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Moderator questions in Bold, Respondents in Regular text.

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Jimmy Moore: Good morning, everyone. Thanks for joining us today, and welcome to our webinar on warehouse management. I'm Jimmy Moore, and I'll be joined today by my colleague Enda McKeever. We're both members of the supply chain solutions Invest Northern Ireland. This webinar is a series of webinars, and you can access all of them, or register to join them on our Invest Northern Ireland website. If you've any questions can you please attach them to the chat box during the presentation? And it's a fairly long presentation, so we will try to get to all of them at the end of the webinar itself. So, without further ado I'm gonna let Enda take you through the presentation.

Enda McKeever: Good morning. The subject we're covering today is around the basics of warehouse management, and the important vital role in delivering business efficiency and cost-effectiveness. I'm Enda McKeever, and along with my colleague Jimmy Moore, we're part of the supply chain solutions team at Invest NI. We are a team of experienced supply chain professionals. Basically, what we do is help businesses to develop their supply chain functions and enhance value. So, how do we do it? It's a three-step process approach of scoping, delivering, and support. So, in that, that process, an opportunity to understand the business and key problems. We help to build plans to address these areas covering the capacity, opportunity, mapping, and assessment supply chain specialisms. There is an opportunity in step three to add a key worker, and Invest NI will, will support businesses with that. More to learn on this in this particular webinar on that detail. So, the essential function that an efficient warehouse process plays in the delivery of a smooth and efficient material flow through a facility will ensure that the delivery of the right part, at the right time, and the right place, ensuring you can maximise the capacity of your operational activity, and the efficiency of your team.

So, this presentation will touch on the elements required to deliver that outcome. So, by the end of the webinar, you will understand what best practice is, critique where you are, and how you might improve. So, firstly, however, the starting point is safety of your people, and their safety should be your number one priority. And we know that in a busy environment where people, machines, and material are moving, there are inherent dangers. So, on the slide here it illustrates some data statistics from UK 2018 to 2019 in a warehouse environment. Maybe surprisingly, the, the least one is the lifting and carrying at 7%, but some of the usual things, slips, trips, and falls at 45%, and falling from height, and struck by a falling or moving object. So, these are things obviously to be of, of great concern in that type of environment. So, it's important that you know what you're handling. It could be chemicals. It could be bulky. It could be, you know, something that requires a bonded (ph 03.43) storage facility. So, store it appropriately. Separate personnel from vehicles, ideally where you can have logistics highways for vehicles to move

separated from a pedestrian walkway. Look at the use of doors in and out. Can you have a separate personnel door?

There is a, a function obviously for the use of clear signage helping to keep people safe, using the visual warehouse. Ultimately, good housekeeping is a very strong contributor to safety in that area. So, one potential tool is a 5 S discipline. So, good warehouse processes have a direct contribution to make to the business success, and so that-, how, how's that? Through cost, the service providers, sustainability, and cash flow. So, good, good warehouse management will reduce your direct cost, right part at the right time. It will reduce your indirect costs, so use of your people, use of your buildings, and hardware, the overheads, the picking, and pack, and despatch. The optimisation inventory helps to improve the cash flow by reducing the amount of material that's tied up, your cash tied up within the business. And, of course, there's a-, there's some side-effect in terms of the environmental impact that this process has through energy loss, the use of a good environment for people to work in using electric forklifts rather than diesel, and putting fumes into the air. Possibilities for solar panels on the roof space. These are large, generally large warehouses, and a large roof space.

