

eureka

Issue 19

Summer
2013

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THE MAGAZINE FOR THE MATERIALS HANDLING PROFESSIONAL

Flexible logistics

New ideas are revolutionising house-to-house deliveries for the online retail sector.



Cutting costs

Practical and cost effective improvements that increase productivity in the warehouse.



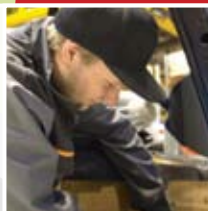
Tata Steel IJmuiden

Managing and maintaining the lift truck fleet under extreme conditions.



Setting the standards high

Quality comes first at the Cat® Lift Trucks manufacturing site in Järvenpää, Finland.



eureka issue 19



"It was Archimedes who observed that the power of levers could be used to move the entire world." This publication is named after his famous exclamation of 'eureka!', literally, 'I've found it.'



The magazine for the materials handling professional

Welcome to the summer 2013 edition of eureka! Over the past few years we have seen several false dawns as figures indicate a recovery from the recessions that have swept around the globe. It is small wonder, then, that we take any hint of tentative recovery with a big pinch of salt. However, some sectors of the economy have grown at an unprecedented rate and these offer enormous opportunities for those with an entrepreneurial flair and the staying power to move into the new space and make it their own.

In this issue, we explore the phenomenal rise in online shopping, which has grown some 50 times faster than the economy, creating a whole new retail sector and a logistics landscape that is progressively being reshaped by new ideas. In *At Your Convenience* (page 4) we look at the challenge of delivering goods to today's mobile and busy consumer, and how newcomers to the industry are solving those issues.

Meanwhile, cutting costs is a reliable and trusted tool for increasing competitiveness. In *Juggling with Warehouse Costs* (page 8) we examine ways of reducing costs in the warehouse and find that, beyond initial good warehouse design and the obvious benefits of automation, there are many inexpensive but simple and effective initiatives that can create a more efficient operation.

Further into the magazine, we take you on two fascinating site visits. The first is a tour of the massive Tata Steel complex at IJmuiden near Amsterdam (page 11), where we discover some of the secrets of managing lift truck operations in a challenging environment. Finally we visit the Cat® Lift Trucks production facility in Järvenpää, Finland, (page 13) and find out how they manage new product development and maintain quality in production.

Tell us what you think of eureka - drop us a line via our website at www.eurekapub.eu or e-mail us at comment@eurekapub.eu.



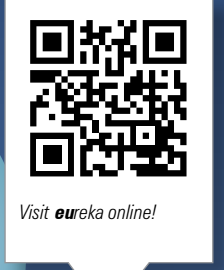
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eureka's commissioning editor is **Monica Escutia**, a Bachelor of Communications – Journalism. She is a Spanish national and fluent also in Dutch, English and Italian. Having previously edited a variety of international media she has spent the last ten years in the materials handling industry – the first four as a parts sales representative for several European countries, before becoming the EAME Senior Marketing Communications Coordinator for Cat Lift Trucks, based in the Netherlands.

Don't forget to visit the eureka website www.eurekapub.eu where you have access to the archive of useful articles and features. You can also post comments and suggestions about the magazine and future articles you'd like to see covered.



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4-7
New logistics concepts At Your Convenience...

With the phenomenal rise in online shopping there is a new generation of innovative logistics companies moving in to provide the flexible, responsive and customer focused service the consumer is demanding. What are these new concepts, and are traditional companies evolving fast enough to survive?

8-10
Warehouse improvement Juggling with warehouse costs

Today's logistics managers are under increasing pressure to reduce costs in the warehouse while concurrently improving productivity and performance. Warehouse design and automation are costly and long-term solutions, so we look for some alternatives that are practical, time saving and cost effective.

11-12
Site visit High expectations in the village of steel

eureka takes you on a guided tour of the massive Tata Steel complex in the Netherlands, accompanied by two of the site's managers. Along the way, we examine how Tata works with Cat® lift trucks dealer Crepa to source, manage and maintain the lift truck fleet in such a challenging and extreme environment.

13-15
Lessons from the factory Building quality around the customer

A new lift truck has to operate well not only when new but also in the long term. eureka talks with directors at the Cat® Lift Trucks production facility in Finland to discover how the customer is put in the driving seat when it comes to developing new products and maintaining quality standards.

