

# 19<sup>th</sup> International Technical Footwear Congress

February 03-05, 2016, Chennai, INDIA

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## Sustainability benefits for shoemakers using Management Systems

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## Sustainability

“The quality of not being harmful to the environment or depleting natural resources, and thereby supporting long-term ecological balance”

people products planet...  
in harmony



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# Selection of Management Systems

Systems are selected primarily to achieve cost saving and increase production efficiency both of which impact positively on the long term sustainability of the products



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## Management Systems

The major benefit is a significant reduction of the materials and resources used.

Additional benefits include:

- Increased productivity
- Improved product quality
- Expanded knowledge





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## Product specification

- Selecting materials and components correctly
- Planning ahead for production, wear and end of product life
- Standardising components and processes to minimise production resources



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## Leather Cutting Systems

- Increased material utilisation
- Less scrap to landfill
- Reduced storage
- Less transportation
- Improved product quality





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## Key aspects of a leather cutting system

- Identification of unusable material
- Grading leather to match product requirements
- Agreed assessment of leather for usability



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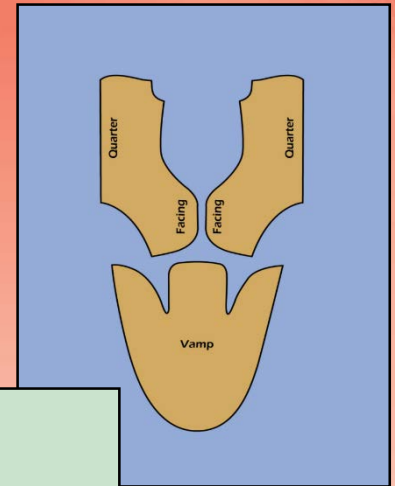
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## Key aspects of a leather cutting system

- Liaison with product designer to minimise wasteful patterns
- Calculation of cutting allowance to maximise material economy





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## Key aspects of a leather cutting system



- Intensive training of production personnel




## Key aspects of a leather cutting system

- Monitoring results to identify problems and achieve continuous improvement

**SATRASumm Cutting Ticket** 18/12/01 Ticket Number 352/1 Cutter's Number \_\_\_\_\_ Cut Week \_\_\_\_\_

Style Code 1004A Material Code 087001 Cutting Type M  
Construction 1004A Material Description BUFFCALF BLACK Adjustment Factor 0  
Part 1004-1 Material Skin Size 0.99 sq m Factory SATRA  
Folio Number 6989070 Skin Trimmed N  
Total Pairs 96



Pairage

Shoe Sizes	6	7	8	9	10	11
12	24	24	24	24	24	24

Maximal Stems

Knife Code	6	7	8	9	10	11
1406UP	12	24	24	24	24	24
1406CAP	12	24	24	24	24	24
1406GTP	12	24	24	24	24	24
1406ULAV	0	96	0	0	0	0
1406STRAP	0	96	0	0	0	0
1406STRLOCK	0	96	0	0	0	0

Quality

Area	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
103	17.79	17.50	18.01	18.33	18.24	18.26	18.48	18.60	18.72	18.84	18.97	19.09	19.22	19.35	19.48
102	17.97	18.08	18.19	18.31	18.42	18.54	18.66	18.78	18.90	19.03	19.15	19.28	19.41	19.54	19.67
101	18.24	18.26	18.37	18.49	18.60	18.72	18.84	18.97	19.09	19.21	19.34	19.47	19.60	19.73	19.86
100	18.33	18.44	18.56	18.67	18.79	18.91	19.03	19.15	19.28	19.41	19.53	19.66	19.80	19.93	20.06
99	18.51	18.63	18.74	18.86	18.98	19.10	19.22	19.35	19.47	19.60	19.73	19.86	20.00	20.13	20.27
98	18.70	18.82	18.93	19.05	19.17	19.30	19.42	19.55	19.67	19.80	19.93	20.06	20.20	20.33	20.47
97	18.89	19.01	19.13	19.25	19.37	19.50	19.62	19.75	19.88	20.01	20.14	20.27	20.41	20.54	20.68
96	229.55	230.41	231.27	232.14	233.01	233.88	234.76	235.64	236.52	237.40	238.29	239.17	240.07	240.96	241.86

Supplier \_\_\_\_\_ Amount Issued \_\_\_\_\_ Extra \_\_\_\_\_ Returned \_\_\_\_\_ Used \_\_\_\_\_



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# Benefits of a leather cutting system?

For a footwear manufacturer producing 3,500 pairs/day of men's shoes, they will use 2,275,000 square feet each year. By working with a best practice leather cutting system they could reduce this figure by...





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## Benefits of a leather cutting system?

at least 8%

This represents 182,000 square feet equivalent to ...



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## The area of Chennai cricket ground!



