Warehouse Management Systems - the Whys and Wherefores

Why would you want a Warehouse Management System (better known as a WMS), and why wouldn't you? This short briefing will hopefully answer most of your questions. Read on!

What is a Warehouse Management System?

A warehouse management system, or WMS, is more than a stock control system, and more than a data collection system. It is actually a system that helps you 'automate' your warehousing operations as much as possible.

Imagine a totally automated warehouse - a warehouse where stock arrives at goods in, is automatically booked in, checked, and put in the best location. In turn stock is automatically picked, packed and despatched, with no errors, and with maximum efficiency. Imagine then being able to sit at a computer screen anywhere in the World and view all this happening, live, with accurate up-to-date information available at your fingertips - real time stock availability, stock status, operational productivity, despatch information.

Totally automated warehouses do exist of course but they are exceedingly expensive, very inflexible and the consequences of a mechanical breakdown can be dire.

A WMS, well implemented and supported, gives you most of these benefits without investing millions in equipment and whilst still using your warehouse personnel and your material handling equipment (fork lift trucks etc).

By automation we mean getting maximum productivity from people and equipment, getting maximum space utilisation and all but eliminating paperwork and manual record keeping. On top of this a WMS aims to give you near 100 per cent stock accuracy.

Sounds too good to be true? Well there's no such a thing as a free lunch and of course such systems need capital investment, plus there are some running costs involved. However, the main 'cost' is the drive, enthusiasm, and commitment needed from the entire warehousing team and senior management to ensure the system is set up correctly, used properly and regularly optimised. A WMS is not a 'quick-fix' option.

How does a WMS work?

To answer this question its best if we step through each key warehousing operation to see the part a WMS plays:

Receiving of stock

In an ideal world all stock will be 'pre-advised', i.e. an electronic message will be sent in advance detailing the contents of each container, pallet etc. Stock will be identified with a unique bar code or radio frequency tag. The potential savings in terms of labour and error reduction are significant and for this reason electronic pre-advice, particularly in conjunction with pallet or carton bar coding, is used extensively in the supply chain world. Pre-advice will never be adopted 100 per cent however, particularly in the Third Party Logistics world where the warehouse is expected to take anything that turns up (and indeed is very keen to do so!). Bar coding usually conforms to the global standard known at UCC.EAN-128, which ensures that the pallet or carton is uniquely identified to a standard that any company can work to. This standard also allows the bar coding of

information such as best before dates, quantities, product codes etc, and is set by a global not-for-profit organisation called GS1, further details at www.gs1.org.uk.

Where stock is pre-advised, the operative simply scans the bar code with his hand held terminal, the WMS checks that the stock is correct and books it into the warehouse - error free and instantaneously. The WMS can check for over and under deliveries and can also be used to carry out quality control checks, quantity and dimension checks and so on. The WMS can also impose quarantine and quality control rules at this stage.

The WMS then works out the best place to locate the stock within the warehouse.

Stock put-away

Optimum put-away of stock is one of the key benefits of a WMS. A true WMS will work out the best location to put stock in the warehouse - i.e. a location which provides both optimum operational efficiency and optimum space utilisation. The WMS will typically use rules to do this - rules are 'must', 'must not' and then more sophisticated 'preferences' which are perhaps rated from 1 to 100. An example of a must rule is 'frozen food must go in the cold store area', a must not rule being 'two ton pallets must not go into racking rated one ton', and a preference would be 'there is a low preference for this product to be stored outside under the canopy (but if there's nowhere else for it to go then that's where its can go)'. Rules can be complex and can take a lot of thought to set up - it is also important that the rules are regularly reviewed and updated where appropriate - after all this is one of the areas of greatest system benefit. A good WMS will also control cross docking so that if a product needs to be despatched imminently then the WMS will direct it to a despatch bay rather than putting it away.

Labour and equipment optimisation

A good WMS will have in-built task management. Task management is where the system continuously works out what has to be done in the warehouse and then generates tasks in the form of messages; in such a way that optimum use is made of people and equipment. These messages typically appear on the mobile and hand held computer terminals that are now used with the majority of warehouse systems. An example of such optimisation is where stock is being put away at the far end of the warehouse in a narrow aisle - the WMS can be set up to look for stock nearby that needs picking. By interleaving tasks in this way efficient utilisation is made of the truck and its operator (particularly important when it might be a very expensive narrow aisle truck). The reduction of 'empty fork travel' is a key benefit of a WMS, along with the reduction in time spent looking for lost stock.

