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Move it to the end of the line

The e-biz era won't kill all warehouses, just ones that don't get closer to the customer

By Salina Christmas

Today's companies are differentiating themselves not with product innovations but with greater levels of customer service, including delivering the right product on time and in the proper configuration. The customer-facing DC is the last opportunity to get a customer's order right and meet expectations.

Chris Newton, *WAREHOUSING ISN'T JUST ABOUT STORAGE ANYMORE* (AMR RESEARCH, OCT 1999)

Chris Newton, AMR

THE WAREHOUSE OFTEN COMES as an afterthought in the modernization of a supply chain. At a time when businesses want faster production-demand links, corporate executives must recognize the strategic value of a properly managed warehouse. On the following pages we investigate four companies who took their warehousing operations very seriously.

Don't scrap it, move it

The Internet economy is putting pressure on manufacturers to deliver goods straight to their customers on demand. That in itself won't kill the warehouse. Marketing is all about clever positioning, and to survive the e-business era, the warehouse has to do exactly that. But what's the best position? Analysts say the end of the supply chain, closest to the customer.

So instead of scrapping your warehouse, you should, like Bass Brewers (see Case Study 4), seize the opportunity to upgrade it into a distribution centre by investing in a warehouse management system (WMS) — and use that as a good marketing pitch for your service.

Sophisticated demand-forecasting tools help increase the flow of goods, but a proper WMS, not an ERP warehousing module, will reduce the overall inventory levels significantly.

Chris Newton of AMR Research says what you've got is less important than how you get it to the customer.

"Manufacturers no longer compete on product attributes, but rather on their ability to deliver products to their customers in an efficient and cost-effective manner," he says. In other words, manufacturers now pit their supply chains against their competitors' supply chains rather than products against products. The e-commerce fulfilment model represents the supply chain at its highest evolution and, as Newton says, "a highly automated distribution centre is crucial to e-commerce fulfilment, making WMS necessary," he says.

Breaking down the walls

The biggest warehousing issue in the next decade is the need to communicate in real time with the upstream manufacturers and suppliers, and downstream to the customers.

"It is no longer sufficient for a warehouse to have real-time information on activities within its four walls," says Newton.

Echoing his American counterpart, Rene van den Elsen, the physical distribution and warehousing consultant for the Netherlands-based IPL/TNO (Information Technology for Product & Logistics/Applied Scientist Research) says: "The logistical component of product quality is more appreciated in a world where goods are produced all over the world. Warehouses are necessary for a good performance."

Europe has some catching up to do. But the move towards a common market has opened up borders and cut customs and tax problems that had burnt a hole in the supply chain's pocket.

European multinationals such as Sekurit Saint-Gobain, Renault VI and Lufthansa Technik were quick to capitalize on this, moving to streamline small and diversified warehouses into one distribution centre.

American export

WMS is pretty much an American export, but it's an export much needed in Europe. The drawback is that the *American model may need adjusting in Europe. The US supply chain* doesn't have to bother about cross-national issues such as language and customs.

So in searching for the right WMS, van den Elsen suggested these key elements:

- Tracking and tracing capabilities

1. With help, one warehouse does the job of three

Company: Renault VI (Venissieux, France)
Turnover: US$5 million
Software: Release 6.0 from Catalyst International (London, UK)
Implementation time: Not disclosed
Users: 220 Teklogix RF terminals
Cost: Not disclosed

THE SITUATION

FROM THREE TO ONE: Delivering hundreds of thousands of vehicle parts on time to over 600 destinations across the world from one distribution centre (DC) sounds rather Herculean, but if Renault VI were to be Europe's number one heavy vehicle designer, manufacturer and distributor, nothing should be too Herculean for its warehouse.

Previously, parts distribution was handled by three central warehouses and 10 European subsidiaries, each inventory holding a limited variety and supply of stock. Renault VI wanted to do away with this complication.

The challenge was to have the distribution network streamlined so Renault VI could supply dealers from one centralized DC.