Events Calendar

Date, Event, Location, Website	Overview
3 - 5 September 2013 PACTEC INT'L TECHNICAL PACKAGING AND MATERIALS HANDLING FAIR Helsinki, Finland, www.finnexpo.fi	<i>PacTec</i> (International Technical Packaging and Materials Handling Fair) takes place in Helsinki, Finland at the Helsinki Exhibition and Convention Centre. In 2007 PacTec attracted more than 8204 visitors and 235 exhibitors.
8 - 10 October 2013 INTERMODAL EUROPE Hamburg, Germany. www.intermodal-events.com	<i>Intermodal Europe</i> is Europe's leading event for container transport and logistics across road, rail and sea. <i>Intermodal Europe</i> is the must-attend event that brings the intermodal industry together. Network with leading figures from every transport and logistics sector. The free-to-attend exhibition and conference covers all areas of container transport and logistics across road, rail and sea bringing together a mix of high-quality speakers and key exhibitors to provide an invaluable industry forum.
15 - 16 October 2013 TOP TRANSPORT EUROPE Montpellier, France. www.top-transport.net	<i>Top Transport Europe</i> is a business to business event where shippers / logisticians with specific needs are able to meet carriers and logistics companies in the form of pre-scheduled, targeted meetings. This unique formula will help you establish and develop new, reliable business relationships with companies whose needs and skills have been previously identified and specified.
26 - 27 November 2013 SUPPLY CHAIN EVENT 2013 CNIT - Paris la Défense, Paris, France www.supplychain-event.com	Reed Exhibitions Group (SITL) and Supply Chain Magazine have joined forces to create the <i>SUPPLY CHAIN EVENT</i> . Representing a new concept, this gathering will take place at the CNIT, Paris la Défense bringing together one hundred exhibitors and several thousand visitors.

At your convenience

As more and more of our daily transactions and communications take place online and by smart phone, logistics companies are facing a stark choice - adapt or die. **Gay Sutton** looks at some of the newly emerging logistics models and asks, are the rest evolving quickly enough?

1. Customers can literally track the progress of their package by smart phone map app.
2. Tom Allason, founder and CEO of Shutl.

A new report from Barclays shows that Britain's online transport and logistics businesses are unprepared for the inexorable shift to a modern mobile world. According to the *Online Business Outlook 2013* report, online businesses in the UK are growing more than 50 times faster than the economy, creating enormous opportunities for those logistics companies with the vision to adapt to the change. "Businesses that fail to move with the times risk losing out on valuable e-commerce opportunities," commented Sean Duffy, managing director and head of technology media and telecoms at Barclays. Professor Richard Wilding, chair of supply chain strategy, Cranfield School of Management, puts it even more strongly. Companies that fail to adapt will simply die.

"Businesses that fail to move with the times risk losing out on valuable e-commerce opportunities."

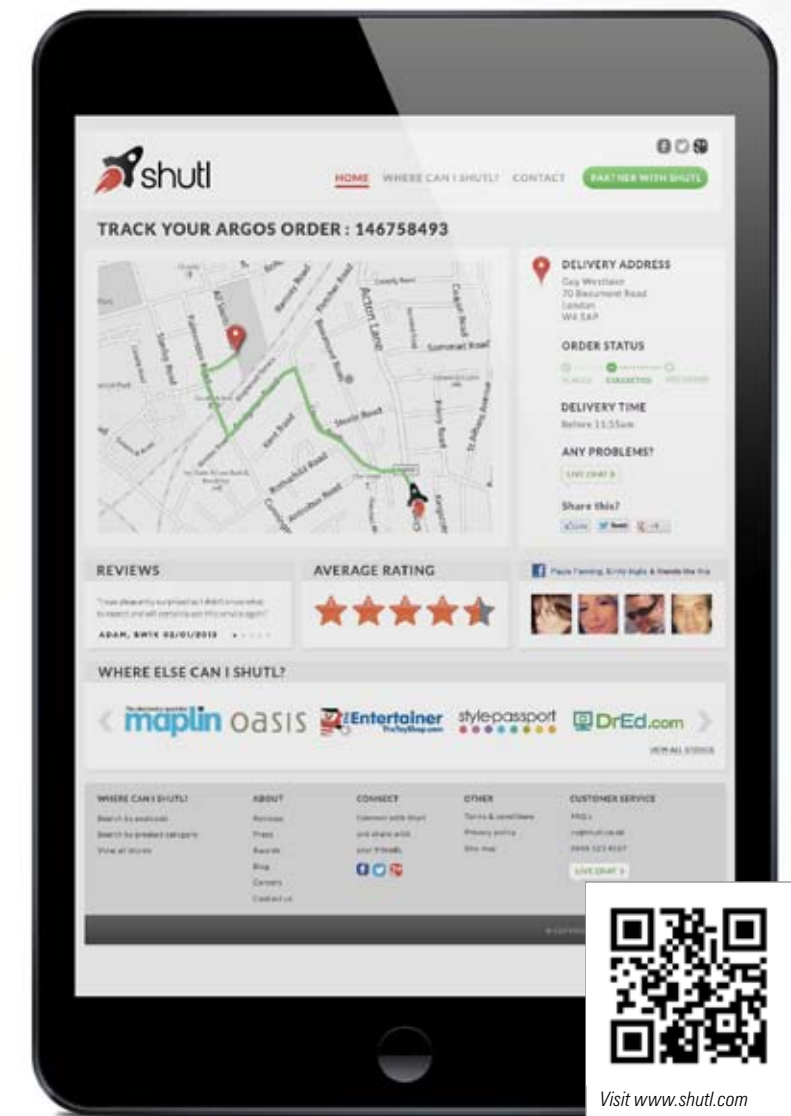
While the opportunities are enormous, so are the challenges. In a world where people work during the day and live busy social lives during their leisure, the consumer is demanding a paradigm shift in service levels. A completely new business model is emerging, capable of responding rapidly and flexibly to online orders, delivering to a named destination at a time the customer chooses rather than when and where the logistics company wants.