Perpetual Inventory and Housekeeping

The use of real time mobile computing means that a WMS knows where everything is at any point of time - even whilst stock is being put away or picked. This means that stock can be counted and verified on an ongoing basis. Stock checks can be 'interleaved' with put away and picking operations - for instance one easy way of checking stock is to request a stock check when a location has been picked to zero. Rules can be set up to check locations and product groups on a regular basis; high value stock can be checked more frequently than low value stock for instance.

One obvious benefit of this is that monthly, quarterly and annual stock takes are eliminated (often auditors need a little reassurance first!). Downtime and labour costs are eliminated.

The bigger benefit however, although sometimes less measurable, is the cost associated with inaccurate stock. Inaccurate stock costs money, big time; customers and clients are let down and the only solution is to hold 'safety stock'. It is estimated that the cost of holding safety stock is typically 20 to 25 per cent of stock value per year (allowing for obsolescence, damage, finance costs, storage costs etc).

The stakes are even higher for Third Party Operators. They are responsible for customers' stock and it is essential to get it right and be 100 per cent accurate, both to provide the service level demanded, and to avoid financial penalties for losing stock.

Pick, Packing, Kitting and Despatch

In a simple operation picking of stock can be pretty straightforward, a picking list is printed, the stock is picked and then despatched. A WMS can be used in this scenario and can improve accuracy by providing paperless picking using mobile computing devices.

Where a WMS really comes into its own however is in 'automating' more complex picking and packing operations. The WMS can group picks together to optimise both the picking operation and the transport operation. Picking can be optimised by scheduling the picking route through the warehouse. Transport can be optimised by ensuring vehicles are filled to maximum capacity, and that the right vehicles are used.

A WMS can also control the picking and packing operation. Stock can be picked from different parts of the warehouse and then brought together at the packing bench or marshalling area. Stock can be scanned onto pallets and into cartons - thus allowing electronic manifests to be produced, contents to be verified and labels produced. Labels produced at this stage of the operation can be in conformance with the requirements of customers, carriers etc. Kitting, co-packing and promotional operations can also be carried out at this stage, for instance combining two items together for a 'buy one get one free' promotion.

Product information such as serial numbers, variable weight etc can be captured at this point.

The 'intelligence' of the WMS can be used to change the way the picking is carried out. One example of this is 'wave picking'; picking is carried out in waves to reduce the amount of stock awaiting despatch, clogging up the despatch bay. This technique can be extended so that, for instance, stock for distant destinations is picked first and then for local destinations later in the day. Bulk picking is another technique that a WMS can support - in some cases it is more efficient to pick the same product for several orders in one go - and then split it into separate orders at the point of despatch.

Traceability and audit-ability

With every modern WMS traceability and audit-ability comes 'free'. Every time something is scanned in the warehouse a record of the transaction is logged into the WMS database. This record will be time and date stamped to the second, against the operator who carried out the operation. The WMS tracks receipts by batch, and then tracks where those batches have been despatched to. Therefore it can provide full 'two way' traceability - where stock has come from and where it has gone to.

Thus the WMS becomes a 'data warehouse' in its own right enabling accurate information to be reported detailing productivity, operative performance, traceability, etc.

What are the roles of bar codes, data collection and mobile computers, and wireless technology?

We've already talked about the use of bar codes as 'licence plates' for identifying stock in the supply chain and warehouse. Hand-in-hand with bar codes is the use of mobile computers, often known as Radio Data Terminals. Such equipment used to be very specialised and expensive - nowadays it is almost becoming a 'commodity product' - albeit still not as cheap as most people would like. The latest equipment is PC based, and is basically a more robust version of the hand held PDA's many of us already use. The more expensive equipment is capable of withstanding a lot of mishandling, including drops onto concrete floors. Equipment is also available for operation in cold stores, in hazardous areas and in wet areas.