MORE THAN A SHIPPING SYSTEM: To achieve this vision, Renault VI needed more than a stock-location system. It had to integrate with the company's ERP software, and it had to manage Renault VI's personnel, space, equipment, products and distribution.

THE SOLUTION

THE SITE: The 40 000 m² site at Venissieux near Lyon was chosen as the central DC. It employs 400 people over three daily shifts from Monday to Saturday, stocking a variety of products including Renault vehicle parts, workshop products, commercial documents and point-of-sale products.

IMPLEMENTATION: Catalyst WMS, developed by Catalyst International (London, UK) was selected out of 18 potential suppliers to run the operations at Venissieux. It is installed on a Sun Solaris using an Oracle database.

The Catalyst WMS implementation was done in three phases starting in 1997. Renault VI did not disclose the time taken to implement the system. Phase 1 concentrated on the software installation. Phase 2 introduced the interface between the WMS and Renault VI's carousels and sorters. Phase 3 saw the integration of the SAP ERP system with Catalyst WMS.

The challenge was to have the distribution network streamlined so Renault VI could supply dealers from one centralized DC.

STREAMLINED: The system helps Renault VI to achieve its aim of channelling goods from one DC. Product distribution is organized into two types of movements: regular orders and urgent orders. Regular orders, representing 60% of Renault VI's spare parts distribution, are delivered on a weekly basis. Urgent orders are delivered within 24 hours.

CUSTOMIZED: Catalyst WMS enables Renault VI to respond to varying volumes of personalized orders and different types of picks.

For example, when bulk or destination picks are released, the system creates the containers required for the operators to pick. Bulk picks are placed in the sorting conveyor in pre-allocated containers that are then guided down a customer chute. These are placed into the customer container. Once the exact order is met, the container is taken to a weigh station before being loaded onto a truck and shipped.

HIGH CAPACITY: The system gives Renault VI the support needed in producing 25 000 lines of products daily, shipping an average of 110 000 units of vehicle parts, and catering to 2200 dealers and agents in 75 countries.

Catalyst ☎ +44 181 748 7777

• Communication with other parties in the supply chain, now made easy by EDI and the Internet
• Capacity planning. Goods have to be delivered frequently in smaller drops, so warehousing needs to be more organised.

Close to the doorstep

So what type of warehouse will survive in the 21st century?

All types, potentially, says van den Elsen. No warehouse will be automatically excluded. From the simple store that holds raw materials to the hi-tech distribution centre that provides production facilities — all will have a role in the e-biz era.

But only if they respond effectively to the pressure e-business places on the supply chain. They need to be fast, flexible and service-oriented. Put another way, they need to be customer-facing.

Who will survive? According to Newton: *"The warehouse that can handle high volumes of individual orders, value-added services, and can dynamically re-engineer its business operations to meet changing market demands."*

AMR Research ☎ +44 208 334 8029
IPUTNO ☎ +31 402 309 339

2. With 90 sites, you need visibility

Company: Sekurit Saint-Gobain (Longjumeau, France)
Turnover: US$19 million (Saint-Gobain Group)
Software: DCS from McHugh Software (Reading, UK), running on NT
Implementation time: 5 months at the Torgau facility in Germany. Still ongoing at sites around the globe
Users: Not disclosed
Cost: Not disclosed

Sekurit Saint-Gobain needs a transparent supply chain to manage its worldwide network of glass manufacturing plants.

The situation

NEW CENTURY, NEW WAREHOUSE: Sekurit Saint-Gobain (SSG), the supplier of glass components to the automotive sector, wanted a warehouse that could take its business into the 21st century.

But first, the glassmaker had to sort out the Y2K problem. Not easy if you have 90 sites to look after in Europe, South America and Asia. SSG took the opportunity to employ a fully integrated global strategic WMS that would modernize and standardize all SSG's operations worldwide.

