

Avoiding Non-Value Added Activities by Applying Lean Techniques in Merchandising Process

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Received: 13 April 2021 Accepted: 30 April 2021 Published: 15 May 2021

Abstract

Clothing industry focus is for achieving effective productivity and improving capacity and also to satisfying the customer needs. Lean tool is used to improve the productivity in the production industry. This study is about analyzing and removing the non value added activities and improving the flow process of an order

Index terms—

1 Introduction

Merchandising process involves its hard role from examine order till shipment, and thus they play a very dangerous role in completing an order. The single mistake of each stage will be reflected only in the end process of shipment, so appropriate destinations that cause problem should be encircled prior to avoid issues. Every organization in today's condition, seeking for some proficient method to improve, in that way lean techniques utilization could be troublesome in implementing though it has its ideal improvement of all asserts like labour, cash and strategies. To accomplish these, the lean creation theory I utilized here is Kaizen and six sigma. The authors discussed about the lean role in the industries that is discussed by various authors.

The idea of 'Lean creation' was at first acquainted with the more extensive open in the book "The machine that changed the world" composed by Womack et al. (1990). The term is likewise perceived as 'Lean assembling' or simply 'Lean', to a business methodology with the target of ceaselessly limit squander and augment the progression of data and items (Liker, 2004; Hino, 1988) (1).

Lean has subsequently expanded to business practice generally. Lean administration is turning into the norm for deliberate profitability improvement. Inefficient activity wiped out the unwanted exertion, space, and capital required and lead time is diminished while quality increments and the expense of value diminishes. Lean implementation faced various obstacles related to human aspects such as the lack of knowledge of daily kaizen practices for process improvement (5).

The Time Study observing framework, a yield of the examination, is a compelling and effective device to improve profitability in the whole sewing segment, Author Nandhini: Department of Apparel & Fashion Design PSG College of Technology, Coimbatore. e-mail: nandhininatrajan78@gmail.com whose advantages stretch out to the entire association. Wasteful action is eliminated the result is that less effort, space, and capital are required and lead time is reduced whilst quality increases and the cost of quality decreases (6). The fundamental standards of lean and its goal is that the idea is based upon the worth creation forms, which implies that every movement, inside or outer, that doesn't support the end client, is recognized as waste, and will be killed from the procedure (Liker 2004; Dodge et al. 2011; Hah and Ward, 2007).

Here, certain changes in process were implemented to avoid non value added activities and getting gradual improvements in bottleneck areas.

2 II.

3 Methodology

Garment Export Company is one of the important components in an export industry of India. The garment exporting is the second largest export from India after gems and jewellery export according to the year 2002 survey. The garment export is being an important contributor for the foreign exchange earnings of the country

(Deshpande 2009). The Indian exports had a decline by one percent in 2017 when compared to 2016. This is highly possible only because of applying certain lean techniques and developing the standard process to make a prominent work flow.

4 Process flow of an order

Sales manager gets appointment with client Sales manager meet client and deliver the presentation about our existing works Once client is satisfied they suggest for quotation and get it done according to their need and also they suggest for some new designs Designer helps them to give the exact design which client ask for Some ask for exact sample of their bulk order and get confirmed about the purchase order

Then the enquiry form with all necessary details will be handovered to business relationship team They calculate the order quantity and book the required fabric which takes 20 days of time to reach the production. It gets differ, according to availability of fabric and amount.

Mean time, the team will split the size measurements of the order where they have standard size with comments and also individual measurements.

They should enter all the process in datas.

After the fabric is released, they will release the order sheets to production unit.

As a process the goods will be completed line wise.

It will be packed and sent to client.

BRM team should follow up the payment with client and should clear it within 60 days.

Hereby, above mentioned was the process flow happening in the merchandising process and highlighted stages are the bottle neck operations where efficient development is needed.

Lean Techniques were implemented to overcome the problem were occurred in production department is discussed here.

5 a) Changing of order sheets

According to Stern, Susan vi et al 1984 The textile exporting is the next largest source after agriculture in India. The textile has provide the jobs over 10 million employees. India has been the one of the large exporters due to its skilled workforce of the employee, low wages, trained technicians etc. This made India to be the strong economy which gives the improvement of 7 per cent in 1983. Eliminating the waste of time and effort gradually increased them to next stage.

