

How To Implement An Effective (Physical) Stock Management System



Introduction



For smaller and growing businesses in the wholesale and e-retail sector there comes a time when managing stock becomes more of a headache. This usually relates to business growth, with an increase in sales resulting in a greater volume of stock to be held, and managed.

Before discussing how best to do this, some clarification of terms may be useful. What for instance do you consider to be your 'stock?'. Could you consider it just as a theoretical tally of the number of items you have available for sale? After all it doesn't have to be physical, because you may not actually store it. But even if you do, your total figure may include stock in production, on its way from China, or waiting in a container at the dock.

In that situation an overall 'virtual' number is OK for business purposes, so long as you don't promise a customer delivery before you're able to fulfil it! But if your stock is a true physical commodity that sits on shelves in your premises, it becomes a slightly different thing. When it's something you receive, handle, pick and pack, there's much more involved in managing it than just knowing the numbers.

For that reason systems designed to control mainly virtual stock become less appropriate for managing physical stock and related processes. And in essence that is the difference between a stock control system and a warehouse management system (WMS). The former provides many useful

functions, keeping track of the fluctuating numbers created by the sales and purchase activity of your business. The latter however is designed to manage a tangible physical stock-holding and the processes involved with that.

It's true that these are not always mutually exclusive. In certain sizes of business one or the other may be superfluous. In larger organisations both may be essential and in fact, complementary. For the purposes of this paper we are focusing on 'physical stock management' where a WMS is required, whether or not integrated to a stock control system. So assuming that you have a physical stock-holding; when does control with more effective systems become essential?

What is 'more effective' will obviously depend on what you currently use: this could be a simple paper system, a spreadsheet or a stock control system deemed unsuitable for reasons outlined above. But for most people the turning point is when stock handling problems start to recur frequently. When they have become time consuming to the extent of affecting workforce productivity.

Read the signs - stock management distress signals

Examples of such problems are not hard to find. If you have issues finding space to store stock in your warehouse, finding the right product (or quantity) to pick, rotating stock by the correct criteria, or frequently despatching the wrong stock ... then you already have a clear need for better control. Things aren't meant to be that way!

That's before you consider process and productivity:

- Are you managing your available space efficiently?
- Are you picking stock in the most efficient, productive manner?
- Are you trapping errors at the point they are made?
- Does your workforce work to tight, disciplined procedures?
- Do your supervisors spend too much time on error resolution?

All of these issues can be dealt with by implementing a WMS, and it goes without saying, using it properly!



Effective stock management – where do you start?



So if much of this sounds familiar, there's clearly a need for action. But where do you start? We ask this because managing stock properly in your warehouse is more than just having a software system. That after all is just a tool, and a tool badly used is likely to produce poor results. The most successful warehouses do have good software systems; but they also have well planned and referenced locations, intelligent storage rules, and clear, effective processes.

Your warehouse locations are a good place to start. In a good WMS your storage locations will be set-up as a 'map' within the system, and have defined rules to govern the way they are used. For the WMS to work properly this must accurately reflect your physical warehouse layout. So if your storage area is poorly planned, or the location numbering system is unfathomable to the outside world, then these are things that should be addressed as part of the new system implementation.

Your warehouse must be planned in an intelligent, logical way to help a system deliver benefit. This means taking decisions about your warehouse to optimise use of available space, and maximise efficiency of movements. You need to consider the best methods to handle full pallets, loose items, heavy or light products, fast movers and slow. You need to plan the location of pick faces, ensure easy picker access and examine all factors that add efficiency to your operation. And ideally, your location numbering system should use a best practice format based on zone-aisle/block-column-level.

Once your storage layout and numbering system are properly planned you can consider how best to label your locations. Label design should be kept as simple as possible for easy identification by warehouse personnel. If you plan to use scanning devices in your warehouse, the label will need a location reference in barcode form, and possibly a unique location 'tag' known as a check digit.