So, it may be appropriate to add some panels, sort of, opaque, or solar panels. Maybe the site would allow for wind turbines. So, some things to think about on that one. There's eight basic elements to successful warehouse management, and we'll touch on each of these in turn in this presentation. So, those are obviously the actual warehouse and inventory organisation. So, the, the smooth flow of material in, in to the site, receiving that new stock, and the put away. On the outbound side to pick and despatch as quickly, and as efficiently possible. We'll speak to kitting, which is a process that can be particularly useful in support of operations, and, and a good pre, pre-check for availability of materials. So, that's something we will deal with. We will also touch on measuring, and improving performance. The use of automation, so that comes in many forms. Touch briefly on obsolescence, and cycle counts as useful processes to support the maintaining a good, healthy warehouse material management process. So, I suppose, dealing first-, in the first of these on the warehouse, and the inventory organisation. How to organise your warehouse for efficient process. There are four parts to that.

I suppose, the, the most important steps in optimising your warehouse operations to make sure you've everything in there arranged in the most efficient way, and, and we'll deal with that within the presentation. So, the areas we're gonna touch here are on the warehouse layout, location marking and labelling, arranging the inventory, and rearranging it as, as need be, and keeping current by that rearrangement. So, part A of that, the first part, is dealing with the layout. So, warehouse layouts, layout, layout tends to evolve over time. So, they've been added to over time incrementally in response to business growth. Often this is not optimal. So, a total re-plan of the flow of material from end-to-end, for material into the finished product can often yield major efficiency improvements on the business. So, design to create easy flow from gate to gate can reduce high amounts of non-value, and the activity associated with the handling, the picking, the moving, decanting, the shipping, and the put away. So, on the, the notes here. And so balance between the storage space, and working space.

So, it's important receiving your-, you have an area to receive your stock, to unpack, and book it, to, to pick an area for shipping station, I suppose excess/dead stock areas as well, and we'll talk a little bit about obsolescence. You'll need obviously somewhere as a warehouse office to do the transactions electronically, and a main storage space. So, those are the main parts of the layout. So, the-, do the exercise as a team to include those upstream processes. So, on the, the slide here we've thrown-, shown different configurations, a U shape, an I shape, and an L shape. So, the general idea is to make sure that there's a natural flow, that you're not doubling back on yourself, and where possible, where the location allows it, to have a separate inbound to outbound. Okay, so then-, and they-, an importance here is just to draw it out, plan that space for optimisation, and pick the right equipment. Make sure your aisles are wide enough, so that you can safely use them. Obviously, you're trying to maximise the use of that space, but optimise the use of multiple storage locations if you have those, and the important thing is the material that you're moving most frequently is closest to the point of consumption.

So, those are things to think about as you redesign it. So, recognising that, obviously, you're constrained by the site that you're on. It's important to make the best use of that site with, with those restrictions. So, as you make your plan the, the advice here is to try and come up with various configurations that help to-, that, that help to tease out the options, and drive for efficiency. Okay, so these are another set of things that you need to include here. So, as you draw the, the layout to understand what works well, and what doesn't. Use this as a basis to develop several configurations. The advice here, as I say, is to do at least three, and maybe more, and then to blend those as you develop. It's best to do it as a team using, you know, the, the full breadth of the team to make sure that you've got the inputs of the guys on the inbound as well as the outbound. So, there-, that layout should include inbound and outbound routes, receiving areas, storage area, areas to pick, and kit material routes, and personnel routes, and just what works well, and what needs to improve. So, those are things that were best captured in that process. So, the, the location, and the marking is just as important.

Again, an important element of any warehouse, and again, with the, the history of a warehouse, you tend to put up more, and more signs, and it comes to the point where it's very hard to, to read an area. So, the labelling should be very plain, very clear. So, just as you plan that choose the right types of label materials, plan the pick paths, and the sequencing. Number the shelves from the ground up, and obviously, the reason to do that is that you may want to add height at a later date. So, if you number from the ground up there you can avoid a re-labelling. So, the number and lettering of labels needs to be sequential. So, it is best practice to use a zero, and all numbers less than ten, and again, this is used for, for that sequence to be properly ordered within a computer system. So, lack of consistency in labelling is an easy way to mess up your system. So, the advice here is make it plain, make it clear, and just put in-, make it minimum to do what you need to do, and make it-, make it, you know, a picture that has-, that's easy to read by even people who are not familiar with it.