The wireless networks used are basically the same WiFi wireless networks we use in hotels, airports and coffee shops. The wireless network can be sourced separately from the terminals themselves, and indeed terminals from multiple manufacturers can normally be used on the same wireless network. Increasingly nowadays the wireless network is provided by the same company that provides the traditional 'hard-wired' network (and often the telephone system cabling as well). However, at the end of the day it is generally a safer bet to buy both the network and the terminals from one vendor as a reputable vendor will carry out a full site survey and will guarantee performance and coverage. To further minimise risk it is often preferable to get the WMS vendor to supply the hardware - thus further guaranteeing the performance and integrity of the entire system. However, there's no harm in getting some competitive quotes from hardware vendors however to keep the WMS vendor on his or her toes!

A site survey is vital in most applications as this then guarantees the wireless coverage, within reason. The main difference between a warehouse and a coffee shop is that multiple access points (or base stations) are needed to cover most warehouses, and it is important that these provide seamless coverage across the warehouse, with no dead spots.

Ideally the warehouse should be surveyed when it is full as coverage will be at its worst. Often this is not possible, but in such cases a skilled wireless engineer will be able to recommend the most appropriate location for the access points. Fine tuning can be carried out later if necessary once the warehouse is full.

Where possible terminals mounted permanently on fork lift trucks should be seriously considered as these terminals are, by their very nature, less susceptible to damage and are normally 'fit and forget'. Such terminals are normally used in conjunction with tethered bar code scanners (scanners on long leads).

Hand held terminals should be carefully selected for the type of operation concerned. It is often a good idea to get warehouse operatives involved in making the selection. There is always a trade-off between a large screen and keypad versus a unit that is lightweight and easy to hold. Units should be clearly numbered and issued to operators at the start of each shift - thus making the operator accountable for his / her specific unit. As well as being dropped, such devices are susceptible to being driven over by fork lift trucks, and in many cases are left on pallets only to be swiftly 'despatched' when the pallet is moved.

What's the latest technology?

RFID: we can't read a newspaper or magazine nowadays without reading about RFID, or radio frequency tagging. RFID is being used increasingly in the supply chain but the uptake is much slower than the pundits predicted. The good thing is that there are now standards in place for RFID - known as EPC standards (for more details refer to the GS1 web site detailed earlier). RFID is still very much a niche application - it is simply too expensive for most high volume applications and in some cases there are still technical problems to be overcome. RFID is being used increasingly for tracking of 'assets', such as returnable trays and containers (and beer barrels) - where the tag performs two functions, one to convey details of the contents and two to allow the asset itself to be tracked and audited. The additional cost of the tag is often only a small percentage of the cost of the tray, barrel, cylinder etc.

Voice recognition technology: Voice technology, on the other hand, is being taken up on a much more aggressive basis. Voice technology is a remarkably simple concept in a warehouse because the recognition only needs to be confined to a small number of words, for instance the numbers one to ten, basic alpha characters plus a small number of words. The concept of voice technology is that the picker wears a head set connected to a small terminal, normally belt mounted. His or her picking instructions are 'spoken' by the computer over the headset - where to go and what quantity to pick. The picker simply confirms the pick, sometimes by way of a check digit, and can then carry out a stock
count if so required.

The big advantage with voice technology is that the picker is working with both hands free and isn't distracted or slowed down by trying to read a small screen. The other major advantage of this technology is that it is multilingual - a big plus point for the increasing number of warehouses that employ staff from multiple cultures. We've referred to picking, but such equipment can also be used for put away, replenishment and other warehousing operations. It is important, however, to ensure that the technology is appropriate in each of these areas before making the decision - in some cases traditional bar code scanning is preferable. Voice technology can also be combined with bar code scanning or even RFID - to capture serial numbers of picked items for instance.

When would you want a WMS?

To embark on a WMS project you need to be certain that you are going to achieve significant business benefits. A WMS project is not for the faint hearted, it needs drive, determination, persistence and of course money.

We've described the key 'features' of a WMS above, so hopefully you can translate those features into benefits for your business (and of course in some operations there may well not be a business case).

The key areas to consider are:
- the potential for a WMS to give you improved stock accuracy - by reducing errors, by providing real time information, by enabling perpetual inventory
- the potential for improved productivity and cost savings - through improved labour utilisation, improved equipment utilisation and better space utilisation
- the need for improved traceability - a WMS can give you two way traceability, almost as a by-product of being in place
- improved customer and client service - through overall improved warehouse control, improved pick and despatch accuracy, etc.