Here, some sheets of order sheets are not considered and used by the production unit. So order sheets was converted from six sheets into three sheets in which only required information are described short and clearly. This type of changes avoids paper waste, unwanted process, avoiding confusion and also minimizes the time to get it completely done.

Specification sheet: Pattern details, shade number, fabric width, parts of merchandise and accessories trims as shown in Fig. 1 Embellishment sheet: About the embellishment and its placements as shown in Fig. ?? Quantity sheet: About quantity, sizes and their comments as shown in Fig. 3 According to Jung Ha-Brookshire (2015) One of the key goals of the vending function is to plot garb merchandise within the styles that focus on clients would like to have, at the price they are willing to pay, inside the sizes they want, and at the time they want to shop for. Precise forecasting is one of the most vital secrets and techniques to fulfillment in any clothing agency in these days's market surroundings.

When sales managers meet clients to get their needs, there happens a lag of communication in conveying the right features needed in that particular merchandise. So there is a common clientele form for sales manager where some necessary details (like name of client, fabric, merchandise, quantity) was supposed to be filled by sales manager and get confirmation signature from clients to start the process further.

To bring lean techniques, had added an extra form called client approval form to get additional confirmation from clients (Fig 4) which contains the visual diagrams of different collar, cuff, embroidery positioning etc. that is more easier for clients to visually understand and finalize the design they want. This gradually decrease the confusion between client, sales manager, enquiry team and designers to follow up the process effectively.

6 d) Catogirizing the datas according to priorwise

According to Arashdeep Singh (2015) The 2d S, Seiton, manner 'neatness' and targets to have matters in the proper location or proper layout in order that humans can acquire or use something they want quick. To do that, one need to prioritise the need and importance of products/gadget to maximise ease of place. The key questions who, what, why, in which, while and the way (Imai, 1986) have to be requested of oneself in respect of each object. This pastime involves ensuring distinctive places for all items within the place of business, thereby facilitating employees to have green manipulate over the operations and allows employees to meticulously plan substances, supplies, or tools requirements.

There numerous datas in drive like internal request, purchase request, fabric booking, sample request, order sheet request etc. There will be more orders to look simultaneously but some have prior attention due to high value order or orders that received advanced payment etc.. In that case all these orders in a sheet will be highlighted in different way to indicates the importance and status of each orders shown in ??fig 5 This reduces

the confusion of getting jammed of finishing certain works. This goes by a flow and every order gets good time management and most probably the delay in each process will be eliminated.

7 Fig. 5: Status of orders in different colors e) Minimizing the Sample pieces

According Fabrizio, Tapping (2006) The movement which does not add any value to the work is waste of motion. If the company is not having a efficient job process and office design leads to more walking, reaching or bending than necessary. The seiso is to clean the work place and setting things in order.

Giving more sample pieces to a specific client without getting purchase order is giving a way for client to involve in illegal process like implementing our designs with other vendor with minimum cost where that vendor does not have overheads and it is so easy for them to quote for less amount.

8 f) Created CRM Profile

According to Takhar (2004) has mentioned the benefits associated with 5S, such as fewer mistakes, high speed work management, better inventory management, improved employee discipline, and a more impressive environment to handle potential customers.

To get more effective relationships with client, created CRM profile, this is a platform in which all recurring clients can be added and started to have a relationship management with industry. In CRM all new output designs and quotations will be uploaded, so client get a chance to look details about all the merchandises and this helps to get more promoted about the ideas of design and create awareness about the industry works.

9 g) Proposal idea for new technique effective woven mask

Unfortunately, whole world was supposed to face a pandemic situation "Covid-19" which made everyone of us to protect ourselves with mask. When comes to surgical, using of onetime usable mask is not most appreciable for day to day life.

So used technology in potential way and made an effective reusable woven single layer innovative cheap mask with best possible price that can be easily affordable and also highly effective. Here it is explained it in detail with design, pattern details, sourcing details and effectice costing.