If you are uncertain about label design, or where and how to apply labels should be applied it may also pay to seek professional advice. There are specialist contractors offering a full service including design, print and installation. We always recommend using good quality thermally printed labels, especially if barcode recognition is required. So even if you plan to undertake this work yourself, using a quality label printing device is something you should seriously consider.

Focus on your operational processes

Once these areas have been addressed you can focus on your operational processes. Beginning at the start of the operational cycle (usually first receipt of goods) you need to carefully examine and clarify the processes you intend to use in the warehouse. This should include the physical process - what you move from A to B and why, as well as administrative needs in terms of the information you record during the process.

Your aim should be to make the process as lean as possible i.e. one that involves the least time, fewest people and least amount of data recording to satisfy operational needs. It's important to remember when introducing a system not to try and replicate exactly what you currently do. A good warehouse management system will provide best practice ways of doing things, which will generally enable you to work more effectively than you have before, even if at first these ways are unfamiliar.

Of course there will be aspects of your current operation you'll need to retain and incorporate. But be prepared to challenge the way you've previously done things, and to assess whether retaining specific activities or working practices provides any benefit.

A common theme in modern warehousing is the use of bar code scanning. Many people express a wish to use bar codes in their warehouse without fully realising the implications. If you're considering this you should identify where it can be done within your processes and whether there's a benefit in doing so. A commonly stated requirement, for example is to "scan product being received into a warehouse". This is something that offers potential savings in time and labour, but it will be limited if very few of your suppliers actually put barcodes on their product, or if the barcodes themselves only contain a fraction of the information you need to capture.

Nonetheless, saving time by capturing data from barcodes can be a potential benefit. Equally useful



is the ability to verify actions and products by using a bar code scan. Actions, generally termed 'movements' in a WMS, can be scan-verified to provide a check on correct execution. For example if an operative is instructed to place a pallet in a given space, a barcoded location label can be scanned to confirm the location is correct, trapping a potential placement error at source.

The most effective use of scanning to improve business critical accuracy is probably scanning during order picking. The benefit of eliminating costly errors in this area often easily outweighs that in other areas. It is typically done by pickers who scan barcodes to confirm products (and possibly quantities) as orders are assembled. Equally valid is a pre-despatch scan function, in which picked orders are scanned, often as part of a pack operation, before being despatched to customers.

One distinction to note is the difference between simple 'scanning' as a warehouse function and using a real time task management system. In most warehouse management systems, product recognition can either be done by scan or by keyboard input, involving relatively low expenditure on equipment. A full real time task management system which includes scanning as an integral function usually requires a greater investment in software and handheld mobile computers. But it will enable a virtually paperless working environment offering the greatest potential for error reduction and efficiency.

Think about integration with other systems



Another key area to consider prior to implementation is the integration you require between your system and others. Depending on the business you're in you may need to receive or share information with one or more systems. In most cases this will at least involve receiving sales orders, but it may also include an exchange of stock transaction data, or the transmission of invoice or consignment information. The mechanisms for doing this vary according to the system you choose.

Commonly for cloud-hosted web systems such information will be exchanged by means of an application programming interface (API) which allows both parties to request information from the other. An API will generally be designed so that all the information that can be usefully shared between it and other complementary applications is available via that API. It is then a relatively straightforward process to configure it to extract the information needed for specific business processes.

With traditional server based ERP systems a variety of interface mechanisms may be used, including APIs in a similar way. For standard transaction exchange in certain businesses e.g. major retail, standard EDI formats may be used between systems. It is important to ascertain at an early stage by thorough examination of the business process which information you need to send or receive from other systems. If the business process study is properly done then the subsequent technical specification and software development required for integration should be successful.

The main points we've discussed – storage location layout, numbering and labelling, and evaluation of operational processes are key pre-implementation activities. The preparation you need in these areas may be self evident, but if not, the system choice you make will probably dictate the way you deal with them. Another key part of setting up a new system is data take-on – the process of getting operating data such as products, customers and suppliers into the system ready for use.