The new system had to:
• Integrate with the existing SAP R/3 ERP suite of applications and run on an Oracle RDBMS on a Windows NT server located at each service centre site.
• Conform to SSG's requirements but at the same time allow interchangeability with different companies' and countries' working practices.
• Possess multilingual capacities. The worldwide roll-out programme requires a system that accommodates major languages such as German, English, Spanish and French.
• Go live in 10 sites by the end of 1999, before the Millennium Bug hit. Implementation will be extended to sites in Brazil, China, India, Mexico, South Korea, Thailand and 10 European locations within the next three years.

The solution

SPEED THE FLOW: DCS (Distribution Control System), a part of McHugh Software's LES (Logistics Execution System) was chosen to provide the transparency needed throughout the entire supply chain. It offers timely data exchange to support supply chain management and manufacturing decisions, at the same time integrating with internal operations.

ADAPTABLE: The project's first installation of DCS went live on 10 July 1999 at the Torgau site in Germany. Within three days, the facility was at 100% of its normal productivity level.

Three sites at Aachen and Herzogenrath, Germany, went live simultaneously in October 1999, reaching full capacity by the third day of shipping.

THIRD-PARTY FUNCTIONALITY: DCS provided the third-party execution functionality needed to manage the SSG's Multiple Service Centres, ensuring that the plans and products conceived and scheduled by SAP would be delivered in a timely fashion to various clients' production sites.

OPEN STRUCTURE: DCS is open, configurable and easy to use. Its phased approach of implementation will enable it to grow together with SSG's operations. It runs with RF terminals, on paper-based system, and on NT or Unix platforms. It integrates with the existing SAP platform.

MULTILINGUAL: DCS facilitates up to 14 languages, making the Torgau site the first multilingual DCS site.

McHugh Software ☎ +44 118 925 3235

3. Planes make more money in the air

Company: Lufthansa Technik (Hamburg, Germany)
Turnover: 10% of Lufthansa Group's US$78 million
Software: HELAS from Heyde (Bad Nauheim)
Implementation time: 6 months
Users: 300
Cost: Not disclosed

The situation

YOU CAN'T PAY PEANUTS: Aircraft maintenance doesn't come cheap. It's estimated that a jumbo jet that sits on the ground costs the owners about US$480 000 daily in interest and lost revenue. In the pre-WMS days, the D-Check, the general overhaul of a jumbo jet, took up to 12 weeks and 90 000 labour hours, involving thousands of components.

Aircraft owners can't afford to skimp on safety checks. But they don't want a huge bill either. To stay ahead of competition, aircraft service provider Lufthansa Technik AG (LTAG) had to deliver an impeccable service and, in order to meet demand for "cheaper" service, do it faster than the competition.

LTAG's services cover engine, engine parts and accessories service, and the customization of VIP and executive aircrafts.

The company services 15 000 components from hydraulic pumps to landing gears, plus 12 000 wheels and thousands of other parts annually. Ninety percent of the repairs and overhauls are done in-house.

"We needed a WMS that provides us with a standardized but flexible architecture running on different platforms but at the same time allows customizing," says Marlene Hollwurtel, LTAG's spokesperson. To those requirements she added an open structure that suits various clients and environments, and full traceability of all incoming and outgoing spare parts.

LTAG needs to comply with the EU's environmental management and audit scheme. A sophisticated procedure is therefore essential to monitor the work.

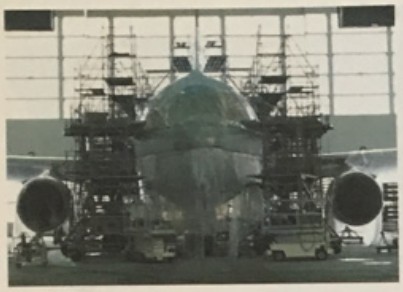
The system also had to be easy to use or else the implementation would have been disruptive to LTAG workers.

A new WMS helped Lufthansa Technik halve the time it takes to perform D-Checks, without which large planes could not fly.