Thus the above mentioned 7 methods are implemented in a way of lean approach to avoid non value added activities and to make a standardised flow in merchandise process.

III.

10 Results and Discussion

The proposal ideas had directed a standardized, effective and efficient flow of the process to make the flow easier. To find the ranking of each changes, conducted a survey with 25 sample of merchandisers and designers. Their points for each changes was noted, consolidated and given below as Changing of order sheets -This changes avoids paper waste, unwanted process, avoiding confusion and also minimizes the time to get it completely done.

Minimizing Timeline for each process-It may not be suitable for all type of orders, it depends on clients, merchandise, fabric availability and quantity.

Created CRM profile-Chances of attracting clients and maintaining their relationship for a long time.

Design Proposal for effective woven mask filtration -This is cheap effective method that can be used for a month with expected

Priorwise Data -This reduces the confusion of getting jammed of finishing many requests. This goes by a flow and every order gets good time management and most probably in delay in each process will be eliminated.

Minimizing the Sample pieces-Not all clients get satisfied with this point, as we are a startup company, we cannot demand for samples with clients.

IV.

11 Conclusion

Thomas A. Fabrizio (2006) Reduction of waste in the office helps to increase the cost or time of doing the work This can be applied to the most of the problems in industry by doing the 5s the seven waste can be eliminated such as correction and rework, waiting, unnecessary motion, over processing ,equipment downtime, Inventory and storage and inspection. Most of the companies feel that 5 per cent of work is only value added and others are non value added or wasted activity.

As per the discussion, applying principles of lean techniques had a major role in developing the order process in a most possible way. It helps to reduce time, to reduce overlapping work and confusion and it also helps to maintain a standard way to move in a flow. Thus from the above study it was understood that the merchandising is an important job and lot of non value added activities are involved in it and making the task more risk. Therefore

11 CONCLUSION

WORKAHOLIC		SPECIFICATION SHEET		QCC	
Order Ref code :	Project : Workaholic 2019 - 2020	Category :	Fabric :		
W/	Client :	Men	Shade no. :	Fabric swatch	
	Merchandise : Half sleeve shirt		Fabric width :		
	Date placed :				
Pattern : Allen Solly Half Sleeve Regular Fit Shirt measurements					
Front			Back		
Accessories/Trims : Workaholic and size label Matching thread Matching 18L buttons		Canvas for collar Placket canvas		*NOTE :	

Figure 1: Fig. 1 :

WORKAHOLIC		EMBELLISHMENT SHEET		QCC	
Order Ref code :	Project : Workaholic 2019 - 2020	Embellishment type :	Shade Card:		
W/	Client :	Embroidery (Satin fill embroidery with satin outline)	<input type="checkbox"/> Shade number (color) <input type="checkbox"/> Shade number (color) <input type="checkbox"/> Shade number (color)		
	Merchandise : Half sleeve shirt				
	Date placed :				
Embroidery placement :					
A- highest point from the shoulder					

Figure 2: Fig. 3 :

[illegible]

CLIENT APPROVAL FORM				
Project :	_____	Client Sign & Seal	Fabric swatches:	
Client :	_____	[Signature Box]	[Shirt Swatch]	[Pant Swatch]
Date :	_____			
Collar Types :	Cuff Types :			
<input type="checkbox"/> Pointed collar <input type="checkbox"/> Button down collar <input type="checkbox"/> Small spread collar <input type="checkbox"/> Spread collar	<input type="checkbox"/> Rounded cuff <input type="checkbox"/> Angled cuff <input type="checkbox"/> Square cuff <input type="checkbox"/> One buttoned cuff <input type="checkbox"/> Two buttoned cuff			
Placket Types :	Pocket Types :			
<input type="checkbox"/> Outer placket <input type="checkbox"/> French placket <input type="checkbox"/> Invisible placket	<input type="checkbox"/> Arrow pocket <input type="checkbox"/> Classic pocket <input type="checkbox"/> Curved pocket <input type="checkbox"/> Square pocket			
Logo placement :	<input type="checkbox"/> Embroidery	<input type="checkbox"/> Print	<input type="checkbox"/> Label	Gripper Types :
<input type="checkbox"/> Pocket centre <input type="checkbox"/> Pocket mouth <input type="checkbox"/> Above pocket <input type="checkbox"/> Right chest	<input type="checkbox"/> With gripper <input type="checkbox"/> Without gripper			
Sales approved by :	_____	Enquiry approved by :	_____	Order authorised by :