New business models

"Logistics companies in the house-to-house delivery market are trying to get a grip on these challenges, and some are making very good headway," said Professor Wilding. One such is Shutl, the vision of entrepreneur Tom Allason who recognised that collecting directly from a retailer's local store rather than a central warehouse or logistics hub, and delivering to customers within a 10 mile radius could cost effectively provide the service today's busy consumers require. "We offer two options," said Allason, "either immediate delivery within a matter of minutes, or delivery within a convenient one hour window of the customer's choice."

Shutl launched in London in 2010 and was initially piloted by retail chain Argos. So successful has it been that the service has been

1



Visit www.shutl.com

rolled out across the UK to some 75% of UK postcodes and increasing, making Shutl one of the UK's fastest growing new businesses. Shutl's customers now include Maplin, Karen Millen, Coast, Warehouse, Laithwaite Wines and Jewson, and the company is in the process of launching in the US.

How it works

The business model is very different. "We are not a logistics provider, per se," explained Allason. "We are a pure technology business, so we don't have vehicles of our own." Shutl forms strong partnerships with carefully selected high performing same-day couriers, most of whom have previously been operating in the B2B sector. To the consumer Shutl appears as a branded delivery option, and the online transaction is very simple. Having selected the preferred delivery option the system generates a quote for the cost, which can be accepted or not. →

2



→ Behind this real time response, though, lies a great deal of technological and operational complexity. "There are a lot of boxes that need to be ticked for the service to work," Allason said. Shutl needs to be able to extract a range of data from the retailer's website including size and weight of the items in basket, the delivery date, time and address, and the nearest store stocking the item. This depth of detail is only available from retailers who have sophisticated IT systems and an accurate - ideally real time - view of stock across each of its stores.

"We offer two options, either immediate delivery within a matter of minutes, or delivery within a convenient one hour window of the customer's choice."
Tom Allason, Shutl

Shutl generates a delivery route and retrieves quotes from available local courier partners who have previously defined their pricing and coverage within the Shutl platform. Shutl then matches deliveries to the courier best suited to the specific job - weighing performance history, price and consumer feedback. And all of this happens in the time it takes a webpage to render.

For the customer the experience is an enormous improvement on the rigid old system. "Our fastest delivery to date has been 15 minutes, and consumers find the experience magical," Allason said. The retailer also benefits from the increase in customer satisfaction and loyalty. "We have been able to demonstrate that consumers who receive their purchases at a time and location that suits them tend to spend more per basket on average. So we are

driving business to and through the retailer's website."

"We have been able to demonstrate that consumers who receive their purchases at a time and location that suits them tend to spend more per basket on average. So we are driving business to and through the retailer's website."
Tom Allason, Shutl

Other innovative new solutions

Shutl is one innovative new logistics model. Another has been developed by Collect+, and this addresses some of the big frustrations with online shopping: the hassle of returning faulty or unwanted items, the need to be at a certain location to take delivery, and how to send goods sold on eBay.

Collect+ has established a strong country-wide network of participating local corner shops that function as dispatch and delivery centres. A fleet of Collect+ vehicles delivers to and collects from each store every day. This means customers can collect and dispatch parcels whenever they please from a location that is truly convenient for them.

In all of these new models, technology and IT play a key enabling role. This is also true for logistics provider DPD, which works closely with Amazon. DPD has developed a new technology called Predict which provides the customer with a range of choices and accurate information about their deliveries.

It works by sending the customer a text or email on the morning of the delivery, telling

3. DPD Predict utilises the GPS technology used by the driver and turns it into information about the delivery, which is used to keep the customer informed via email or SMS. Image courtesy of DPD.



4



5

beginning to use the same location services to see where their customers are, and to match deliveries to them."

Shutl has an exciting pipeline of new ideas that it wants to develop, and sees enormous potential for expanding into other areas of business. Already, the company is working with builders' merchant Jewson, delivering building and plumbing materials and parts to contractors working on the job, saving them both time and money.

"According to Wilding, the use of smart phone technology and GPS looks set to further revolutionise the customer experience."

"We've only just begun to crack open what's possible," Allason said. "More and more consumers are using mobile devices to shop online, and these give us a huge amount of data that we can mine to provide an even more tailored service. We will eventually be able to use the GPS data so you won't need to enter an address, and we'll deliver to you regardless of whether you're at work, at home, in the park or at the hairdresser."