The solution

MIRACLE DELIVERED: Together with system developer Heyde, Lufthansa Technik and its own data processing service provider, Lufthansa Systems, created a WMS tailored specifically to LTAG's needs.

HELAS (Heyde Larger Systeme) delivered the miracle expected of it. The WMS was implemented in November 1997 in six months. It was designed to



interface with the WMS and the underlying systems.

The architecture is that of Unix-based servers and Windows NT/Novell-based clients using Oracle database. Users are able to configure their own interfaces to it. HELAS is connected to 300 users.

ONE-STOP SHOP: Each year LTAG services about 220 airlines, 400 Boeing and jet liners, and in the case of D-checks, repaints 120 aircrafts of all types. Now that the WMS has been installed, the D-Checks take approximately half the time —42 days, using roughly 60 000 labour hours.

"With HELAS, we are able to operate our warehouse with respect to specific requirements of different clients and various kinds of handled items," says Hollwurtel. "Without implementing HELAS, business with customers outside the Lufthansa Group wouldn't be possible."

LTAG contributes 10 percent of the group's US$78 million turnover.

Heyde ☎ +49 60 323 080

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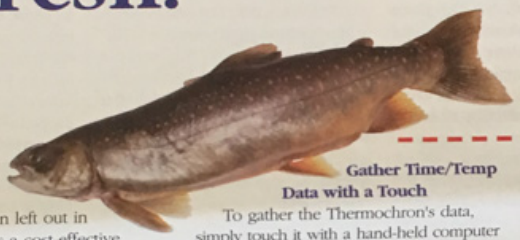

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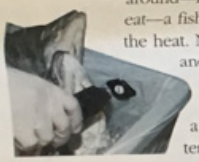

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Stainless Steel Durability

Thanks to stainless steel armor, the iButton can withstand the very harshest environments, including water, mud, contaminants, temperature extremes, and rough handling. The ruggedized, re-usable Thermochron mounts or sticks to most anything and has a 10-year life.*

Mission the iButton Quickly

Using a PC or palmtop and free evaluation software at **www.iButton.com**, you set the Thermochron's start time, sampling rate, and alarm threshold. There's even enough memory in the device to store a shipping manifest.

**Lifetime may vary depending on use conditions.*

Gather Time/Temp Data with a Touch

To gather the Thermochron's data, simply touch it with a hand-held computer or pen-style probe. These portable readers can gather data from multiple buttons for quick downloading to a PC.

The Network Connection

You can also track data from a fleet of Thermochrons online. Each iButton has a guaranteed unique, factory-lasered registration number, addressable by any computer. With networked Thermochrons, you can even track where the shipment was last seen.

The Thermochron mounts or sticks to just about any container.

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4401 South Beltwood Parkway, Dallas, Texas 75244-3292 ❖ Phone: 972-371-4448 ❖ FAX: 972-371-3715

Circle 9

4. 800 loads per week is no small beer

Company: Bass Brewers (Burton-on-Trent, UK)
Turnover: *US$3 billion*
Software: *OPUS/400 from Microlise (Nottingham, UK) running on IBM AS/400*
Implementation time: Not disclosed
Users: 18 truck-mounted and radio terminals
Cost: Not disclosed

THE SITUATION

HAVE BEER, WILL TRAVEL: Bass Brewers' (Burton-on-Trent, UK) warehouse lease had come to an end. The company had outgrown its previous operation, and was in need of a property that could accommodate its growth.

Bass Brewers produces and distributes brands such as Carling, Draught Bass, Grolsch, Hoopers Hooch, Worthington and Caffreys Irish Ale to mainly multiple, cash-and-carry and off-licence chains nationwide. These customers provide swift services with turnaround time from order receipt to delivery within 48 hours, and they deliver to regional on-trade depots around the UK.

Bass needed to provide frequent deliveries, smaller drops and a larger product range, but couldn't find a suitable warehouse. The next best solution was to build a warehouse that employs a WMS.

