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A practical guide to modern warehousing Technology by Gerard Wyatt, Microlistics.

In today's economic climate, supply chain management is becoming more important than ever before. Shifting goods efficiently, reliably and as inexpensively as possible is critical, and the systems involved in the execution of this need to be continually improving to meet the demands of their users, who are in turn trying to meet the demands of a modern, unpredictable and unforgiving customer.

In warehousing technology, there is a continuing trend to 'break down the walls of the warehouse', by providing technology and functionality that, in the past at least, was not seen as common WMS functionality. On the other hand, there still exists a rather greyed line between what should be provided by a WMS, and what should still be provided by more traditional sources – like the ERP packages.

Identified below are just a few of the arising functionalities that are either at the forefront of developers' minds, or are already well on the way to becoming standard practice within Distribution Centres.

Traditional benefits derived from Warehouse Management Systems include Accuracy levels of 99+ %, labour productivity gains of 30%, and potential space utilisation increases of 10%. Obviously, those involved in warehousing goods will be looking towards newly emerging technologies and processes to improve these even further.

Voice Recognition

Speech recognition systems allow for natural language data collection and hands-and-eyes-free operations. In a multitude of applications, such as warehouse management, it allows the user to perform various operations simultaneously, such as data collection and confirmation, whilst continuing the process of order picking.

Whilst the first instance of Voice Recognition dates back to US organisations in the mid 80's, it is only now becoming more commercially viable and therefore prevalent. "The number of speech users quadruples each year," says Jan Vermeesch, European marketing manager of SyVox, one of a small number of providers of Voice Recognition technology.

Although all Voice vendors claim to be gaining converts and growing exponentially, industry experts and consultants offer a more sober perspective. "The penetration in warehouses is minimal," says Bill Meisel, editor of "SpeechRecognition Update," a newsletter covering the voice

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technology market, based in Tarzana, Calif. "The prognosis is good but it's early in the evolution."

The continued success of Voice recognition applications in the warehouse will largely be dependent on their ability to integrate with the systems that actually manage the workload within the facility - the Warehouse Management system, or other similar application. However, acceptance barriers are being lifted by the vendors by adopting industry-standard interface protocols to integrate with industry standards in ERP and WMS. The aim is to move as far as possible toward true 'plug & play' capability.

In relation to getting 'bang for your buck', the better ROI figures are being achieved in order picking in difficult environments, such as cold store environments. ROI is also dependent on other factors such as the size of the operation, the industry, the value of goods and the criticality of delivery performance. Jan Vermeesch explains: "The Logistics Market has not slowed its investment decisions after September 11th. But the sector invests only if ROI is less than 12 months...and that is exactly what speech systems are capable of."

Event Management

Supply Chain Event Management is one of the most commonly heard catch-cries in the SC & WMS arena today. For a very basic definition of SCEM, think of it as a car alarm for your supply chain. These systems (also known as Real Time Supply Chain Visibility and Intelligence), let managers monitor their supply chains and work with suppliers and customers to resolve unplanned events. The unplanned events can include situations such as a key customer's order shipping late or stock levels dropping below a minimum level and requiring replenishment. Once an exception occurs, SCEM systems can send out alerts in the form of an email, page, phone call, or other message format to key supply chain managers. But it is also necessary that users need to do more than just receive an alert, they also want the option of having an automated workflow to kick off in response to certain events. For that reason, SCEM vendors are partnering with other software vendors who supply workflow automation solutions, middleware (a.k.a. Enterprise Application Integration, or EAI) vendors who can receive and process messages from a variety of enterprise systems, or vendors who do both workflow and middleware.

Many WMS vendors are touting how their supply chain execution applications can also deliver event management capabilities. However, organisations looking to 'event manage' should hold out for more partnerships to be formed in this space, and wait for the dust to settle as vendors gear themselves up to provide a solution that addresses all the needs of harried managers trying to make sense of their dynamic supply chains.

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Labour Management

In historical terms, when WMS providers mentioned Labour Management, they were (in most cases) actually referring to Labour reporting. That is, through interrogating the database that supported the WMS application, information could be gathered relating to how many tasks were achieved by each operator, and perhaps could apportion a cost to each activity for reporting and billing. However, it could not work proactively, by determining (for example) how long it **should** take an operator to perform a task, and whether operators were working productively, by measuring their workloads against previously calculated or agreed standards. Modern Labour Management modules take labour productivity management to the next level by calculating goal times for specific tasks based on their characteristics - such as the distance to be travelled (often calculated by using XYZ axes, the type of task, the number of items/SKU's involved, etc.) In doing so, these LMS will tell users how many people they need for a certain task, or how to assign work to finish the jobs that need to be done by the end of the day,. It will also determine how long each task should take, and provide detailed performance data for each employee.

Application Integration

Regardless of how much more functionality the WMS of the world take on, there is still going to be a need to integrate the WMS with other business systems. Much development has taken place in an effort to be able to link normally disparate systems together, and to do it easier, cheaper, and more reliably.

Chris Read, Chief Technology Officer at Microlistics Pty Ltd believes that “true supply chain integration will be a bottom-up process, with individual usinesses integrating parts of their supply chains when it suits them, using the most appropriate technologies..”

Chris continues, “In some ways, XML is seen as a new ‘you-beaut’ technology that is actually going down the same well-worn paths of older integration technologies as it develops. So, at the end of the day, there may be a number of standards managed by different bodies, with published information about how to interpret it. Whilst XML is just another potential tool to use, it does have the ability to make systems integration a much more robust and cost effective development.”

RF ID Tagging

Adoption of RFID by the shipping container companies has probably been one of the most successful phases for the RFID industry. The US company Amtech seems to be the leader in this technology and now have systems fitted to most shipping containers around the world.

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Developments in RFID technology continue to yield larger memory capacities, wider reading ranges, and faster processing. Nonetheless, it is highly unlikely that the technology will ultimately replace barcodes, since the integrated circuitry in an RF tag will never be as cost-effective as a barcode label. RFID will continue to grow in its established niches - with the greater supply chain already beginning to adopt it - but it remains to be seen if warehousing will also provide RFID with such a niche market opportunity – probably not.

Conclusion

In the domestic market place, where economies of scale are often difficult to achieve, the technology that succeeds - and the technology that never gets off the ground - will ultimately be determined by some or all of these questions:-

- Can I afford it ?
- Will it pay for itself?
- Will it talk to my business systems?, and
- Will it connect to my customers and trading partners?

“Technology is driving distribution”, says Henry D Gregory, CEO of US-based IDI. “It’s allowing companies to compete more effectively by developing far-superior logistics systems than they’ve ever had in the past.” And this will continue to meet the demands for better visibility and greater efficiencies across the supply chain.

So regardless of which of the new developments take off, and which don't, the WMS will still represent a sure fire way for organisations to reduce operating costs and improve efficiency.

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