



Case Study

John Cotton Group Sleeps Easier with Shopfloor-Online MES

*Lighthouse Systems Shopfloor-Online replaces a legacy system
and provides a new platform for manufacturing operations*



Introduction

After many years service, a manufacturing system originally custom built for the John Cotton Group urgently needed replacement - any failure of this critical legacy system would impact production and so was recognised by the company as a significant business risk. Rather than invest again in custom software, the company took the decision to move to an off the shelf solution more easily supported by current hardware and software platforms and able to adapt to other technologies in the future. Lighthouse Systems' Shopfloor-Online was chosen because it demonstrated the functionality required to replace the original system as well as providing a modular approach to future system development,

designed to improve productivity and efficiency. The approach of the Lighthouse team put the focus on the inclusion of shop floor operators into the planning process to ensure that the system precisely matched plant operations. This was instrumental in winning the project and resulted in a strong and close relationship between the two organisations.

The requirement

John Cotton Group is a leading supplier of duvets and pillows to a wide range of retail outlets. It prides itself on a smooth and efficient production line that delivers high quality products in large numbers. The plant at Mirfield, UK, is able to produce as many as



125,000 duvets and 290,000 pillows each week. With many different customers to supply there is a considerable range of product variation to cater for, such as different raw materials, sizes, weights and packing specifications. Most orders are relatively short runs and issued with little notice as the retail sector seeks to minimise stock in the supply chain.

John Cotton Group have relied on computer systems to support scheduling, material requisitioning, shop floor data collection and the provision of key reports to operations and management in order to meet the demands of production for many years.

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Originally John Cotton Group developed a purpose built manufacturing system, written in COBOL. Although this worked well for many years, it became increasingly difficult to support and maintain. What was once a great facilitator that streamlined manufacturing operations became a millstone: impossible to move forward with new technologies, fragile, and a growing risk to the business with significant lost time on the occasions when it failed. The company had to change, it knew it didn't want another bespoke system, but as a comprehensive user of shop floor systems it also didn't want to compromise the fit of the system to the company's needs.

Chris Earl, Group IT Manager for John Cotton, comments, "The decision was purely down to risk. We were having more problems with the old bespoke system and with only one person supporting it there was huge potential for a major problem that could affect production performance. The support gap had to be filled or we needed a whole new approach."

The requirement was, therefore, for a system that would deliver everything that the legacy software had done but using an off-the-shelf software package that would be easier and cheaper to support and maintain. The key requirements were:

- Scheduling: Automatically import the weekly production schedule and allow the

scheduler to experiment with different options such as switching jobs between lines, adding new jobs, and changing the running sequence, to manipulate the schedule to meet the changing demands from customers.

- **Material requisitions:** Communicate to Stores to prepare materials to support the production plan.
- **Job Set Up:** Provide operators the information they need when changing product runs, like bills of materials, key specifications, packing specifications and any special instructions from the Scheduler e.g. alternate material in the case of shortages.
- **Automatic data capture:** Collect product counts and downtime events directly from the PLCs controlling the lines, saving operator time.
- **Quality checks:** Prompt operators to do regular quality checks and ensure the correct specifications are being applied.
- **Spoilage:** Allow operators to record any

spoilage by reason at the end of each production run.

- **Bar code ticket printing:** Finished product is packed into bags and then onto pallets. Bags and pallets are identified with serialised bar-coded labels that must be printed in the required format on a printer by the line.
- **Upload to SAP:** Automatically upload the production and spoilage figures at the end of a production run.
- **Reporting:** Make available a wide range of operational reports to support engineering, management and finance.

Having examined the various systems available, Shopfloor-Online by Lighthouse Systems was the only one capable of meeting the requirements and had the flexibility to match the business processes.

The process

Duvets are produced at a rate of up to 125,000 per week. To manufacture, first the fibre filling is prepared from large hoppers and is carded into a web that is fed into a Cross-Lapper which folds the web into layers of various thicknesses (depending on the eventual tog rating required). This is then fed into a machine that sandwiches the layered web between two continuous sheets of fabric and further into a Multi-Needle machine where the duvet is stitched in one plane and





along two sides. This is then cut to the correct length and sewn along the remaining two sides. It is then weighed, rolled and packed.

The process for making pillows is similar: first producing the fibre filling through a Cross-Lapper and then stitching into pillows, before packing and labelling. Pillow production is a higher volume process.

Time for change

Having identified that the bespoke system was becoming a critical business risk, the management agreed that a new solution needed to be found. It had to be a fully supported off-the-shelf product with minimal customisation, yet flexible enough to meet the specific needs of the business. It had to

interface to existing machines and systems – in this case SAP and a number of custom business databases. Ideally it would offer the opportunity to expand functionality in future and allow John Cotton to consolidate manufacturing applications. Cost was also, of course, a consideration.