A WMS FOR ALL SEASONS: Bass was looking for an off-the shelf system, but later opted for a customized WMS that would be appropriate for specific warehouse operations.

Bass needed to provide frequent deliveries, smaller drops and a larger product range.

"Production would just not be able to keep up with demand at its peak. The warehouse plays a vital role in enabling Bass Brewers to supply customers even in the busiest periods of the year," says Jan Zalesinski, the company's national distribution centre contracts manager.

THE SOLUTION

MAGNUM OPUS: The new distribution centre employs OPUS/400 from Microlise, which runs on an IBM AS/400 located off-site. The system responds in real time through a PC-based Microlise narrowband radio communications controller to 18 truck-mounted and hand-held radio terminals around the DC. Four Microlise Traker radio terminals fitted with a scanner provide real time data exchange between the fork-lift truck drivers and OPUS.

IDEAL WAREHOUSE: Located at Burton-on-Trent, the 37 000 m² warehouse was built specifically for the new warehousing systems.

The warehouse uses block stacking for pallets of cans and bottles. Slower-moving goods are stored in a racked area that can accommodate up to 60 000 pallets at one time.

The warehouse has 25 loading bay doors on both sides. Products are loaded and unloaded from doors nearest to the location designated by the system to minimize fork-lift truck travel distance. OPUS allows for either side of the doors to be used for goods-in or goods-out.

The centre receives pre-labelled goods from four production sites. Prior notice of goods-in loads are relayed through an interface with the business system.

Receipts and despatches are mostly twin pallets that move between curtain-sided trailers and the block stacks.

FLEXIBILITY: "The OPUS WMS supports flexibility of warehouse configuration and provides data input and output using the standard EAN 128 labelling, allowing for scanning of pallets on receipt and at customer locations," says Peter Higginson, IT project manager at Bass Brewers. "We found OPUS to be the best-of-breed solution that could be tailored to fit with our operational requirements."

LESS WRITE-OFFS: Says Jack Zalesinski: "Our best-before identifiers are now highly accurate, giving far less stock write-offs, better stock rotation and improved customer service. The OPUS system has been successful, is robust and the equipment is excellent and reliable."

OPUS managed over 50 000 pallet movements within the first three weeks of implementation. The warehouse now operates 24 hours daily for five and a half days every week, peaking at seven days weekly between October and December.

The first year of operations saw 30 million cases of beer being handled by the centre. At present, it accommodates up to 650 loads of beer and despatches 800 loads weekly.

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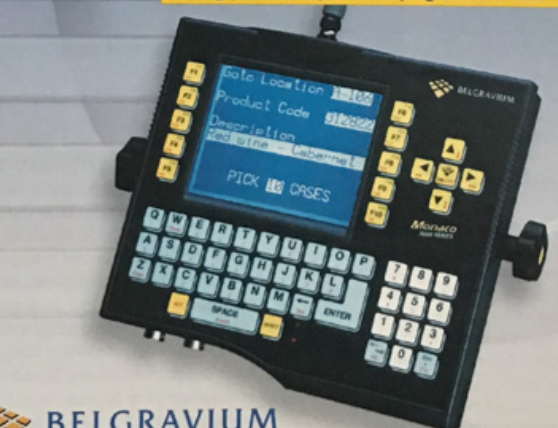

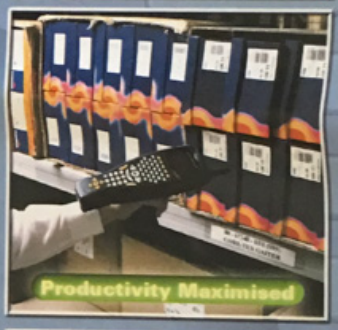

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CAMPUS ROAD, LISTERHILLS SCIENCE PARK, BRADFORD, WEST YORKSHIRE. BD7 1HR
TEL: +44(0)1274 741860 FAX: +44(0)1274 741862 Email sales@belgravium.co.uk
VISIT OUR WEB SITE: www.belgravium.co.uk

Circle 10