So, a little here on the just the location marking. This is an example here of, of one, but again, then this example may not necessarily work for you in particular, but it will depend on the size, the weight, and the number of locations required as to how it works best for you. So, just looking, clear labelling is I've already spoken of, and visual, and designed for growth. So, you've been growing maybe to this point, but again, that, that journey doesn't stop, and there needs to be room to expand further. It needs to be robust in staff turnover as well. So, people who are not familiar with it, it should be plain, easy for them to pick up. The example given in this slide here draws you in to the numbering to an aisle, to a unit within that aisle, and to a shelf. So, that's at 03-BE-02, on the bottom left-hand picture. Equally, it may, if it's smaller parts, you may need to do further separation, and go to another row to break the shelving up. But again, it needs to work, work well for you. So, detail that-, the detail that you use, the leads, should be applied universally, and maintained. So, one, one of the things, and again, just a reminder that all operations are non-value-add activities, so something that your customer is not paying you for. So, therefore should be minimised as an activity.

So, therefore, the greater need to minimise these by, you know, the activities such as decanting, and picking, and walking, and transport. Those are going to finally reflect on this (inaudible 14.40), the warehousing, and logistics process would touch directly five of those, and maybe one indirectly. So, things like transportation, the excess of inventory, motion, people walking, waiting and delays, and over-processing. So, those are-, those are key things that you, you want to minimise (audio distorts 15.02). Indirectly we touch on defects, because the more times that you lift material and move it there's an opportunity for it to be damaged, paint damage, and other types of damage. So, so, one, one of the things to consider here, that typically 60% of a company's parts-, part needs come from about 20% of their products. So, that's the material that you want to be closest to you. So, that-, the idea is to try and reduce the picker walking time by identifying that 20%, storing them as close to the packing desk as possible, and use the height to maximise that cubic volume, and store bulky products on the lower shelves basically for safety reasons. Align the layout with the logistics equipment.

So, the equipment needs to fit within the aisles, and be able to be worked safely. This is essentially about the efficiency-, efficient use of your warehouse personnel, and putting stress on the need to continuously adjust, and review based on change in business demands. And the examples here, the first one is about-, is about arranging your inventory in three groups A, B, and C, where the least frequently used is A, furthest from the picking area. So, it's just zoning off your warehouse as to the material that you need to get your hands on most frequently is closest to the point of pick, therefore reducing the time. So, that's, that's one strategy. The second example brings another level of complexity to that, which looks at the, I suppose, the, the fluctuating demands. So, parts may be picked in significant volumes, but they don't have that constant demand. So, therefore you bring a different factor into your arrangement. So, it would be perfectly reasonable to start with strategy similar to the one on example one, and then over time move to example two to drive further, further efficiencies, and use it as part of your continuous improvement.

But again, this has to be tailored to suit your business, and the physical layout within your warehouse. So,

keeping current by rearranging. So, this is part of your continuous improvement process. So, an optimal arrangement for the warehouse doesn't really stand the test of time. So, you need to move with that. So, demands on the warehouse will change depending on that customer demand. The seasonality in some businesses is a big factor. Production needs, again, those can change, and, say, for example, if, you know, the sequence of build within a-, within an assembly process can change. So, therefore, that puts different demands on the-, on the supply. Staff and equipment changes as well, and obsolescence, and shelf life. So, some things to think about in that process. This one here illustrates a useful tool to, to, to try to identify material that is picked more frequently. So, how, how would I know what my high runners are? So, this particular model here, this information possibly from a warehouse management system, or an MRP system on what gets picked more frequently. So, just to highlight that, and then to use a heat map to indicate where those particular parts within the warehouse are.