Chris Earl was tasked with finding the alternative. His research was largely done on the Internet, searching for MES providers with the relevant experience and expertise to successfully implement the project. A list of requirements was defined to outline the implementation but this was left quite open to enable respondents to interpret the requirements and to demonstrate their approach. When he received the responses Chris quickly reduced the list to just two suppliers. The ultimate decision came down to the approach of the organisations.

He comments, “We chose to work with Lighthouse Systems because they started at the shop floor and wanted to develop the new system to fit the needs of the operators first and foremost. They were conscious of the fact that they needed to sell the system to the people that would be using it rather than selling it at board level and then dictating to the manufacturing users.

The new software was chosen in April 2008, implementation started shortly afterwards and took an iterative approach running alongside the current system. Within a few weeks a pilot was up and running, taking feeds from the machines and presenting screens to visualise production. Interfaces were developed and proven and users were involved in making refinements to screens and reports. The go-live was always planned after the annual busy period and this gave plenty of time to prepare the plant, people and processes.

The final switch over, in February 2009, went very smoothly. In fact, this approach meant that there was no need to parallel run both systems during change over, as all parties had confidence that the new system was ready and fit for purpose.

MES

John Cotton Group had not thought of their legacy system as an MES since it pre-dated that concept, but when trying to replace it, MES was the obvious answer. With Shopfloor-Online, John Cotton Group had been able to

select the modules they needed to meet the requirements, like downloading works orders for tactical scheduling, communicating set up instructions, capturing downtime events and production, recording spoilage, collecting quality measurements, uploading production figures to SAP, and providing all the reports required by all users from operators, to managers and customers alike. The modules not immediately used in Shopfloor-Online provide opportunities for John Cotton Group to expand the MES scope in future.

The new web-based system is very graphical, Operator dash-boards were created to provide operators the information they need to help them visualise production performance at a glance. This was a big step forward from the text based legacy system.

“Although there were a lot of changes being made, the implementation went very smoothly with only a few teething problems that were dealt with quickly and effectively by Lighthouse. In fact, operators didn’t feel as big an impact as we expected and there was no effect on production whatsoever. The feedback has all been good from the shop floor and I think the fact that the operators were a big part of the implementation project from the start has paid off in a huge way. “

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“All nine lines are using Shopfloor-Online, it is the backbone of executing work on the shop floor. The system is being used by operators, supervisors, managers, support staff like the scheduler and engineering, and also finance.

Aside from the obvious advantage that we now have a supported mainstream system that runs on modern technical infrastructure, we also have additional benefits. The main one is the increased visibility and ease of access to all production data in one place. Whereas before, we had reached the end of the road, now we are only just beginning to explore the future potential that Shopfloor-Online gives us.”

Future

Moving forward, John Cotton Group intends to develop the Shopfloor-Online Maintenance Module to support better maintenance planning to minimise the impact on production schedules.

Chris Earl adds, “Something that we want to be able to do is to have better visibility of the product weights for quality managers, the production director and customers. At the moment this information comes from in-line check-weighers and is stored on a standalone

system. We plan to bring this into Shopfloor-Online, removing another legacy application, so that we can chart the weights recorded after each production run and analyse the readings for trending.”

Due to the success of the initial implementation John Cotton Group has plans to extend the system to the company’s Non-Woven’s Division and Chris Earl is sure that the existing project will be developed to use a great deal more of the functionality available within the current system. He concludes, “We are looking at ways of improving the plant’s performance and Shopfloor-Online will play a central role in helping us to achieve greater efficiencies. We have been very impressed with the way Lighthouse has dealt with the project to date and we have established an easy relationship that is based on straight talking and honesty. We will continue to develop the system to gain ever more benefits with the help of our shop floor operators and the Lighthouse team.”

Lighthouse Systems is one of the world’s leading developers of Manufacturing Execution Systems (MES) with offices in London, Singapore, Australia and Rochester, NY. Lighthouse Systems Shopfloor-

Online is web based modular software that provides real time visibility of the entire manufacturing operations environment. Applications include Maintenance Management, Concern Management, Quality, SPC, Downtime, OEE, Spoilage and Inventory Traceability. Shopfloor-Online is being used in a wide range of industries with some of the biggest manufacturing companies; it is deployed in 15 languages in 28 countries.

For more information please call one of our offices or visit our web site www.lighthousesystems.com

UK Office

Lighthouse Systems Limited
Buchan Hill
Pease Pottage
Crawley
West Sussex
RH11 9AP
United Kingdom

Telephone +44 (0) 1293 605300
Email info@lighthousesystems.com

USA Office

Lighthouse Systems Incorporated
Building 3
6780 Pittsford-Palmyra Road
Fairport
NY 14450
USA

Telephone: +1 585 223 0600

Asia Office

Lighthouse Systems Pte Ltd
71 Bukit Batok Crescent
#07-10 Prestige Centre
Singapore 658071

Telephone: +65 6316 4370