the normal regular production.

Conclusion

The IE implementation and the study carried out in the three different home textile production units helps the industry to choose the right material flow and production technology. By this study, we had reduced the SAM time for the various home textile products which in turn results in higher productivity which enables the production unit to meet the buyer commitment. The IE techniques will also play a vital role in the medium scale industries which helps to find out the labour efficiency and operating level. By this, they can able to redefine their working methodology. In the initial stage, it is difficult to follow the IE techniques in the industry because but after implementation, the industry can ripen he benefits of producing the home textile products at right time in right quality.

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