So, using that information then it's easy to start to segregate, and to move material that requires that, that higher, higher utilisation to, to, to zone it off, to cordon it off, and bring it closer to the pick, pick area, therefore reducing the inefficiency of long walks, and collecting stuff from the high levels. Some things to think about. So, moving on just to touch on the inbound side. So, they'll be receiving new stock. Efficiency in receiving, and put away can make a very large contribution to the operation-, operational efficiency, overall efficiency. So, the impact on shortage is often material arriving as in quick demand from, from within. So, the, the quicker that that can be put away the better. Also, receipt inspections should be part of that process. So, have you received it on time, and in full? And particularly where there is a, a high, high dependency on the MRP it's important that that's done accurately. So, six, and ten warehouses will deploy radio frequency identification by 2028. So, that's a useful tool. It's a relatively cheap process, but it helps to drive a higher level of-, a higher level of efficiency, of, of accuracy, which is essential where you're very heavily dependent on the MRP.

So, so plan the receiving area for, for efficiency. Make sure your transactions are accurate. MRP is an absolute must. And minimum touches, as we've already talked about. Avoid decanting where, where you can, ensuring that your suppliers are sending it in a container, or a box that you can put directly to, to the-, to the storage area. And establish a first in, first out. So, that's just good policy to ensure that material, you know, material's getting turned over, and that, that quite often can be impacted by if materials have got an age, or life on it, or if, if design changes within production quite often, then material can become obsolete. So, important that you're using it in a nature FIFO within here. So, your storage area is designed to allow that to happen. Using technology we've already spoken to for speed and accuracy, and typical tool using bar code scanners, the radio frequency identification, or the QR. So, things to consider. On the outbound side the strategy you currently employ tends to develop as the business grows. So, there's a-, there's a demand on the process multiply.

There comes a point where you need to change to a system that is optimised for your business, just discussing here for four different options, and those single order picking, batch picking, zone picking, and wave picking. You can see in the matrix the strengths and the weaknesses of those. So, we'll deal with

those-, each of those in turn. And so, it's an important consideration to get it right for your own business. So, firstly, the single order. So, this is the basic picking method typically only used by those who are just starting out. A picker will pick one order at a time. This is entirely before moving to the-, to the next one. So, this one here would be best as a start-up, and for low volume. So, to be avoided if you're picking more than twenty orders a day, or plan to in the near future. So, that will be your entry level, and quite often it's the most frequently used, but as a business develops, and gets-, matures, then quite often it's time to move away from that one. The second of those, the batch, batch picking. So, the picker in this case is assigned a batch consisting of a number of orders. So, picks them all in one go, and then returns to a set down area.

The number of orders allocated to each batch is generally between ten and 30, but this really depends on the physical size of your product, and the average order size. So, this one is best when you're doing a high number of orders with a single, or low number of products per order. So, high number orders, but not so many products within the order. Avoid it if you have a high number of products per order, or are aiming to do that in the near future. On zone picking, the third of these just in this particular graphic. So, each picker is assigned an area picking in that zone only. And orders pass through all areas to have items added to it by pickers in that zone before being returned to a drop zone. So, this is great for preventing pickers getting in each other way, but it can delay shipping if each order passes around the warehouse. So, this one's best for businesses picking a high volume of multiple item orders. So, then avoid it if you typically pick single, or low item orders, or have very few pickers. So, that might be a, an overkill in that case, okay. The wave picking, the last of these, is similar to the zone, but it all zones are picked at the same time. This is to try and reduce that total time through it takes to put an order together.

So, a packer will consolidate all of the separate picks for each order. So, this one is best for businesses picking a high volume of multiple item orders, and still wanting to maintain a super fast process. So, if, if time is of the essence this one may be the most suitable for your business. Avoid this one if you're typically picking a single, or low item orders, or have very few pickers, or cost is more important than speed in that instance. So, it's a balance. Obviously, if you're-, if you're getting the timing right you need more, more people to, to drive the process. So, some things to consider what's right for your business. So, just a few things to reflect on the picking, and the, the despatch-, despatching of stock. So, what method do use today? What's the correct one for your business? And how can the efficiency of the method be measured? So, those are a reflection of your business, and where, where you should, or need to be, or will want to move in, in the future. So, dealing with process kitting. I've already talked about the non-value activity. So, every time you touch the material, and it's a non-value-add activity.