The shape of the future

From the logistics perspective, cost and convenience are the main drivers behind these innovations. "And I think that eventually when consumers buy online, they'll be offered a choice of four or five delivery providers and will be able to select the one that is most convenient and appropriate to them," Wilding concluded. "It's a level of service that is already beginning to appear in America." And it is a model to promises significant rewards for entrepreneurial thinking. ■

Article feedback is welcome: editor@eurekapub.eu

them within an hour when their parcel will arrive. The customer can then either accept the delivery slot or elect for the parcel to be left with a neighbour or perhaps change the delivery date, all through the smart phone or by email.

"DPD has developed a new technology called Predict which provides the customer with accurate information about their deliveries, and to provides them with choices."

"The system utilises the GPS technology used by the driver and turns it into meaningful information about the delivery," explained DPD's CEO Dwain McDonald. "We then access the email or SMS details captured by the retailer to communicate effectively with the customer about the parcel."

GPS - the next paradigm shift?

According to Wilding, the use of smart phone technology and GPS looks set to further revolutionise the customer experience. "Most delivery companies use GPS to track their drivers," he said. "Now, some are



3



Juggling with warehouse costs

Logistic managers do not have an easy job nowadays. As companies struggle to reach their desired sales figures, the pressure is on their logistic managers to keep the costs down. At the same time, productivity and performance need to improve.

eureka looks at some useful tools to help reduce costs in the warehouse.
Gian Schiava

Trends in warehousing

When looking at what matters today in the warehouse we see three trends. The first is achieving high degrees of efficiency to keep the costs as low as possible. Order picking times need to be short and storage methods must yield a low cost per item. Every effort is made to do things better, quicker, smarter.

Secondly, the tough economic outlook forces us to stay as flexible as possible. Customer loyalty seems to be on the decline. Companies try to rent real estate for shorter periods to make sure they are not trapped if storage requirements need to be rearranged. 3PLs in particular, who take care of the logistic operation for others, find it difficult to make the

necessary investments as they can only achieve a return on investment (ROI) in the long term.

“Customer loyalty seems to be on the decline. Companies try to rent real estate for shorter periods to make sure they are not trapped if storage requirements need to be rearranged.”

The final trend may seem to contradict the previous two, but has everything to do with changed buying behaviour. The impressive rise of online shopping has resulted in later cut-off times, and this increases the pressure on orderpicking operations. Companies need to deliver high levels of service to beat the competition.



1. In warehousing, order picking times need to be short and storage methods must yield a low cost per item to keep costs down.
2. The rise of online shopping has resulted in increased pressure on order picking operators.
3. Automation can reduce staff numbers but requires significant investment.
Image courtesy of Rocla Oy.

Now that we know the challenges facing today's logistic manager, we can take a closer look at ways in which he can save money. These can be divided into four categories.

Logistics facilities and fixed equipment

The costs associated with logistics facilities and fixed equipment largely depend on the decisions made when developing the facility, before moving in. It therefore pays to work with professionals at the design stage because a 'cheap' building can often turn out to be very



expensive during daily operations, as things have not been thoroughly thought through. Investments in good insulation, flexible storage equipment and high quality flooring, for example, will result in less damage and lower maintenance costs in the long term. It is certainly possible to make adjustments later on, but making changes once the facility is in operation is not easy.

“Investments in good insulation, flexible storage equipment and high quality flooring, for example, will result in less damage and lower maintenance costs in the long term.”

Labour costs

We learned in other issues of eureka that installing warehouse automation such as storage and order picking can reduce the number of staff needed to get the job done, especially where people no longer have to walk to the goods. Sorters, carousels, shuttles and crane systems can all bring the desired goods to order preparation stations and reduce the amount of time to ship the goods to the customer.

Automation, however, requires serious investment, and there are other less expensive ways of reducing labour costs. Work efficiency can be improved by using time saving tools like scanning devices or voice picking systems. It can also be worth making a periodic review of picking routes to ensure the shortest walking distances are used.

Stock keeping costs

Although it may seem contradictory to the goal of high service levels, it does pay to →

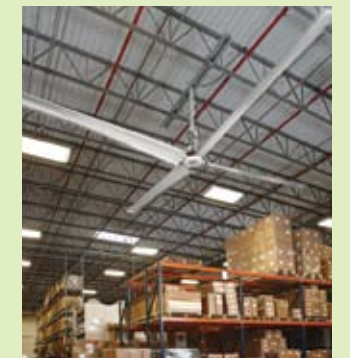


Smart examples for quick pay-back

There are hundreds of products and services on the market that can help bring your warehousing costs down. It would be almost impossible to list them all within this article, so we limit ourselves to a few of interesting examples.