Only you can work out the return on investment in these areas. By all means get consultants and system suppliers to help you, but at the end of the day only you know how much room there is for improvement using the business 'tool' that a WMS provides.

The more transactions per day (eg pallet moves, picks) in the warehouse, the greater the justification. The more locations there are, the greater the justification. In particular if the warehouse employs narrow aisle racking there is a very high probability of a good return on investment for a WMS - it is difficult to see stock in a narrow aisle warehouse and therefore difficult to use manual systems. In addition, such warehouses normally use expensive narrow aisle fork lift trucks where optimisation can bring great savings - sometimes to such an extent that fewer trucks need to be purchased and operated

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What are the additional benefits for a Third Party Operator?

A manufacturing company can often limp along with a poorly controlled warehouse. If the manufacturer 'loses' stock in his warehouse he just makes some more, expecting that one day the lost stock will turn up. As long as the end of year valuation is roughly right' the second-rate manufacturer isn't unduly worried that stock is down on one SKU and up on another. He's also often not too worried about labour productivity - the labour costs in the warehouse are probably only a small fraction of his overall labour costs.

Life is different however for a third party operator. He is looking after other peoples' stock and therefore he MUST know accurately how much he has in stock and where it is. If he doesn't he'll lose the customer and may be financially liable for the lost stock. For this reason a good WMS, well implemented and well supported (both internally and externally) is normally essential. In turn labour productivity, warehouse utilisation and efficient equipment performance is of great interest - all benefits go straight to the bottom line.

The 3PL will normally be working to a Service Level Agreement (SLA) with his client. Again a WMS is normally an essential tool in monitoring performance against this SLA - clients have a tendency to remember only the last few mistakes a 3PL made, rather than the mistakes he himself made, or the 3PL's overall 99.9 % adherence to the SLA over the last few months. The WMS provides the audit trail and evidence to support the case (it does work both ways however!).

A WMS is also essential in many cases to raise billing and charging information. The WMS, provided that it has been designed at the outset for a 3PL environment, will record all transactions that could relate to charging. A matrix by client is then used to turn these transactions into charge lines and from there into an invoice. The same applies to stock levels and storage periods. The important thing is that everything is auditable and accurate.

It should not be overlooked that the use of a WMS often enables a 3PL operator to move into new markets. A good example of this is web fulfilment and similar markets. Increasingly nowadays merchanting companies that sell product to consumers and the trade want to focus on what they are best at - sourcing product and making sales. They want to use skilled 3PL providers (often given the buzz word of e-fulfilment companies) to carry out the physical work of receiving, storing and despatching product - this is their area of expertise after all. The WMS used by the 3PL is an ideal tool for receiving orders (often via the client's web site), controlling stock, managing pick, pack and despatch etc. Increasingly the 3PL is providing additional services such as order processing, credit control and so on - allowing the merchant to build a sizeable business with minimal fixed overheads and head-count.

When would you NOT want a WMS?

One obvious reason for not wanting a WMS is that you haven't got the money to own and operate it. Another reason is that you lack the drive and determination to put the system in correctly - there is only so much a WMS vendor can do to help you. You will know your operation better than anyone so a lot of knowledge and information needs to come from you and your people.

If you have slow moving stock then you may find there is not enough benefit in a WMS - remember that a key function of a WMS is to 'automate' your warehouse. In this case you may be better off with a stock control system, perhaps incorporating data collection terminals and bar coding. If you don't need traceability or don't have many product variants then again your justification is less.

Are there alternatives to a WMS?

Yes! From the humble T card, the Excel spreadsheet through to stock control systems with bar code data capture and mobile computing support. A WMS is not the answer in all cases - look at all the options for your business before investing.

How do I decide between 'best of breed' or ERP?

This applies more to manufacturing companies than third party operators.

A typical manufacturing company may already have an ERP system - an ERP system is an 'enterprise wide resource planning system' and basically consists of modules for accounts, order processing, production control and stock control (amongst others). Typical vendors of ERP systems are SAP, Oracle, QAD MFG/pro, Microsoft Navision, Microsoft Great Plains, Sage, 3I Orion etc. In some cases these ERP systems have a warehouse management module.

