

# Preparing for warehouse automation

A guide for the savvy Supply Chain Director

## About Hatmill

At Hatmill we believe all supply chains can be improved. We've helped small, medium and large organisations to plan and implement automated, part- automated and manual warehouse solutions.

We improve supply chains so they become more profitable, and transform the customer experience. Our broader consultancy work includes:

- Network design
- Logistics performance improvement - warehousing and transportation
- Cost to serve analysis
- Sales and operations planning (S&OP)
- Forecasting and demand management

In addition to consulting, we offer ongoing support services to clients:

- Outsourced forecasting for supply chain operations- creating more accurate forecasts using our bespoke methodology, based on historic data and future insight, validated against external data and trends
- Supply chain analytics- we use our analytics toolkit to review the success of events, and opportunities to improve order and transport profiles
- Warehouse optimisation- a tool to maximise capability and capacity of a site by structuring and laying out warehousing space in the most efficient way

## What we'll cover

|  |    |
|--|----|
| What is automation and do you need it?       | 4  |
| Automation versus mechanisation              | 5  |
| Stage 1: How to approach research & planning | 6  |
| Stage 2: When you meet suppliers             | 8  |
| Stage 3: Choosing the right partner          | 10 |
| Managing the risks                           | 12 |
| Best practice for modelling & tendering      | 13 |
| Case studies - Putting it into practice      | 14 |
| The last word                                | 18 |



## Understanding automation

The use of automation is on the rise. There are two main reasons; shortages of available labour and a resultant increase in labour costs, or a lack of capacity in a site. If you are running out of useable space on site or need to boost productivity, an automated solution could be the answer.

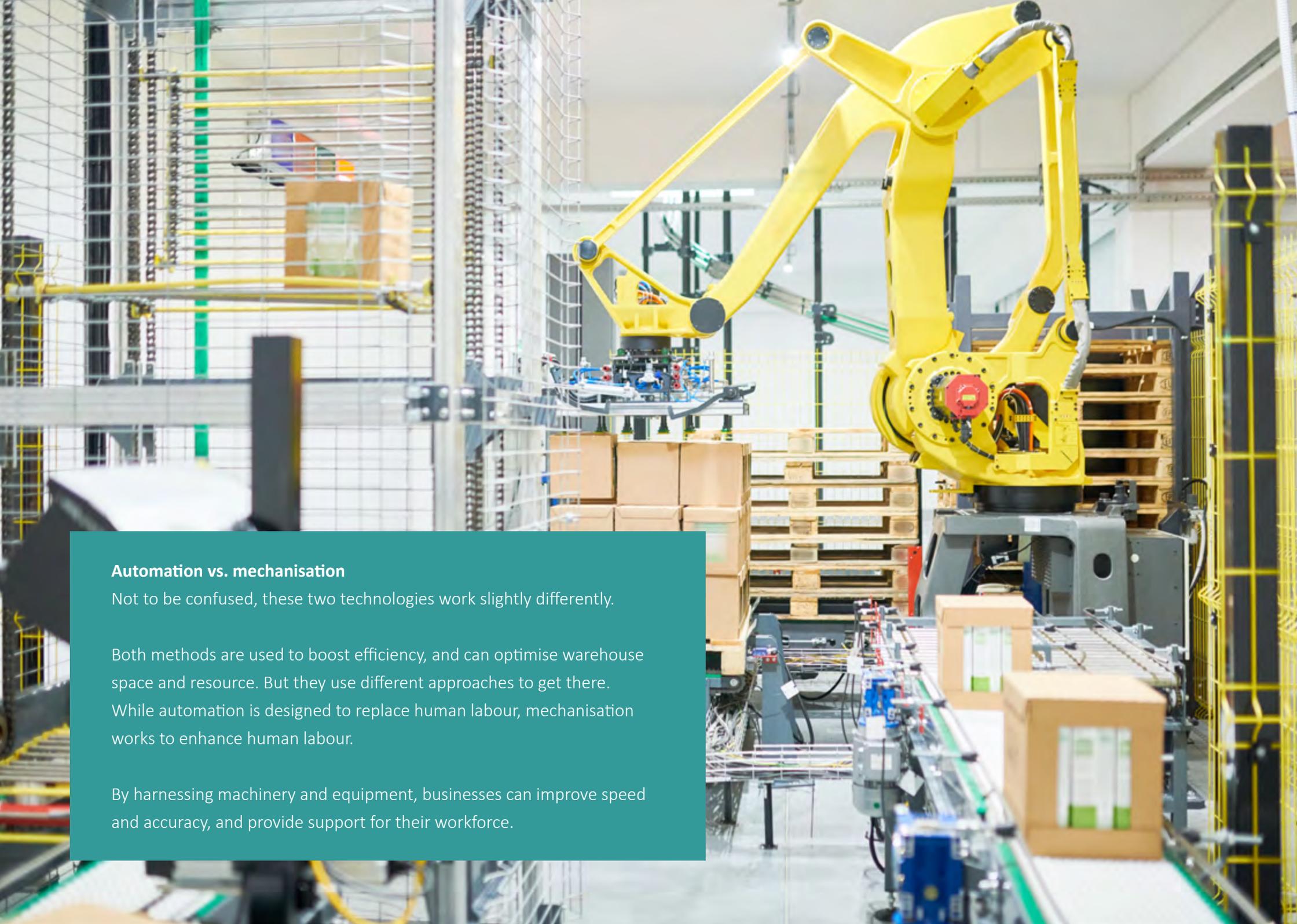
Automation helps you:

- Reduce operational costs
- Increase volume throughput capacity
- Maximise cubic usage of your facility
- Improve accuracy
- Create a sustainable warehouse

The benefits are significant, but warehouse automation is a complex area to navigate. With a multitude of automated solutions, and many suppliers to choose from, it's important to manage your needs, design, selection and deployment process carefully.

The predicted increase in fixed and roaming robotics entering the market are beginning to challenge conventional “fixed” automation solutions. This is another careful consideration that needs to be factored into deciding potential automation partners for the future.

In this document, we describe some of the considerations for a business when determining if an automated solution or supplier is right for your warehouse.



### **Automation vs. mechanisation**

Not to be confused, these two technologies work slightly differently.

Both methods are used to boost efficiency, and can optimise warehouse space and resource. But they use different approaches to get there. While automation is designed to replace human labour, mechanisation works to enhance human labour.

By harnessing machinery and equipment, businesses can improve speed and accuracy, and provide support for their workforce.

## Stage 1

# Research & planning

Automating processes can help solve many warehouse management challenges. But not every business is ready for automation.

The questions you need to ask are:

- How stable are our demands and product range?
- What flexibility is needed to cope with changing business needs?
- Which areas of the operation have repetitive manual tasks that could be automated?
- How sophisticated is our IT solution, and how data rich is our business?
- What is the future growth projection and long-term strategy for our business?

The more stable the demands of your business, the more processes you can automate. This can allow for large scale robotics, providing maximum optimisation of workflows. However, businesses with more volatile demands should consider automating parts of their operation.

By automating singular processes that work alongside manual operations, your warehouse can have greater flexibility.

For most businesses, it can be too costly to implement solutions to accommodate every potential operational change in the future, particularly when the market is volatile. Therefore, it is essential to have a clear plan and strategy to determine exactly what solutions are needed. One solution that can help to bridge the gap is mechanisation.

Mechanisation can be used as a stepping stone into the world of automation. It introduces similar benefits at much lower costs, and without the need for complex system integration.

For example, mechanisation could be the introduction of conveyors to reduce human travel time.

Used effectively, mechanisation can reduce repetitive movements of workers, increasing employee health and happiness, and enrich the warehouse environment for better productivity.



**Did you know?**

A shortage of workers in economies like the UK and US is driving further investment in automation



## Stage 2

# When you meet suppliers

After initial contact, make a shortlist of suppliers and create a detailed specification or **Request for Information (RFI)**. This will formalise the process, and allow companies to respond with proposals.

This phase requires a lot of time and investment, so it is vital that you provide as much information in your specification from the start. Establish exactly what suppliers require in order to write their bid, whilst allowing enough room for innovation. Let them suggest creative solutions and be ready to collaborate on ideas.

To simplify this process, state the format that responses should be sent in and set a deadline date.

Businesses should not underestimate the time it takes to liaise with suppliers. It is not uncommon for this process to take up to 6 months and require significant time commitment from the project manager.

You will be meeting with different suppliers, refining specifications and documents, and reviewing a wide range of products and solutions. It's also important to understand that no two businesses are the same,

and therefore the amount of time investment will vary. Dependent on how data-rich your business is, this could be straightforward or quite complicated.

At this stage, you may also consider arranging site visits for the supplier to see your operation. This will provide them with a greater understanding of your requirements, and can facilitate discussion on how an optimal solution would look.

We also recommend key stakeholders visit supplier sites to assist in the selection process.

### Sharing sensitive information

During the search process, you will be supplying sensitive data regarding your business operation to a lot of different companies. By requesting that your suppliers sign a Non-Disclosure Agreement (NDA), you can protect your business from data threats or breaches. This should be done prior to issuing the detailed specification or RFI.