So, material supply should try to reduce the number of touches required to deliver components to the point of use, or the consumption. Kitting is another touch in that delivery. So, should only be considered where it's necessary. So, the-, so just the-, thinking about the, the pros of that. So, parts are delivered upstream in the right quantity, at the right time. So, there is-, there is some efficiency. This is concentrated on the upstream process, making sure material drives efficiency in that area. So, it's also a very useful availability check. So, that's an early warning if there's any stock route issues, or material that

needs to be quickly found to support production. And it's a good way to, to manage, and control your stock. So, the con of that, as I said, is it's an additional task. So, if you have a process that is very consistent, and efficient you may not need that, and it's only adding a, a non-value-add activity that's adding to your cost. So, why, and why for use? So, a large number of parts required upstream, to protect the upstream process, or to reduce the operational inefficiency.

So, a few examples there listed. The first one is, is Mitsubishi heavy industries, and this was building a wing, an aircraft wing. So, huge number of parts. That getting process was essential to ensure efficiency on the operational side. So, getting off site, bringing them in, feeding them into the process in a-, in, in, in a-, actually in a sequence through a timed process. It as able to, (1) control the material, ensuring parts were available prior to the actual build, and getting the best out of your operations. MRI scanners, another, another good example where they used a trolley system to bring material in, and then sequence already having it kitted, and with both the parts the installation tool, and the fasteners on that kit-, on that kit trolley. Another one's here, another one air conditioning units at Hitachi. So, there are many other examples. But, again, the discipline driven with kits can really contribute-, make a contribution to that efficiency of the operational space. So, at the end of the day that's where the value-added is, and well worthwhile putting that in where, where the application is needed, okay, to drive the discipline.

Okay, then the, the example then in this one is just a trolley. We're calling this good kitting practice, and poor kitting practice. You can see in the example on the left nicely laid out material in the sequence that it's required, and working from the top, going to the right, coming into the bottom level, and going from maybe right to left on that example. Also, because you're using a shallow board it's very clear that there's a couple of parts missing. So, putting the time into doing this properly can again drive benefit. You've got a very useful visual tool to identify parts that are missing from, from that particular one. You'll also notice that there's a, a set down area, an area set aside, so, again, an aisle discipline. And so, taking it to that level takes a lot of work, but can drive some significant benefits. The example on the right-side, pretty useful trolley in a sense that you're carrying lots, and lots of parts, bringing them in in time, but less clear about are there shortages or on that, or a sequence. So, maybe a bit of an overload in this-, in this example, and although it may well deliver all parts at the right time you cannot necessarily be sure, at least looking at that, that you've got a-, yes, you've got a trolley loaded in the right way, and even safely for that matter with the potential that the parts will fall off. So, something to think about in terms of, of that as well.

Jimmy Moore: So, thanks, Enda. Now that Enda has given you a good understanding of how you can physically set your warehouse up for best results, I'm gonna go through a-, and address how you can ensure the right levels of control, performance, visibility, and process improvements to make sure they're in place in your warehouse. We start with KPIs. There are many warehouse KPIs you can choose from, but the best practice will be to make sure you cover the broad areas of health and safety, customer, inventory, and efficiency. Enda has already covered what you need to do for health and safety, so I'm gonna focus on the other three. For customer KPIs you should at the very least cover delivery, and pick quality, and that'll give you a good idea of your ability to

meet the expectations of who-, of those who depend on the parts in the warehouse. Whether that be an external customer, or your own factory for kit, and parts. You may also want to use lean rather than lagging customer KPIs, such as back order rate, or (mw 31.04) order rates, and that'll give you an early warning that your-, that your, your delivery process is not performing instead of waiting until you actually fail for your customer.