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## Stitching productivity

- Stitching can represent up to 40% of work content in footwear
- Major user of energy
- One of the most skilled operations in shoe manufacturing





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## Key aspects of stitching productivity

- Operatives selected for natural ability
- Correct training needed
- Working position is critical
- Stitching machine configuration and motor matched to each operation



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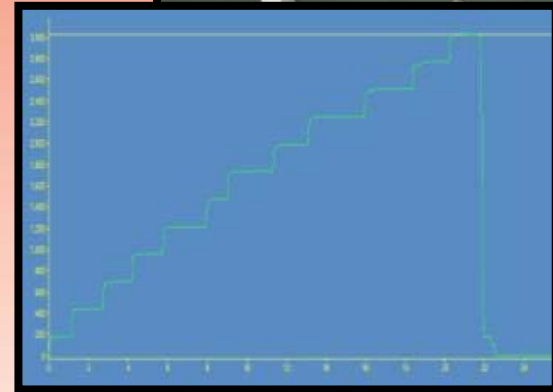
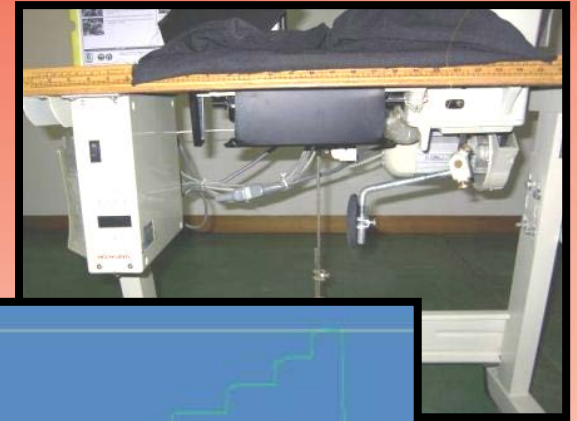


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## Key aspects of stitching productivity

- Adjust speed and acceleration of the motor
- Reduce energy use
- Reduce rejected work and excess materials
- Provide operative with increased control and confidence



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## Benefits of stitching productivity

- Less space, power and energy needed
- Reduced storage and transportation
- Minimised throughput time
- Operator fatigue significantly reduced
- Productivity increase by over 30%





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## Line Balancing

- Identifying and minimising any bottleneck on a production line which causes low productivity.
- This wastes valuable resources such as energy, space, time and people



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## Line Balancing

- Extra storage of materials, components and work in progress
- Excess transportation of products between work stations
- Time wasted looking for work





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## Key aspects of line balancing

- Analysis of working methods
- Discussion with operatives to identify best practice
- Design of workplace layout
- Provision of correct equipment





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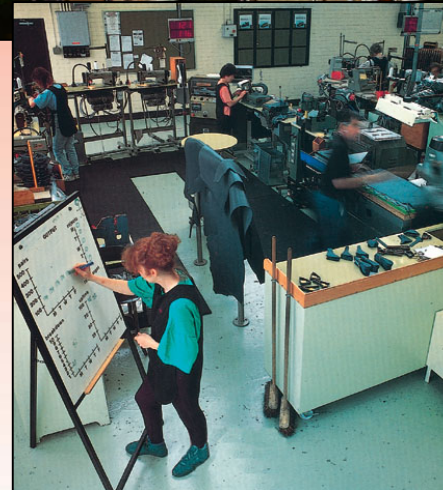


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## Key aspects of line balancing

- Skilled operatives to demanding tasks
- Calculation of realistic production targets
- Efficient production planning to minimise style changes



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## Benefits of Line Balancing

- Reduced energy consumption
- Less space required
- Less time needed to produce the products
- Reduced operative fatigue and frustration
- Fewer spoiled products
- Minimised overuse of materials and components





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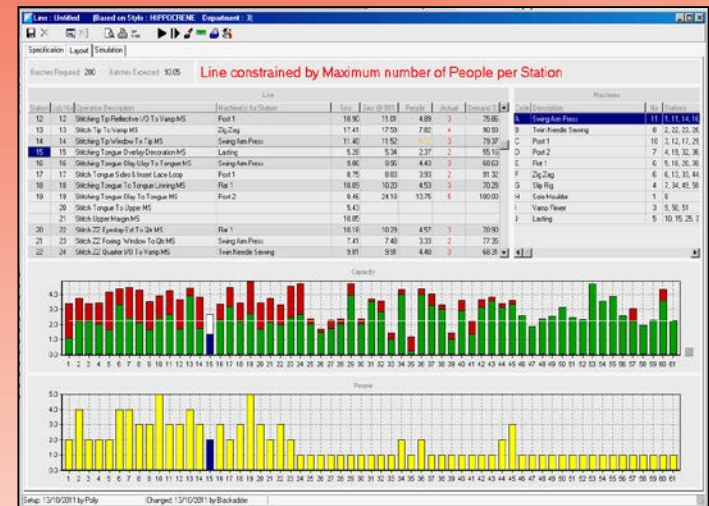
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# Benefits of Line Balancing

For a footwear manufacturer producing 3,500 pairs/day of men's shoes, using a best practice line balancing system, they could increase their productivity by over 18%.