11 CONCLUSION

Request No	Request Date	Purpose (Head of Account)	Client name	Value	Approved value	Expected date	Request settled date	Payee	Remarks
460	27.02.2020	Travel Request	Sure Trial	400		Close In Internal		Akumalia	Approved
571	04.03.2020	Travel	Hindustan	400		06.03.2020		Anun	Approved
572	04.03.2020	Uniform cost	Office	500		07.03.2020		Mithun	Approved
854	06.03.2020	Machine service	Tripura	4,150.00		06.03.2020		Well known syndicate	Approved
855	26.02.2020	Office expense	Station bag	2,200.00	2,200.00	26.02.2020			Approved
774	22.02.2020	Accessories	KC-Tripura	4,423.00	4,423.00	24.02.2020			Approved/Hold
462	05.03.2020	Travel	Sachem	6,500.00	6,500.00	06.03.2020		Onest	Paid
464	06.03.2020	Client Visit	Intimate	4,150.00	4,150.00	07.03.2020		Ganesh	Paid
848	19.02.2020	Scissor Washing	Scissor	480	480	20.02.2020		Kolda	Paid
563	24.02.2020	Rabwin Goods Transportation	Denet	500	500	26.02.2020		Ganesh	Paid
565	25.02.2020	Hotel stay	Hotel stay	479	479	25.02.2020		Ganesh	Paid
564	25.02.2020	Courier	Enmas	2,250.00	2,250.00	25.02.2020		Ganesh	Paid
566	25.02.2020	Hotel stay	Hotel stay	700	700	26.02.2020	11.03.2020	Alchaya	Paid
459	26.02.2020	Travel Request	Poles and Tarnale	3,300.00	3,300.00	27.02.2020		Job Andlers	Paid
853	27.02.2020	Office car - Fuel	KC-Tripura and ZF	800	800	27.02.2020	11.03.2020	Alchaya	Paid
557	08.02.2020	Freight	KPR	500	500	12.02.2020		Ganesh	Paid
557	17.02.2020	Bus Parcel	Poles - Polo	500	500	17.02.2020		Ganesh	Paid
561	19.02.2020	Freight - Truck	Taxi	496	496	19.02.2020		Ganesh	Paid
561	25.02.2020	Bus Parcel	Shanaz	320	320	26.02.2020		Ganesh	Paid
786	04.03.2020	Accessories and fabric	Audrecht	594	594	06.03.2020	11.03.2020	Alchaya	Paid
457	25.02.2020	Travel	Towers & givers shankar	1,850.00	1,850.00	25.02.2020		Dinesh	Paid
761	05.03.2020	Packet, Collar & Cuff	Sathya	56,850.00	56,850.00	25.02.2020		Ven	Paid
761	05.03.2020	Accessories	Sathya	23,854.00	23,854.00	25.02.2020		Ven	Paid

Figure 5:

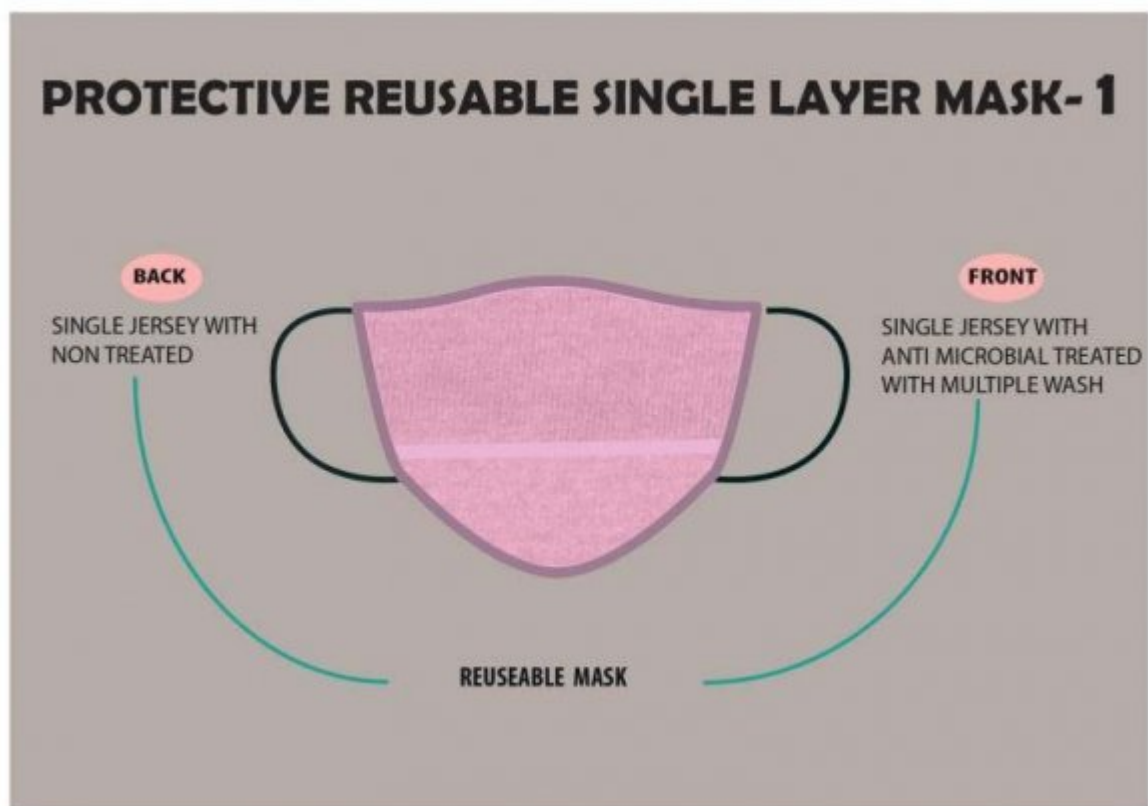


Figure 6:

COSTING DETAILS

Yarn Price /KG	214
Knitting Charge /KG	18
Washing /KG	16
Antimicrobial finisih /KG	180
Total'	428
5% Processing waste	21.4
Fabric Price	449.4
Consumption per Mask	7grams
Cost Per Mask	3.1458
Elastic Price per meter	5
Elastic Per Mask(12" including both side)	1.5
Sewwing thead (2 Meter)	0.016
Cutting	0.8
Stitching	2
Total	7.4618
Production & Management Over Heads	1
Margine 20%	1.49236
Grand Total	9.95416
Selling Price	10

Figure 7:

11 CONCLUSION

157 in this study, by considering the risks involved, the lean techniques has been selected and implememnted for
158 reducing the non value added activities and making easy job for merchandisers. ¹

[Lean Thinking et al.] , James P Lean Thinking , Daniel T Womack , Jones .

[Inc and Brookline ()] , Inc , M A Brookline . 1999. The Lean Enterprise Institute,

[Int. J. Production Economics ()] , *Int. J. Production Economics* 2000. 63 p. .

[Womack and Jones ()] , J P Womack , D Jones . 2003. *Lean Thinking?*, FREE PRESS, NY.

[Mcgraw-Hill ()] , Mcgraw-Hill . 2004. New York.

[Int. J. Production Economics ()] , *Int. J. Production Economics* 2007. 107 p. .

[12th Global congress on manufacturing and management ()] *12th Global congress on manufacturing and management*, 2014.

[Abhishek et al. (2011)] Dixit Abhishek , Patel Sanjay , Dixit Anupam . *Lean Manufacturing to lean enterprises? proceedings of the International Conference on Industrial Engineering*, 2011. November 17-19, 2011. p. . SVNIT, Surat

[Dengiz and Kunter] *Akbay Computer simulation of a PCB production line: meta modeling Approach*, Berna Dengiz , S Kunter .