High volume fans

Climate control is one those areas that is often overlooked. Look at the ordinary fans on the ceiling of a large warehouse for example. By replacing several standard sized fans with a very powerful and large one, you can save up to 35% energy cost. The larger blades are able to displace larger masses of air, thus keeping the facility cooler in the summer and warmer in the winter. Image courtesy of Caljan Rite Hite.



Flexible walls

Traditional rigid walls lock you into a layout. Industrial curtain walls, like Zoneworks®, make it possible to partition spaces quickly and affordably. Warehouse managers can easily reconfigure, relocate, or remove them as the operation changes. Image courtesy of Caljan Rite Hite.



→ keep stock as low as possible. Studies show that in many cases stock can be reduced without compromising delivery performance. Companies often maintain higher than necessary stock levels as they fear running out of stock. However, high stock levels may incur more pallet movements, unnecessary handling actions and too many storage locations. By deploying ICT solutions like Warehouse Management Systems, companies are able to manage their stock levels in a more effective way.

Tools and non-fixed equipment

This area possibly provides the largest number of options to reduce operational costs, and requires a good knowledge of what is available on the market. This can be achieved by talking to other logistic professionals, reading the trade press or visiting logistic exhibitions.

"A large proportion of these costs are associated with the materials handling fleet, and many companies outsource the management of the fleet, paying fixed sums each month in return for high uptime, great truck performance and perfect planned maintenance routines."

A large proportion of these costs are associated with the materials handling fleet, and many companies outsource the management of the fleet, paying fixed sums each month in return for high uptime, great truck performance and perfect planned maintenance routines. Professional suppliers will thoroughly examine the existing warehouse operation not only to decide on the best fleet mix but also to advise on how to improve things. In many cases, their recommendations are not limited to the trucks, but may also contain advice on renewal of the warehouse flooring or the height of pallet racking.

We asked some Cat® lift trucks dealers around Europe how they help their customers to achieve cost reductions. Crepa (Netherlands) sees possibilities by enhancing operational safety using products like frame protections, audible alarms and pallet stops. Rob de Greef, Manager Parts at Crepa said: "Companies with serious safety policies make sure they perfectly coordinate and arrange their materials, tools and traffic. They work closely with their staff to reduce risk. But they also install safety devices to reduce both accidents and damage. We can even

calculate a ROI when we know their current damage and repair costs. Unnecessary damage costs are seven times higher than usual truck repair costs, which is really excessive."

In Spain, customers seek savings by reducing stock, truck size and capacity, and racking height in order to be able to work with more economical forklifts and stackers. Titus Von Plettenberg of Bergé explains: "We try to accommodate the customer in this trend, but we always do a full analysis of the warehouse to give him the best advice. Certainly, we need to look at general warehouse conditions, like ventilation, temperature, surface, visibility, servicing areas. Besides cost savings, we want to deliver the best possible productivity."

Alan Walker from Impact (UK) adds; "In addition to our fleet services, we also advise clients how to keep their warehouse tidy and organized. Research shows this has a positive effect on productivity."

Certainly, the possibilities for reducing costs are almost endless. But the best approach is to begin by looking at your priorities (efficiency, flexibility and/or service levels) and then to develop an implementation plan for the most suitable options. The economic situation may not improve for a while, so it pays to get things done. ■

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Visit:
www.crepa.nl



Visit:
www.impact-handling.com



Visit:
www.berge-manutencion.es

Telescope conveyors

Loading or unloading trucks full of non-palletized goods can be time consuming. Telescopic conveyors extend directly into a trailer and reduce the number of staff needed to do the job. Operators remain fresh during the shift because of the ergonomic position, whilst vehicle loading/unloading times are significantly reduced. Image courtesy of Caljan Rite Hite.



Truck access

Forklifts can be fitted with driver access devices. Only drivers with the right pass can ride your expensive equipment. Some systems provide insight into driving behaviour by shock registrations or fuel consumption, enabling you to take corrective measures. By allowing only skilled drivers to operate the equipment, you can reduce both damage and accidents on the work floor. Information courtesy of Sylogi.com.



High expectations in the village of steel

Lift trucks operate in all kinds of environments. In operations where they unload just two lorries a week they can, as you may imagine, last for decades. But how do they operate in extreme environments where demands are high? Any additional services to encourage customers to invest?

Gian Schiava visits the challenging Tata Steel site in the Netherlands and finds out...

Your eureka editor has practically been a neighbour of this global steel company without really knowing the company well. In the Netherlands it is perhaps better known by the former name 'the Hoogovens' and everybody in this region knows somebody who works there. We were asked to take a closer look at their site in IJmuiden near Amsterdam in the Netherlands and learn more about their materials handling operation.