What 'Request For Information' (RFI) documents should include:

- Overview of your business and reason for exploring automated options
- Level of flexibility required for key processes
- Site specification
- Operational environment
- SKU information
- Distribution medium
- Pick, Inbound and Outbound profiles
- IT systems

#### **Did you know?**

Unit sales of warehousing and logistics robots are forecast to grow rapidly over the next five years, from 194,000 in 2018, to 938,000 units by 2022.

Source: Tractica

## Stage 3

# Choosing the right partner

By now, you should have working relationships with your supplier contacts. When reviewing their responses, you should consider the long-term scope. Are the proposed solutions right for your business? Are they scalable for your growth? Can the supplier provide suitable services now, and into the future? Can they help you deploy automation at the right cost?

It's important to remember that while some suppliers offer free consultancy, they are not independent advisors. They will generally be seeking to influence the procurement process to their advantage. It is crucial that you have a method of evaluating these bids in an independent and unbiased way.

### Did you know?

ABI Research predicts that more than 50,000 warehouses worldwide will integrate robotics in the next six years, a 12-fold increase from 4,000 in operation last year

At this stage you should be involving and co-ordinating a wide range of stakeholders from your business;

- Sales and Marketing – to ensure the solution supports their desired customer experience
- IT – to confirm the technology will successfully interface to your current systems
- Warehouse operations – to check that the solution fulfils all the operational requirements
- Property/Facilities – to confirm the property supports the automation requirements

This is a significant programme management task and typically requires full time commitment from several team members.



## Continued growth of automation

The Global Logistics Automation market was worth \$42.80 billion in 2017 and is expected to reach \$126.53 billion by 2026, growing at a CAGR of 12.8%

Source: Statistics MRC

## Managing the risks

When choosing the best supplier for the job, risk assessments are vital. Establish whether any highlighted risks can be mitigated by design, or whether they can be managed in other ways.

Other areas of consideration when selecting a supplier are:

- Utilisation percentages of the storage system
- Throughput rates of component parts
- Ability to support your SKU range and storage medium
- System integration with your IT systems
- Supplier experience and existing customer base
- Their suggested timeline for installation
- Scalability of the solution

Suppliers should provide supporting videos and imagery of the solution to help illustrate its capability. Site visits are also advised so you can witness similar installations in practice. This enables you to gain a first-hand understanding, and to gather insight from existing users on the pros and cons of deployment. It's also good practice to create operational simulations to test business activities and scenarios against the proposed solution.



## Best practice modelling & tendering

After thorough analysis, detailed modelling needs to take place to determine whether capital investment and ongoing operating costs can be supported.

When modelling the cost of solutions, ask your potential supplier:

- What does the budgeted cost include and exclude?
- What is their typical payment structure?
- What would the maintenance and servicing cost be each year?
- What are the annual running costs?
- What labour cost does the solution remove?
- What associated costs and risks are there to removing labour?
- What their implementation strategy would be?

The modelling activity should help you determine whether there is a strong business case for automation.

At this stage, it's important not to exclude suppliers based on high capital costs.

The tendering process will allow for negotiation. It may also be that higher costs are down to accuracy and completeness, whereas suppliers with initially lower costs may charge more down the line.

As you begin the tender process, a robust and dynamic process needs to take place.

New information will emerge which will require you to go back and challenge some of your initial assumptions. You will be challenged from stakeholders in your business as to the real benefits this project will bring. You will have to make difficult decisions about mitigating the risk in the project.

Having a clear plan and knowledgeable experienced people in your project team is essential.

During tendering, you may want to request the following:

- Supplier meetings and workshops
- Site reference visits
- Supplier presentations to key stakeholders
- Simulation of the proposed solution

Timescales for the tender process can vary greatly on the level of detail provided by you, the complexity of the solution, and the number of (and availability of) stakeholders involved in decision-making.



**400k**  
**(sq ft)**

purpose designed  
automated warehouse

**What made this project unique?**

Our client has three diverse brands, each distributing to wholesale, ecommerce and retail stores. We provided a solution that didn't change for the operator, whoever they were picking and packing for

Case study  
**Putting it into practice**

# An automated solution to meet demands of business expansion

## A home and clothing retailing group delivering to ecommerce, wholesale and store format customers

### The issue

The global client was growing at 5% CPGR, and was hitting capacity constraints at each peak period. They needed a long term logistics solution to support their growth, reduce headcount and also improve the warehousing cost to serve.