The first stage is to consider whether you do actually need a WMS - following the guidance given in an earlier section. It may be that you can get most of what you need from the ERP stock control module - particularly if it is enhanced with the use of bar code data collection. If you really do need a WMS then the next stage is to summarise your business requirements and evaluate the ERP's WMS module, and their ability to implement this module, against these requirements at a reasonable cost.

It's important to ensure that the ERP WMS module is fully proven and that reference sites are available. It's also important that the reference sites use the WMS in the way you wish too; you don't want to risk having to pay for potentially expensive development work nor do you wish to be the guinea pig. Try and speak to and see reference sites in your region, a lot of the success around implementing a WMS centres around the training, support and expertise you receive from the vendor - if this comes from overseas then it's likely to be expensive and not always available when you need it.

If your ERP system cannot meet your WMS requirements, then the next stage is to review the market place. Emphasis should be placed on solutions that have proven, interfaces with your ERP solution.

In most cases the WMS modules that exist in ERP solutions are less suitable for third party operators, this is because their control of stock by different 'owners' is rudimentary or non existent, and they do not normally provide a charging / billing module for storage and services. Third party operators are normally better choosing their WMS first (as this is their business critical software) and then selecting one of the ERP / accounts solutions that the WMS vendor has experience with. Most leading WMS vendors will have proven expertise with half a dozen or more ERP solutions. Traditionally third party operators have only needed the accounts / finance module of an ERP solution. Increasingly however, the lines between manufacturing and 3PL are blurring, with many 3PL's being asked to do kitting, assembly and 'light manufacturing' tasks - at which point the production modules within an ERP solution can potentially be used.

How can a WMS be used to help me win and retain clients?

This question is sometimes superfluous - in many cases now a 3PL must have a WMS in operation to win the business in the first place!. There is a difference however between being able to 'tick the WMS box' on tenders and being able to use the WMS as a tool in your armoury to really retain clients.

They key is to ensure the WMS adds value for the customer, whilst ensuring the operation runs as smoothly as possible. A good example of this is where the WMS can be made to work seamlessly with the client's internal systems. For example if the client's system can send despatch requests electronically to the WMS, and the WMS in turn sends back despatch confirmations electronically, then significant benefits will be gained all round. The more links like this that can be developed then the more both parties will benefit. Getting these links in place is not 'rocket science' but does require a degree of skill and rigour - and a lot of testing. Therefore once these links are in place the client is less likely to change 3PL provider assuming that overall service and value are in order.

Where does a WMS fit in the 'supply chain'?

The WMS nowadays is very much the 'electronic hub' of the supply chain. This is because the supply chain increasingly needs real time and detailed information - details about shipments received (by product code, batch and in some cases down to individual serial number), shipments despatched, accurate and real time stock status information etc. This level of detail can normally only come from a WMS.

By way of example consider a manufacturing plant in China supplying a warehouse in the UK. Traditionally a container of product will turn up at the warehouse, its details and contents may have been faxed across some days or weeks previously. The container would then be emptied and the product sorted, counted and checked - a laborious process that may well take a day to achieve.

A process increasingly used is to pre-advise the container electronically. As a carton is packed in the factory it would be labelled with a unique bar code (to GS1 standards). As it is loaded into the container it would be scanned. In this way an electronic manifest (or Advanced Shipping Notification - ASN) is generated. This can then be sent to the warehouse electronically, via traditional EDI or simply via email.

When the container is received the cartons are merely scanned out of the container - the WMS knows the contents of each carton and therefore the whole process is simplified.

Once the container is empty a variance report can be produced instantly. Quality control techniques are used to define what sampling and inspection processes should take place.

The same process can be repeated as product is despatched out of the local warehouse - producing electronic manifests for retail customers for instance.

The aim is to share as much information electronically and automatically. A lot is talked about 'web interfaces' into Warehouse Management Systems'; these are useful modules to allow clients to do ad-hoc queries on stock status, pick status etc and perhaps to enter despatch requests. The downside however, is that any such facility requires human involvement - with inevitable mistakes and costs. An automatic EDI, electronic communication facility is often the best option.

What else can a WMS do?