[Awad S. Hanna1, Michael Wodalski2, and Gary Whited (ed.)] *Applying lean techniques in delivery of transportation infrastructure projects*, Awad S. Hanna1, Michael Wodalski2, and Gary Whited (ed.)

[Ciarniene and Vienazindiene ()] R Ciarniene , M Vienazindiene . *Lean manufacturing: theory and practice? Economics and Management*, 2012. 17 p. .

[Rose et al. (2010)] *Development of framework for lean manufacturing implementation in SME's? Asia pacific Industrial Engineering and Management Systems Conference*, A M N Rose , B Deros , M N Md & Rahman , Ab . 2010. Dec. 7-10, 2010. Melaka.

[Hines and Taylor ()] *Going Lean?*, *Lean Enterprise Research Centre, Cardiff Business School*, P Hines , D Taylor . 2000. 2013. p. . (text matters.com on 12.12.)

[Implementing Lean Practices: Managing the Transformation Risks-Antony Pearce and Dirk Pons in 2013] *Implementing Lean Practices: Managing the Transformation Risks-Antony Pearce and Dirk Pons in 2013*,

[Mekong ()] 'Introduction to lean Manufacturing ? Accessed from <http://www.lean6sigma.vn/Download-document/2-Lean-Manufacturing>'. Mekong . *s Capital Review* 2004. 2013. p. .

[Fawaz] *Jayant Rajgopal Analyzing the benefits of lean manufacturing and value stream mapping via simulation: A process sector case study*, Abdulmalek Fawaz .

[Raphael l. Viralo, Frank Butz, Joseph P. Vitalo (ed.)] *Kaizen Desk Reference standard by*, Raphael l. Viralo, Frank Butz, Joseph P. Vitalo (ed.)

[Mohammad ()] 'Key factor for implementing the lean manufacturing system?'. Teleghani Mohammad . *Journal of American science* 2010. 6 (7) p. .

[Dennis P. Hobbs (ed.)] *Lean Manufacturing Implementation by*, Dennis P. Hobbs (ed.)

[Mirzaei ()] *Lean Production: Introduction and Implementation barriers with SME's in Sweden?*, Pedram Mirzaei . 2011. Sweden. School of Engineering in Jonkoping

[Bhasin and Burcher ()] 'Lean viewed as a philosophy'. S Bhasin , P Burcher . *Journal of Manufacturing Technology and Management* 2006. 17 (1) p. .

[Alavi ()] 'Leaning the right way'. S Alavi . *IEE Manufacturing Engineer* 2003. 82 (3) p. .

[Hines et al. ()] 'Learning to evolve: A review of contemporary lean thinking'. P Hines , M Holweg , N Rich . *International Journal of Operations & Production Management* 2004. 24 (10) p. .

[J] *Liker The Toyota Way*, J .

[Rajesh Kumar Mehta et al. ()] *Mehta An Exploratory study n employee's perception towards lean manufacturing systems Management & marketing*, Dharmendra Rajesh Kumar Mehta , K Mehta , Naveen . 2012. X.

[Pramod and Banwet (2010)] V R Pramod , D K Banwet . *ISM for understanding the inhibitors of a telecom service supply chain? proceedings of the International conference of Industrial Engg. & operation Management*, (Dhaka, Bangladesh) 2010. Jan. 9-10, 2010.

[Rother] *Shook Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*, M Rother , J .

[Singh Binod Kumar et al. (2011)] Bhar Singh Binod Kumar , Chandan & Pandurangan , Visvesvaran . *Competitive advantage of lean manufacturing over traditional manufacturing? proceedings of the International Conference on Industrial Engineering*, 2011. November 17-19, 2011. p. . SVNIT, Surat

[Alireza and Osman (2011)] *Success and failure issues to lead lean manufacturing implementation.? proceedings of the International Management Conference*, Esfondyari Alireza , & Osman , MR . 2011. April 16-17, 2011. Malaysia.

[Pingyu et al. ()] 'The barriers to SME's implementation of Lean production & countermeasures. ? International journal of innovation'. A Pingyu , B Yang & Yu , Yu . *management & technology* 2010. 1 (2) p. .