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## Benefits of Line Balancing

They will produce an extra  
164,000  
pairs each year!



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## Lean Manufacturing

- Introduction of company wide culture to minimise all waste
- Continuous drive to improve using 'step by step' approach
- Incentivise workforce to contribute and share benefits



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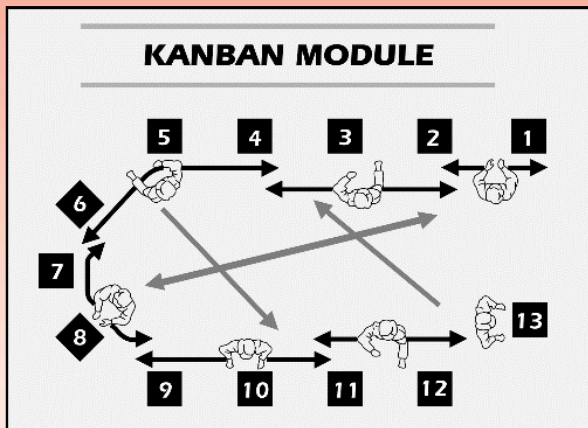
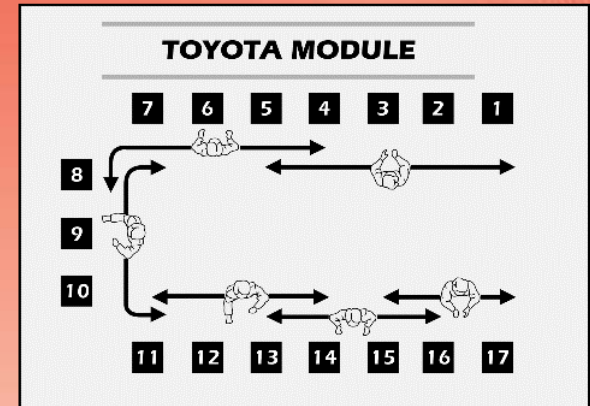


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## Benefits of Lean Manufacturing

- Reduced storage and transportation
- Minimised throughput time
- Reduced energy use



- Less work in progress
- Faster deliveries
- Fewer mistakes





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## Conclusion: Sustainability Benefits

- Materials savings  
(Transport and waste)
- Energy use
- Right first time  
(Reducing waste)
- Fit for purpose  
(Durability)



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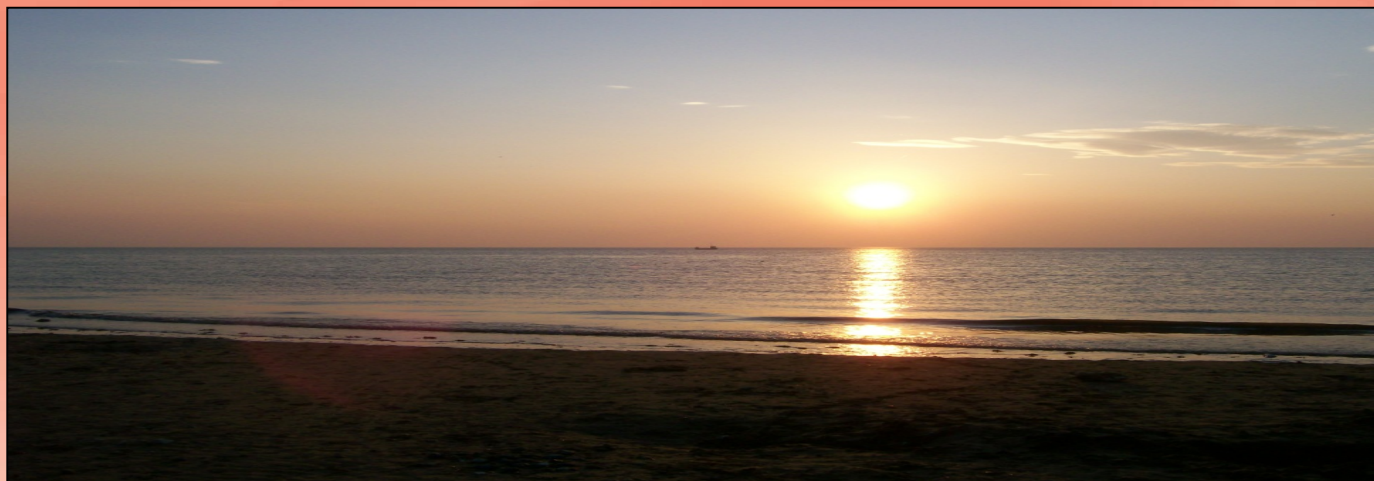
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## Conclusion



Sustainability is now a key part of the global supply chain.

There are many challenges ahead.