### Our objective

- Lead the project from initiation through to high level design sign off of a new purpose built warehouse
- Gain agreement on the future growth aspirations
- Model a “straw man” automation solution to estimate future warehousing operating space required
- Select appropriate automation providers and invite to the Request for Information and Request for Proposal stages
- Conclude a successful automation tender process and select the right partner

### What we did

- Captured current service levels, schedules and costs
- Created a model based on a range of potential automation options, to understand future capacity requirements over a 15 year period
- Engaged with the six most suitable automation providers
- Reduced the six potential providers down to a final two
- Benchmarked responses to challenge costs
- Provided a project managed solution owning several workstreams across the project and leading the design element

### How we did it

- Clearly understood the clients needs from the outset
- Worked on behalf of the client, ensuring the best deal was done with the right automation provider
- Supported both the client and automation provider in ensuring the design was right for the business
- Implemented suitable communication methods between the automation provider, UK clients, and US clients
- Controlled and verified all data prior to it being used within the tender process – to ensure we had confidence in the numbers
- Agreed scoring metrics appropriate to the clients needs
- We put in place strong governance to control the project and ensure all tasks were completed on time

### The outcome

- A new purpose built 400k sq ft automated site was signed off by the US group owners
- An automated solution to suit all three brands and provide simple processes for wholesale, ecommerce and retail picking and packing
- The right automation provider was chosen for the client
- Project milestones were adhered to against the broader plan, coordinating efforts over multiple workstreams in the UK and US
- A happy client



**£24m**

Sign off of a £24m  
automation project

Case study

**Putting it into practice**

# Automation solution thaws out freezer capacity issues

## Leading food-to-go retailer

### The issue

A leading food-to-go retailer was coping with significant business growth and restructuring of their manufacturing network. They needed support with their capacity constraints.

### Our objective

- Evaluate and test a range of potential solutions to put forward a business case for the optimal solution

### What we did

- Assessed a comprehensive range of potential solutions
- Built a detailed model with 8 different options incorporating various combinations of revenue, costs and sales etc.
- Completed thorough tenders with a wide selection of the market for both the automation and building
- Took the outputs to the board to support their decision making and get formal sign-off for the building of the new freezer extension.

### How we did it

- Understood the operation, their growth plans and the potential efficiencies / inefficiencies to be drawn from various operating models
- Engaged multiple stakeholders from across the business to ensure all relevant parties were kept informed / consulted in the down selection of options
- Discreetly engaged with several external parties such as 3PLs and automation providers and managed them through the option evaluation process
- Created a financial model template that could be linked through to the clients internal financial reporting process

### The outcome

- Stakeholders from across the business were able to assess a number of options and were all in agreement with the recommended solution
- A automation provider and principal contractor were selected after a thorough tender process
- The solution was taken forward to Main Board and the £24m investment was approved
- We are now supporting them through to implementation

### What made this project unique?

Evaluating the UK's frozen storage capacity against an acute need to provide a robust solution for growth, with challenging stakeholders managing changing priorities.

## The last word

When automating your warehouse operations, detailed levels of work must be carried out in order to find and deploy the best solution for future growth.

This includes the entire end-to-end process, from initial research through to option modelling and tendering. If these phases are not managed properly, there is significant risk of choosing the wrong solution or partner, which will have a long-term impact on your business.

Mistakes made in digital transformation are difficult and expensive to correct, so investing time and money into the planning stage is crucial.

When executed well, warehouse automation can bring significant advantages, including efficiency, improved accuracy, faster business growth, improved service to customers, and reduced operating costs.

Another important thing to bear in mind is that integration can cause disruption in your warehouse, so it's important to assess the pros and cons of automated technology before moving forward.

Whether it be a fully automated storage solution, automated guided vehicles or automated packing stations, there are many different solutions to consider.

If you would like more information or a conversation about your automation project then contact us at **+44 (0)1423 900660** or **info@hatmill.co.uk**

## About the authors



### Tom McClinton

Tom McClinton is a Logistics & Supply Chain consultant with Hatmill, a management consultancy advising clients on all aspects of Supply Chain and Logistics. Tom gained his industry experience in Operations and Logistics Improvement with one of the top four supermarkets.

[tom.mcclinton@hatmill.co.uk](mailto:tom.mcclinton@hatmill.co.uk)

+44 (0) 1423 900 660



### Rob Cottrell

Rob Cottrell is a Logistics & Supply Chain consultant with Hatmill. Rob gained his industry experience in Warehouse Operations & Transport with one of the top four supermarkets and latterly Wincanton.

[rob.cottrell@hatmill.co.uk](mailto:rob.cottrell@hatmill.co.uk)

+44 (0) 1423 900 660



## Let us help with the heavy lifting

We are supply chain and logistics advisors that work with clients in a range of sectors to improve their end-to-end supply chain costs, efficiency and service.

We won the Team of the Year Award at the 2017 European Supply Chain Excellence Awards for our distribution improvement programme with YPO, which critically improved service to its customers, its environmental impact and cost of operation.

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Or call us on  
**01423 900660**

