



## Case Study

### **United Biscuits takes step-by-step approach to manufacturing information strategy**

*With Shopfloor-Online implemented as core system,  
enhancing functionality over time.*



## Introduction

United Biscuits (UB), a leading international biscuit and snack business, understood the importance of accessing the data collected from its manufacturing plants in order to gain greater visibility and control. However, recognising the need to balance substantial business change with cost-effectiveness, they developed a strategy that would take their UK factories step by step in the required direction. The key to success was finding the right partner to make the journey with UB. After extensive research, Lighthouse Systems was selected.

## Background

An effective manufacturing information system remains the elusive goal for many companies. A number of factors must converge to achieve success: the right on going partnership, a robust standard architecture built on a flexible yet integrated database and manageable costs. Like many

businesses, UB had investigated different options but had yet to find the right approach.

A Manufacturing Steering Group was set up to bring the key stakeholders together and agree a common strategy. The solution lay not in combining differences but in recognising that they were all seeking the same thing – accessible and timely data that would be available for driving operational decisions and improvements. This was to start with one system for measuring line ‘potential’ along with consistent and standard KPIs (Key Performance Indicators) which all sites could utilise. This would give a standard view for all and avoid the possibility of each site building its own set of parameters and measures. Having discussed the major issues, the key processes and the desired benefits, the group agreed on a strategy that was called OLP (Overall Line Potential).



Initially, OLP would deliver a specified amount of key production data, manually collected by shift across 11 sites and 130 lines. This offered a broad and thin slice of information across the business and would enable the company to add further detail and complexity over time. This approach represented a relatively low risk, low cost project for the business and would allow evaluation of the system against quantifiable benefits.

### System selection

The search for a system began and 11 different suppliers were scrutinised to find the right solution for UB.

Phil Chirgwin, UB IS Business Analyst, comments, "Based on our past experience, we knew that suggesting an expensive and large-scale solution would require too much buy-in while the managed service could not have the flexibility or features that we needed. Instead, we were looking for the right supplier with the appropriate approach. We wanted a supplier with whom we could build a long-term relationship and one that could deliver a modular, scalable system that would be cost-effective, flexible and capable of delivering our evolving requirements. We found that supplier in Lighthouse Systems using their

platform, Shopfloor-Online."

Lighthouse began with a proof of concept that could be tried and tested at one site and then mirrored for all others, one factory at a time. The starting point was a thin package giving key information relevant to all plants in order to enable standard reporting across the manufacturing facilities. The functionality would be built up, as required, over time.

*"At a glance, UB can now see waste, output and efficiency levels between factories and lines"*



## Developing the system

It was agreed from the start that those who would use the system should play a pivotal role in designing and specifying it but without compromising its standard and integrated features. Broad parameters and measures were debated at length and the design and terminology to be used within the system was scrutinised until there was consensus on how the system would look and feel and what information it would deliver. All lines had to be mapped and their processes described in order that flow charts could be developed from which the system could be configured. The information required on the dashboards had to be agreed and built into the system design enabling data input to be interpreted with ease and reports to be automatically generated. This led to a standard model for the several types of manufacturing lines within the company, such as baking and frying, which could be repeated across the enterprise. Once the model was right the roll out could begin.

Dave Allery, Manufacturing Data Systems Manager at UB, says, “We were very keen that the chosen supplier would be able to get to know us well enough to design the basic structure of the system but then share with us the skills to install and run it in-house, with support as required. That has meant a lot of

*“The benefit of having a web-based solution means that users of the system can be distributed across the entire UB enterprise yet all have the ability to record and immediately analyse and share key data”*

work up-front scoping the processes and defining them in great detail but it was a necessary and revealing process that will yield huge benefits. This approach was successfully piloted in Manchester and Teesside and then rolled out to the other nine plants across the UK.”

The basic structure of the new system delivers a whole range of core functionality to UB. They include availability, waste, OEE, quality, performance and output. Standard reports have been designed for each of these functions and, now, the company is able take a snapshot of performance across all sites.

