

This article is based on a paper prepared for the 19th UITIC Congress by SATRA's John Hubbard which outlines some benefits in terms of sustainability that can be gained in footwear manufacturing by the adoption of some of its specialised management systems.

Sustainability benefits

Many retailers are now in the process of 'greening' their supply chain and are looking at using suppliers who not only meet their quality and time scale requirements, but can also have a positive story to tell when it comes to tackling all aspects of the sustainability agenda. However, there is no single model of what a sustainable footwear supply business looks like. No two organisations are the same and each faces different challenges with regard to material sourcing, waste management, the external environment, logistics and

labour supply. Therefore, organisations have to develop their own sustainability narratives.

The concept enshrined in ISO14001 of continuous improvement is beneficial because it carries with it an acceptance that the organisation not only has a set of procedures in place to protect the environment, but also sees this as a journey, albeit one that makes progress year on year. It is important to be able to highlight all the successes that the organisation has had with regard to sustainability criteria. This may include reducing waste or the amount of

deliveries to the facility (thereby reducing emissions from transport sources) or bringing down the power consumption of manufacturing machinery or ensuring that the quality is always maintained and rejected work kept to a minimum. In all of these areas the use of SATRA management systems can have an impact.

When a decision is being made to select a management system the primary question is what savings or productivity benefits will accrue to the business from the use of such a system? It is SATRA's approach to always carry

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SATRASumm identifies useable areas of the leather.

out a feasibility study on any factory to ensure that existing systems are set up in a way in which they can each be effectively utilised and savings can genuinely be made. However, if the saving can be seen not only in terms of the material costs but as part of a sustainable balance sheet then the case will be more persuasive.

As with any tool, it can only be effective if there is a clear vision of the outcome and that input has been sought from the whole production team including designers, buyers, operatives and management. This will allow the savings to begin at the design stage and travel throughout the production process.

SATRASumm

The key aspects of the SATRASumm leather cutting system are a leather grading system to identify useable areas of leather and to match the leather to the particular components keeping the best for the most visible areas of the shoe. The patterns are then matched to the leather and the cutting allowance calculated to minimise the amount wasted. Installing the system involves not only the software but also intensive training on leather grading and of the cutters themselves to ensure they are capable of achieving the materials savings.

By utilising this leather cutting system, materials savings of up to 8%

can be achieved. This is not only a considerable amount of saving purely in terms of material cost but, in addition, there is the consideration of 8% fewer leather deliveries and 8% less material going to whichever disposal route is employed at the facility. This can reduce the carbon footprint of the finished product especially if transport emissions and processing of the raw material are taken into account as part of the CO₂ calculation.

SATRA VisionStitch

Although stitching is only a very small part of the footwear in terms of the weight of the product, it is estimated that up to 40% of the work in the production of footwear is carried out in the stitching room. Stitching is vital to the integrity of the finished upper and mistakes made at this stage can render useless the valuable upper material.

The VisionStitch system monitors the performance of the sewing machines and, before it starts operating, these are adjusted so that the operative sits in the most comfortable position. This limits fatigue which, in turn, improves accuracy. After this, machine motors are adjusted to increase the control the operatives have over them. The result of the training and exercise patterns is to give the operative more confidence and control in order to process the work more efficiently. Although it might mean that the machine is running at a

slower rate, it would be a more consistent operation with no stop-start.

The application of this system alongside operator training can result in an increase in productivity in the stitching room of up to 30%, as well as increasing the accuracy of the work and reducing the amount of rejected uppers. It has also been shown that the smoother operation of the sewing machine uses less power which reduces electricity costs and thereby saves carbon emissions.

SATRA Timeline

Although these systems stand-alone they can also be integrated with the line balancing Timeline software which identifies potential bottlenecks in production lines and matches resources, whether material, machinery or people, to maximise the throughput of product.

By increasing throughput and minimising restrictions, it allows the production line to keep less stock in progress, thereby diminishing the potential for accidental damage. Production can also respond more speedily to the needs of the customer and keep employees fully utilised and motivated. Typical increases in productivity that can be achieved following an analysis of production with the Timeline system and implementation of the results, can be in the order of 18%. For a manufacturer producing 3,500 pairs a day, this could result in an annual increase in production of 164,000 pairs of shoes, in addition to the reduction in lost work, material in progress and worker fatigue.

CONCLUSIONS

Although the decision to install a management system will be primarily based on the cost saving that can be made, it is also worth remembering that these cost savings result from a fundamentally more efficient use of resources and power. By ensuring that operatives are appropriately trained, the quality of the final product should be improved, resulting in shoes that are fit for purpose and right first time. These are also benefits that are part of the sustainable narrative which will be part of the discussions you would have with your customers in meeting the sustainability challenge that faces the whole industry. ■