A village of steel

Tata Steel in IJmuiden turns out to be a huge steel production site. Larger than a small village, it covers 750 acres and has its own roads and harbours, which are directly connected with the North Sea. The site is part of the Tata Steel Group and is engaged in the production, processing and distribution of steel products. Each year, Tata Steel IJmuiden processes approximately 4.5 million tonnes of coal and 9 million tonnes of ore. Through its sea port 2.5 million tonnes of quality steel is shipped to customers around the globe while a further 1.5 million tonnes passes by barge through the North Sea Canal to destinations in Europe. An additional 2.9 million tonnes of high grade steel is transported by road and rail to customers all over the world. Those are dazzling numbers, but it's only on arriving at the site that the scale and scope of this impressive operation really become apparent.

"Each year, Tata Steel IJmuiden processes approximately 4.5 million tonnes of coal and 9 million tonnes of ore."

Steel Packaging

Our first meeting is with Ed van Heese, manager transport maintenance & coil packaging, at the Steel Packaging business unit. Ed has a long tradition of working with Crepa, the Dutch Cat® lift trucks dealer. He explains the origins of this relationship: "Many, many years ago, Crepa was a different operation, but they already understood that the lift truck business is much more than just selling machines. Our company was, in their eyes, a customer with extreme demands. But I can honestly say they learned from our advanced maintenance philosophy while we benefitted from their specific machine knowledge. And in an open relationship we grew together."

"Many, many years ago, Crepa was a different operation, but they already understood that the lift truck business is much more than just selling machines. Our company was, in their eyes, a customer with extreme demands."

Ed takes us on a quick tour round his production site. We see raw steel being processed into a thinner and thinner end product before being treated with tin or chrome, depending on the application. The end result is delivered in many different thicknesses and finds its way into automotive, food & beverage and other industries. Ed continues: "The main difference with many companies is that we have a 24/7 operation. This puts a high demand on the lift trucks as they can be in continuous use. →

Tata Steel IJmuiden Facts & Figures

Area: **750 acres**

Amounts processed per year:

Coal: **4.5 million tonnes**

Ore: **9 million tonnes**

Steel shipped per year:

By sea: **2.5 million tonnes**

By canal: **1.5 million tonnes**

By road/rail: **2.9 million tonnes**

→ They are deployed in various steps of the production process, and that means we do not accept downtime. Crepa has engineers permanently located on-site who largely look after the planned maintenance."

"The main difference with many companies is that we have a 24/7 operation. This puts a high demand on the lift trucks as they can be in continuous use."

Driving along with Ed in his golf car, we begin to understand the role of the lift trucks. An infinite number of steel coils are waiting for shipment, and goods are being transported from one site to another. The fleet at Tata Steel is diverse. All trucks up to 7 tonnes are electric machines and were chosen because of their low emissions. Tata deploys internal combustion trucks up to 40 tonnes, but those giants operate outdoors and electric alternatives for these roles simply do not exist. The production fleet, which operates 24/7, mostly employs the Cat® EP50N, chosen in cooperation with Tata Steel's overall Vehicle & Transport Management department. "Safety is a major issue here at Tata Steel," Ed says. "We breathe safety. Our standards are high and we expect that same dedication from our suppliers on site."

"The production fleet, which operates 24/7, mostly employs the Cat® EP50N, chosen in cooperation with Tata Steel's overall Vehicle & Transport Management department."

The overall perspective

However, Ed did mention that the choice of truck was also made without consulting the truck drivers and this triggers our curiosity. We sit down with Ronald Jansen, fleet manager, and his team. It turns out Tata has a team of no fewer than six people managing the site's vehicle contracts. Three of those are dedicated to the contracts for over 300 industrial vehicles, amongst which are the lift trucks. Ronald explains their goals. "We treat the various business units as internal clients and do our best to balance specific desires with the best possible buying efficiency. Our overview of what is happening on the site and our knowledge of vehicles has given us such an experience that we can get the best bang from our buck. In reality, it is not just about finding the right solution, but also to find it within time. Sure, we especially like to look at things from the perspective of Total Cost of Ownership. It means we not only look at machine performance, but also at how the product meets our high safety and operational standards. In the case of the Cat forklifts, we wanted things like a continuously working warning light, special seats and slower tilting

and lifting speeds. But we always start with a great standard product, as changes can also be costly and reduce flexibility."

Ronald continues: "Our overall perspective also allows us to see where there are peaks and lows in vehicle demand. We can mediate between business units to lend each other vehicles. In this way, we can be very cost effective and add a clear value to our service."

Make yourself at home

"Our visit is not complete without a chat with the people from Crepa. In total there are four personnel on site; three engineers and one battery specialist. They maintain not only the Cat machines, but also the other types of trucks and vehicles that work on the site. The operation requires excellent maintenance planning, but also a good overview of parts consumption and when they are needed. In addition to this team there is a dedicated account manager for Tata Steel, who attends each work meeting. Tata Steel turns out to have high expectations from its suppliers in terms of forward thinking and anticipating possible problems. Jan Duursma, 1st district engineer at Crepa, says: "Tata Steel prioritises the continuity of its steel production process and expects us to contribute to that. We love this industry and are continuously challenged by the great variety of machines we have to keep on the road."