Dashboards provide information at 3 levels:

- Line level (a view across all machines in the line)
- Factory level (a view across a lines in the factory) and
- Global (a view across each of the 11 factories).

At a glance, UB can now see waste, output and efficiency levels between factories and

lines producing the same products, or compare different products, set against an expected output and cost.

Dave Allery adds, “Lighthouse never said time’s up despite the fact that the amount of time and effort required had to be greater than was expected when the project was first scoped. The team has been incredibly supportive at every stage and the relationship between our two companies has evolved over time. The new system has been configured to meet our precise needs and it has demonstrated a clear payback over time.”

### Finished Product Quality Checks

Meanwhile, elsewhere in the business, a different need emerged: to replace a legacy database system that was used to capture quality data related to finished goods. Quality teams in UB take regular samples of finished product from the factories and buy back from their customers, the supermarkets. These

then go through a rigorous inspection procedure, whereby any defects or problems found are scored. The scope of the inspection encompasses presentation, packaging, labelling, as well factors such as the product’s freshness, appearance and taste.

Because Shopfloor-Online is an integrated database with multiple modules available, these quality checks were easily incorporated into the core UB model. The benefit of having a web-based solution means that users of the system can be distributed across the entire UB enterprise yet all have the ability to record and immediately analyse and share key data.

The new quality system, called Product Quality Analysis (PQA), has been introduced across all 11 factories and at the main corporate offices.

*“The new system has been configured to meet our precise needs and it has demonstrated a clear payback over time”*



## Benefits to Date

There have been numerous benefits to the business directly attributable to the new systems. These include increased efficiency through transparency of information across the plants. This led to quicker response to issues and greater focus of effort. More structured and accurate reporting has meant the ability for Factory Managers to focus on the areas that need improvement. This in turn leads to an improved ability to trend information and, ultimately, deliver better visibility of performance to the boardroom. Training is quicker than before as all data entry and reports are user generated and uniform. This also enables people to move with ease from one plant to another without the need for further training.

Lee Stephenson, Manufacturing Change Lead, comments, “We are driving towards lean processing in every part of the organisation and a well designed factory information system (Shopfloor-Online) is a key part of this drive. We can concentrate more on process improvement and optimisation rather than responding reactively. More informed managers are more forward thinking, focused and effective. Rich data means that trending becomes more accurate and reliable which in turn leads to more viable investment over time. There is no doubt that having accurate

data delivered quickly and in a clear, readable format means that we can spot changes, incidents, peaks and troughs in performance instantly and take action. With the dashboards operating, the facts just jump out at you.”

## Process Parameter Project

UB have further developed the idea of bringing all manufacturing information into the one Shopfloor-Online system. A separate project was designed to analyse process data in the frying process. The Process Parameter module of Shopfloor-Online has been configured to collect 135 data points in real-time from the PLCs controlling the process, using OPC technology. The data is automatically picked up and the results are analysed. It enables UB to maintain historical process data and, in this instance, keep track of quality parameters in food production.

Now that the architecture for Process Monitoring has been established at the pilot plant, it is being rolled out to all other facilities by the UB team.







## Moving Forward

A Quality Management project is currently underway at the Teesside plant, replacing the legacy system with Shopfloor-Online and extending the functionality for today's needs. The aim is to provide operational and quality information within a single system across all Lines. The system will embody the quality control plan and will capture quality and traceability data from the receipt of raw materials, through every step of the production process to finished goods. It will build on the OLP, PQA and Process Monitoring solutions already in place. It will share the same master data and present information through the same style of reports and dashboards. Once the pilot is completed this

will be rolled out to all other UK sites.

Although the factory systems are providing a rich data stream for management there is still a large degree of manual data input. The future lies in the automation of data capture where possible from devices on the shop floor. This will reduce the use of paper while improving the accuracy and scope of existing standard reports. With increased automation and the accessibility to high volume live data, data consolidation will quickly move out from its central location and be distributed to individual sites with the consolidated summaries being sent back to a central site for overall reporting (the organisational view).

And finally, the ultimate goal is to interface the shop floor system with other applications key to the organisation, such as the ERP system. This will give a single integrated platform for business activities within UB.