As we've discussed above, the lines between manufacturers and third party logistics providers are becoming increasingly blurred. WMS are increasingly providing more functionality for production type operations. Areas to look out for include:

- Kitting: A kitting function allows different components to be brought together for assembly or issue. A de-kitting function should also be provided to allow returns. In a third party environment such a module should also trigger relevant charging / billing information.
- Assembly: This is closely associated with kitting and is often an extension of kitting. Assembly also takes account of labour requirements and the use of consumables such as packing material, adhesives etc. The assembly module in a third party environment should also generate charging / billing information throughout.
- Pick and pack / packing bench: Modules of this type provide detailed control and tracking of picking and packing operations. For instance recording the contents of cartons as they are packed - including serial numbers and batch codes of their contents.

WMS increasingly works hand-in-hand with transport operations. Some WMS have their own transport management systems (TMS) whilst others integrate with best of breed offerings. There is no 'blue print' in the market for what a TMS does or doesn't provide - the TMS market is less mature and more varied than the WMS market so knowing and understanding your business needs is even more important when selecting a TMS.

Some TMS for instance provide highly sophisticated route optimisation; others provide nothing in this area. Again, some WMS incorporate route optimisation whilst others integrate with market leading best of breed systems.

Yard management is another area that can be dealt with by a WMS, or TMS or both! Yard management functions include the booking in of tractors and trailers, the assignment of parking bays, the assignment of dock doors, and the booking out of loaded vehicles at the gatehouse.

Carrier interfaces: The other area where warehouse meets transport is that of linking to carrier, courier and freight forwarding systems. This applies both inbound and outbound. The basic functionality can be that of providing and receiving electronic shipment information and that of printing carrier specific shipping labels for parcels and pallets.

More sophisticated modules can provide 'rate shopping' where the system works out the best carrier (in terms of price and required service level) for product to be despatched.

Returns processing and reverse logistics: Much is being spoken of reverse logistics and returns processing. The truth is that in WMS terms (or a least in terms of a good, modern and flexible WMS) there is little difference between a return and any other receipt. The main difference is that a return may need to be associated with its original despatch / batch reference and will normally need to go through inspection and grading processes. This area will offer increasing opportunities for third party operators - retail return rates of 20 per cent are not untypical and the current WEEE directive is the catalyst behind the increase in reverse logistics.

Duty Management and Customs: The other area WMS can help is that of customs documentation and duty management. These areas are becoming more and more important as we import more products into the country. A WMS can either produce the relevant documentation and provide the necessary reporting and audit controls or can link to proven packages which do the same.

Pre-distribution: Pre-distribution is an interesting concept and is progressively being adopted by many companies. The theory is that as much as possible of the warehousing / distribution is carried out in low wage economies such as China or Vietnam, which may include kitting, quality control, retail packing or even picking for individual stores. Such processes are much easier to control when driven by a WMS - in essence the WMS is split across one or more locations - locations which may be thousands of miles apart.

Why is the WMS market growing?

The good news for potential purchasers of WMS is the market is growing. Why is this good news? - it means that there is active, healthy competition, that products are being improved and developed, and the bottom line is that year on year WMS vendors are delivering increased functionality, increased flexibility at reduced costs.

The reason for this growth is due to several reasons.

Perhaps the main reason is the increase in the number of new warehouses being built. Warehouses are being built to meet the increasing demand for storage and distribution. Some of this is due to economic growth - we consume more and more each year. Some is due to the fact that we import more goods, and importing lengthens the supply chain so that more buffer stock is needed locally, in order to fulfill the demand from customers and retailers for instant availability and wide product selection.

New warehouses being built are getting taller and taller as land prices become more expensive, analogous to the increase in apartment blocks rather than low level housing. Narrow aisles are increasingly popular, again in order to maximise land utilisation. The taller and narrower the aisles the more difficult it becomes to operate a warehouse manually. With warehousing land often costing £5 per square metre then each pallet space costs around £3 - £5 per year in a traditional block store low rise warehouse; in a typical narrow aisle warehouse this can drop dramatically to around 50 pence per pallet space per year.

The other reason for the increase in WMS usage is the increasing need for accurate, timely and detailed electronic information to be provided to customers and clients and the need to receive and use such information from suppliers.