System set-up and data take-on



Another key part of setting up a new system is data take-on – the process of getting operating data such as products, customers and suppliers into the system ready for use.

There are different ways to do this but unless you have a very small amount of data, entering it manually is not generally an option. In most cases data is already held in electronic form, either in other systems or a spreadsheet, so the most efficient way to import it is by means of a CSV upload. Before providing data to upload you should ensure your records are as complete as possible, and that redundant records are removed to avoid populating a new system with invalid or historic data.

Your system supplier will advise the required format for data to be uploaded, something which must remain consistent, because if data is presented later in a different format the system will reject it. If you are integrating via API to other systems which hold data required by the WMS it is also possible to transfer it by this method. Your system supplier will advise on doing this effectively.

What equipment will I require?



Lastly, if you haven't already, you will need to consider the equipment required to operate your system. This will vary depending on the type of system you choose (in-house server based or cloud hosted), the equipment used to access the system (static PC or mobile computer) and your various operational printing requirements (label, document and report). For cloud hosted systems the requirements are simpler. Your organisation may already have some of the equipment you need, but bear in mind that the primary requirement for this is a good Internet connection.

If your system is server based there are more issues in terms of machine sizing, specification of power and memory, installation and connection of peripherals. In either situation to use mobile computers (other than via direct Internet connection) you will need a wireless local area network (LAN) installed. If you don't already have one, it may pay to use professional installers who can test properly for wireless coverage and ensure the right equipment is specified for use in your premises.

The need to print labels and documentation is common to WMS systems whichever infrastructure you use. Your business will most likely already have some laser printers which can be used for printing reports, and to an extent for labels. However, where good quality labels are required e.g. for incoming pallets and despatch consignments, durability is important. So for these you'd be advised to use a specialist label printing device, which for significant volumes will pay for itself very quickly. Similarly with documentation. If you're likely to generate many thousands of delivery notes for example, something more 'heavy duty' than a standard laser printer is advisable.

Conclusion



We have tried to look at some of the key issues to be considered when implementing an effective stock management system. In our view the best kind of system to manage 'physical stock' and its related processes is a warehouse management system and although a less familiar concept to the smaller business, in reality it is probably what many of them need. In a paper of this type it's difficult to explore many of the areas in depth, but we hope that the advice presented here will provide some useful guidance on preparing the way for more successful (physical) stock management.

Checklist

Location layout

- Does the layout suit your product profile in terms of how you want to store and pick?
- Does the storage area need reconfiguration e.g. correct height/width of racking bays?
- Is there adequate space for different product configurations – full pallets, loose items etc.?

Location numbering

- Are your locations numbered in a logical way that allows precise definition, and potential expansion of the storage area using the same convention?

Location labelling

- Does label design include necessary information (man readable code, barcode, check digit?)
- Will your labels be correctly positioned and are they of readable quality, including for barcode recognition?
- Can you handle all aspects of location labelling yourself or do you need outside help?

Operational Processes

- Are your processes as 'lean' as possible?
- Is there any unnecessary repetition?
- Have you examined all legacy practices for validity and relevance?

Barcoding

- Have you identified the points in your processes where you want to use barcode scanning?
- Have you checked that barcodes are available (on products, locations etc.) to scan?
- Can you arrange for barcodes to be applied by your suppliers?
- If applying your own barcode labels do you have a system to print them?

Data take-on

- Is your data available in electronic format?
- Are the records as complete as possible?
- Have old and redundant records been removed from the list?

Interfaces

- Which software applications are used in your/your customers/suppliers business?
- With which applications will you need to exchange information?
- Where will the exchanged information feed into/enable your business processes?

Equipment

- Server for in-house system
- PCs for client access, or cloud-hosted system access
- High speed Internet connection
- Mobile computer equipment – ruggedized handhelds, tablets or mobile phones
- Scanning devices: tethered, Bluetooth
- Printers – specialist label, documentation, report
- Wireless local area network

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