A quick goodbye and I am driving away from IJmuiden. Today we saw an incredible operation where professionalism, forward planning and dedication are vital to keep it running smoothly. ■

Article feedback is welcome: editor@eurekpub.eu



1. The production fleet, which operates 24/7, mostly employs the Cat® EP50N.

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2. 2.9 million tonnes of high grade steel is transported by road and rail to customers all over the world. Image courtesy of TATA Steel.
3. Steel is delivered in many different thicknesses and finds its way into automotive, food & beverage and other industries. Image courtesy of TATA Steel.



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www.tatasteeleurope.com



When buying any piece of equipment, sensible customers will consider not only whether it works well today but whether it will continue to work well in the future. In other words, they are looking for quality.

Mark Nicholson has been speaking to the Directors at Cat® Lift Trucks' production facility in Järvenpää, Finland, to find out how they ensure their products meet customer needs – and deliver in the field – by applying the highest quality standards.

The Järvenpää factory happens to make materials handling equipment, but its attitude to quality could equally be applied to any manufactured product. It should be mentioned, straight away, that the Järvenpää team is well qualified to give advice, as its products have won many international awards.

Starting with R&D

Quality control starts at the research and development stage. After all, a machine may be perfectly assembled in the factory but if its design or the materials and components from which it is constructed are poor it will never achieve high quality.

R&D Vice President Janne Polvilampi points to industrial design, and the way in which it is integrated throughout the R&D process, as a key to the plant's success: "The process begins with concept design. This creates the big picture, showing what the team is trying to achieve and

taking into account all of the relevant business, mechanical, technological, design and other factors which will shape the project and determine the quality of the end product."

Most importantly, Janne's colleagues place the customer in the driver seat at every stage. The customer, of course, may have very little interest in the engineering of the truck but is very interested in how it helps his or her business.

A related R&D process used at Järvenpää is co-creation. This involves inviting customers and Cat lift trucks dealers to participate in the product's R&D right from the beginning. Understanding their current and future needs is vital. Researchers go to the customers' warehouses and other work places, study the ways in which trucks are being used and interview staff.

'Measuring' operator opinion of the trucks as they are being developed is essential and the team has found ways of defining criteria →

Factory facts:

Location:
Järvenpää, Finland

Size:
18,000 square metres

Employees:
350 (of whom 120 work in production)



→ to express the feelings operators experience during trials. Both computer-simulated and real-life trials are carried out, using large numbers of operators to ensure clear results.

Testing, testing, testing

When it comes to product testing, the Järvenpää factory has an added dimension. As well as having the benefit of over 70 years' experience in building materials handling equipment, it has been a leader in the development of automated guided vehicles (AGVs) since 1983.

"In automated testing, a truck can be operated continuously, 24/7, while a human tester would need to stop and sleep."

This automation know-how is used in the testing of materials handling products and allows a much more rigorous approach than is possible using humans. In automated testing, a truck can be operated continuously, 24/7, while a human tester would need to stop and sleep. Automated testing equipment can also subject trucks to harsher conditions than would be possible with a human on board. In addition, because the testing is carried out by machines it produces very accurate data.

The Järvenpää facility complies with the relevant ISO quality management standards, as you would expect, but Janne Polvilampi sees these as a minimum requirement: "We go at least twice as far as that with our testing. For example, we apply the very tough set of lifecycle criteria established by our global partners."

The right ingredients

Any cook will tell you that poor ingredients can spoil a recipe, so the factory tests individual components as well as whole trucks. Many components are manufactured in-house, but those sourced elsewhere are bought only from top-end suppliers – and even if the manufacturer has an excellent reputation for quality, they are subjected to the factory's own testing regime before a decision on their use is made.

"By including production, purchasing and other related functions in the decision-making process we can be sure that by the time the truck is ready to build we will have considered everything that could possibly affect its quality."

"In choosing components, as in all aspects of R&D, we adopt a cross-functional approach," says Janne. "By including production, purchasing and other related functions in the decision-making process we can be sure that by the time the truck is ready to build we will have considered everything that could possibly affect its quality."

Staff strength

At this point, Production Vice President Rami Alto takes up the story. Rami is in charge of the 120 production staff who build the trucks and are responsible for checking their quality prior to distribution and sale.

"One of our great strengths is the experience and skills of our workforce. In fact they are multi-skilled, which gives us great flexibility as we can move them between jobs as circumstances demand."

Attraction of high-quality staff to the factory's

1. The electric counterbalance assembly line, transferred to Järvenpää as part of the Cat Lift Trucks reorganisation.
2. "One of our great strengths is the experience and skills of our workforce." Rami Alto, Vice President, Production.
3. The latest Cat power pallet truck won the internationally coveted Red Dot award in 2012 for its high design quality and usability.