A further reason is the natural evolution of IT systems in business. Systems are developed and used first by large businesses, they then naturally filter down to smaller businesses as the software becomes cheaper, better and more flexible.

What is the future for WMS?

The core functions of a WMS will not change significantly. Warehouses do not change significantly over the years - racking is racking and fork trucks are fork trucks. The warehouse system of the future however will become increasingly easier to set up and use - a criticism of most WMS today is that they need too much human intelligence to set them up. The ultimate offering will be the 'self learning' WMS which will generate and optimise the rules required for the WMS.

We've talked about the latest technology and undoubtedly more use will be made of RF-ID and voice technology.

We've also talked about reverse logistics where the WMS will provide increasing support.

Perhaps the most understated area however is that of electronic communications and EDI. The benefits that can be gained in this area are very significant.

How do I select a WMS partner?

Below are 14 tips to help you to select a Warehouse Management System (WMS).

Summarize your business requirements on a sheet of A4 paper and estimate the costs of not implementing a WMS.

Think about what your warehouse and supply chain will look like 5 years hence and 10 years hence, look for suppliers who share your vision.

Look for a supplier that is warehouse and logistics focused; more generalist companies will often change strategy and reduce their focus on warehousing as their fortunes change.

Look for a supplier with a strong team of warehousing specialists, otherwise you will be training the supplier in warehousing or at best will be reliant on one or two individuals.

Make sure that help desk and support cover is available during your working hours - 24/7 if necessary.

Look for a WMS that has been specified by warehouse and logistics professionals, rather than by programmers and analysts.

Make sure the product is relatively new but with a sound track record and uses the latest software technology.

Make sure the product is being developed on an ongoing basis to meet future warehousing and supply chain needs. Historically WMS vendors have made their money by charging their customers significant amounts of money for development work. This has several major disadvantages; it invariably costs more than functionality provided as a package, it extends the project time, and it introduces risk (bespoke software often fails to perform both due to technical issues and differences in interpretation of the specification). A

further disadvantage is that custom software often makes software upgrades cumbersome, risky and expensive.

Look for a WMS that is an end user configurable package. Nowadays it is impossible to predict future warehouse management system needs - particularly in a Third Party environment - therefore flexibility is the name of the game.

Where small but important changes are needed to make the system meet your very specific needs, ensure that these changes do not compromise the package upgrade route.

Look for relevant reference sites. Look for a vendor with a good, active user group, and ensure this group has real influence on the product strategy and support services.

Ensure that the vendor is of the right size - not so small that they have insufficient resource and not so large that you have no influence on product development and service levels.

Ensure that the vendor will help and support you in commercial and technical discussions with suppliers, customers and clients.

Have an in depth demonstration of the WMS. Make sure that potential users of the system go along. Ensure that the WMS is easy to use and related closely to your operation.

What are the steps to putting in a WMS?

Once you've decided you really need a WMS, and you've selected a WMS vendor, then the hard work begins. Much of the success of the project is down to common sense - but common sense is often in short supply. There is no substitute for good and robust project management, alongside the selection of a good team. The WMS project must be owned from the top of the organisation down to the bottom, a project sponsor is an invaluable member of the project team - someone who ensures that the focus is maintained on delivering business benefits with minimal disruption. A project champion is normally appointed to effectively take charge of the project and this person often comes from a warehousing background rather than an IT background. IT should also be represented on the team but increasingly IT is seen as a business support function as opposed to the main 'drivers' of a WMS project.

The scope of the project should be documented. This need not be an arduous or tedious task but it is important to focus on top level business requirements and warehouse processes rather than being proscriptive as to how the WMS should function in detail at this stage. This top level approach is particularly relevant where a well established packaged solution has been purchased - such a solution at the end of the day should be highly flexible and configurable.

Methodology before technology is the key handy reminder for virtually all IT projects - and particularly WMS projects. Ensure that your warehouse is running in an optimal manner with good people and good processes before trying to implement a WMS - otherwise expect failure! That's not to say you can't introduce new and better processes whilst implementing a WMS - this is often the case - but if your warehouse is disorganised then tackle that problem before doing anything else.

In Summary

Hopefully this document has given you a good insight into the potential benefits, and pitfalls, of Warehouse Management Systems within today's warehouse. As with anything in business it's about looking for solutions before you get the problems. We wish you every success.

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