*"With the dashboards operating, the facts just jump out at you."*

## Moving Abroad

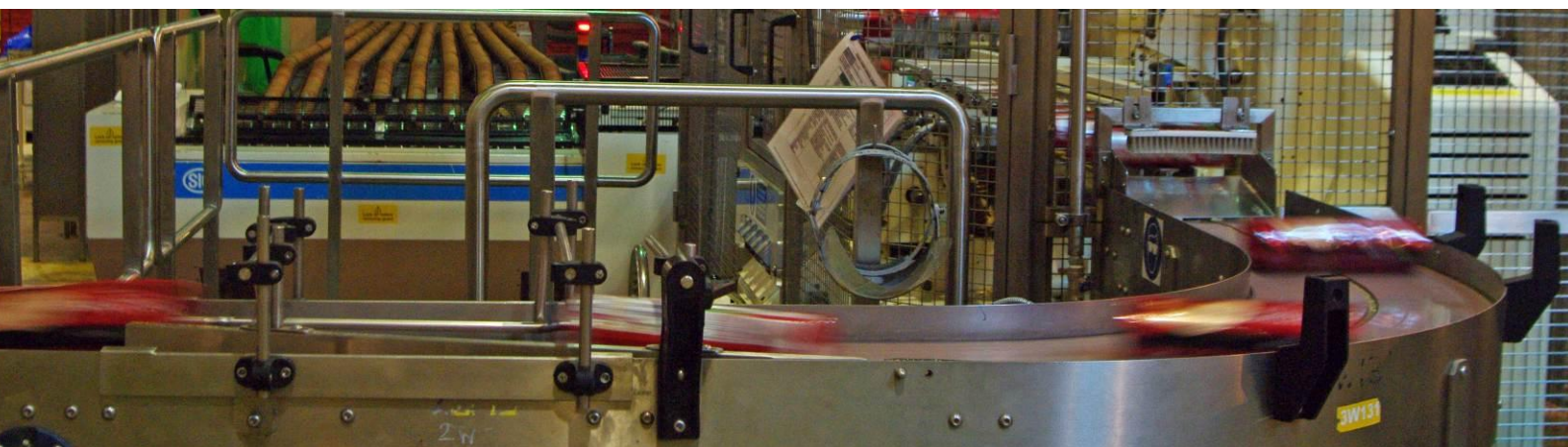
It's hard to keep a good story secret and there is now a drive to extend the Lighthouse implementation across Europe. To that end, tests are underway to implement Shopfloor-Online in Holland, and, once completed, across three further factories in Northern Europe.

Phil Chirgwin adds, "The European plants have different systems in place but this is an opportunity for us to share best practice across the business and provide one standard platform to underpin our strategy – One UB Way".

## Conclusion

The initial plan to develop a single system for factory performance information across the

UK is now completed, having rolled it out across all 11 facilities. Implementing the system wasn't just a technical achievement; getting all plants to report detailed manufacturing information in a consistent way and using it to drive improvements was a huge challenge but one that is delivering real results. Now the whole business can see performance across all 130 lines at 11 factories in a uniform way and know that figures related to downtime, speed losses, waste and performance are all being produced in a consistent way. The future aim is to increase the level of detail by collecting more data directly from key machines in the process and to widen the functionality of the system. This will add depth and prove invaluable for real-time management and longer-term process improvement.





Lee Stephenson concludes, “Information continues to be the lifeblood of our business and we are better positioned now than ever to use it to develop the company further. Lighthouse is an established supplier of choice for us and we have built a strong and long-standing relationship. They have delivered at every stage and have succeeded in gaining the buy-in of the users to the new system. We have a system that is truly driven by the shop floor users and that in itself has initiated a very positive behavioural change. We are developing our strategy for how best to use Shopfloor-Online in the future and where the focus of those developments should sit. One thing is for sure. Whatever we do next, it will involve systems, processes and people all working together towards a single, standardised, structured goal. Shopfloor-Online gives us a powerful platform on which to build and expand.”



*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](http://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](mailto: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