View the Cat electric counterbalance range: www.catlifttruck.com.

production, R&D and other departments has been helped by the plant's reputation as a manufacturer and employer. Another factor is location, as there is no major car manufacturer in the area to lure young talent away.

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Within the Cat Lift Trucks organisation there is a very high regard for the Järvenpää factory's staff and their quality standards. Many readers will be aware that in the recent reorganisation of its operations the company has moved its electric counterbalance assembly line from Almere in The Netherlands to Järvenpää, which has also been appointed as its counterbalance development centre.

Several highly experienced existing staff at the factory were chosen to be team leaders for the 30 new workers recruited to build counterbalance trucks. After thorough training in Almere, which covered all aspects of counterbalance engineering, including quality control, the leaders returned to pass that knowledge on to their teams. In the initial stages they have been supported by a dedicated team from Almere to make sure that the quality and processes are the same in every factory.

For those working on warehouse equipment, life in the factory is as varied as the range of trucks they build. Some of the more specialised warehouse models are only required in small numbers and are produced on static rather than moving assembly lines.

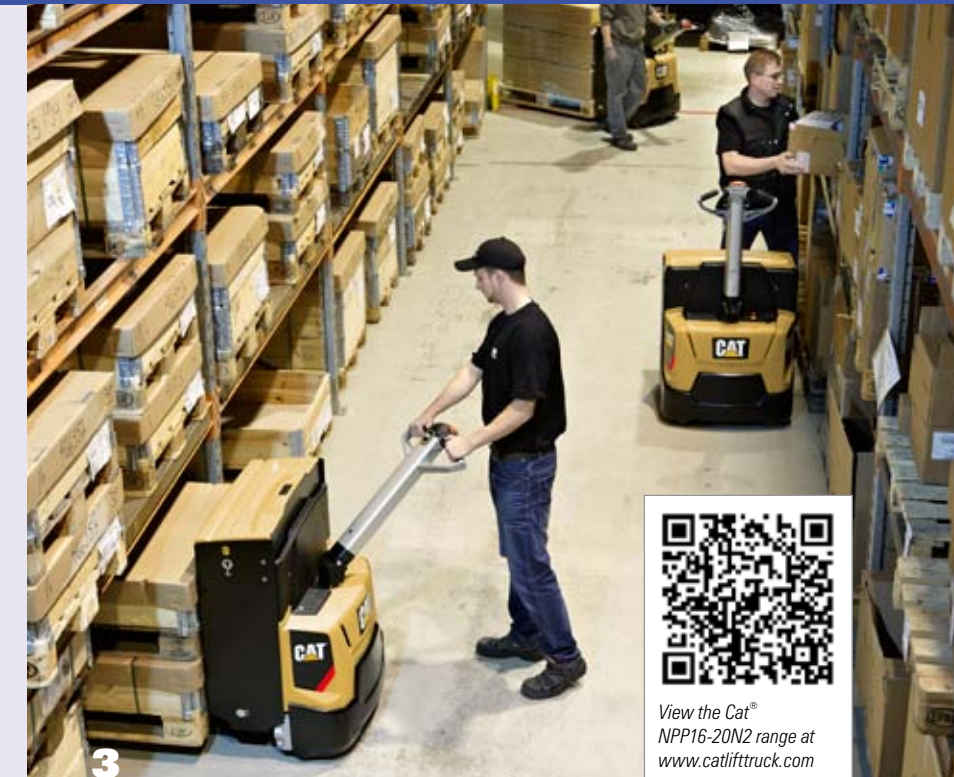
Constant improvement

At the end of each line, a number of key points are checked on every truck before it is released for distribution. As an extra quality control measure, about one in every fifty trucks is chosen at random for a very intensive product audit.

For the electric counterbalance trucks, the production team at Järvenpää uses the same checking criteria and procedures as were applied in Almere. While that should ensure continuing satisfaction in terms of build quality, there is no room for complacency.

"Like our associates in the global organisation, we follow the Japanese philosophy of Kaizen," says Rami Alto. "Kaizen is the continuous, step-by-step improvement of processes and activities. We know we are building very high-quality products but we always feel we can make them even better." ■

Article feedback is welcome: editor@eurekapub.eu



2013

- Fork Lift Truck Association – Award for Ergonomics
Cat NPP16-20N2 Pedestrian Power Pallet Truck

2012

- Red Dot – Winner
Cat NPP16-20N2 Pedestrian Power Pallet Truck

2011

- Fork Lift Truck Association – Award for Ergonomics
Cat NOH10N-NH High Level Order Picker

2009

- Red Dot – Winner
Cat NO20NE Low Level Order Picker

2008

- Red Dot – Honourable Mention
Tiller Arm

2007

- Fennia Prize – Grand Prix
Cat NR14-25N Reach Truck

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