Second KPI area is with inventory. Inventory accuracy for me is one of the most important metrics in a business, in a business that holds stock anyway, and an area that you should be continually trying to improve. If it's not managed well it can have an impact on all the areas of customer satisfaction, planning effectiveness, planning performance, overhead efficiency, factor efficiency, and your company's state of profitability. If your system states that you have a particular item of stock and you don't have it, it's really down to luck as to how much damage that can cause. In addition to that, fixing inventory accuracy issues can be a complex task involving lots of different parties, and lots of different departments in the business. So, the sooner you have a good idea of how good, or bad it is, the better for you. Another important warehouse KPI is inventory turns, when you have inventory. This is something that warehouse operators don't-, warehouse management don't own, but it's certainly something to be aware of. It's calculated as your annual cost of goods sold divided by the value of stock, and (mw 32.10) in hand, and this will show you how long the parts you've chosen were actually kept before they're being used.

So, how long they occupy your shelves. A target-, the targets will differ, basically depending on what industry sector you're in. If you're making electronics it will be very high. If you're engineering it will be slightly lower. But a good minimum target is to turn your stock six times per year, which means that if you've got a 60-day payment term with your suppliers that will ensure that you're balancing your purchasing cash, cash outlay with a return from manufacture products. Finally, we've efficiency KPIs. As most of the warehouse costs are on picking, and overheads, it makes sense to focus on those, and to measure something like your daily pick rates, and what's your space utilisation is. Target for picks, that will depend on your product, or materials mix. So, a good approach is you use a benchmark for what you know is good and work from there, just from your own experiences. With space utilisation it's about making sure you're utilising your occupied shelves, as opposed to making sure you've got all your shelves full. So, if your occupied shelves are less than 60% full, in other words, half of it is air, you're wasting a lot of space that could be used for demand fluctuations, or any planned growth that you have.

And it will probably mean that you're gonna have to take warehouse space on and effort (ph 33.26) that you just wouldn't have to. Next area covers automation and digitalisation. If as you're measuring your efficiency, and accuracy, and your KPIs are stagnant, and process optimisation techniques aren't really delivering what you think it should, or they're not doing anything, it's probably a time to consider a use of automation, or digitalisation for some of your processes in the warehouse. There is a lot of solutions. There's a very wide range of solutions, and from what I've

seen it can be very difficult to figure out where to start. So, to aid in your decision making it's, it's definitely helpful to categorise the different solutions, so you can understand what's available. Basic warehouse automation, that refers to technology, simple technology, that assists your people with the tasks that would otherwise have to require manual labour, basically. An example is a conveyor, or a carousel moving parts from A to B. Warehouse management systems are very prevalent. These are software, and analytics that automates the tasks in the warehouse, the tasks and stages in the warehouse.

An example is you'll do-, a likely system that will-, that can batch your pick lists. So, all orders can be filled in a time period. And it sequences the pick list, so the pickers don't have to traverse the warehouse back and forward, and waste time and resource doing that. Then you have mechanised warehouse automation. It's, it's basically where a warehouse automation uses modest (ph 35.03) equipment and systems to assist humans with an ordinary warehouse task. An example is a Thomas mobile (audio distorts 35.10) products and deliver them to the pickers who are sitting in the picking station, prevent walk time. Finally, there's the more advanced warehouse automations, which combines all of them. It combines mechanised warehouse robotics, and automation systems, and focuses on actually replacing labour intensive, you know, work flows in the warehouse. Examples of this are robotic forklifts that use AI with camera sensors to navigate the warehouse, and also (inaudible 35.36) the management system to pick and deliver the parts to the pick station. And also, what's referred to as a dark pallet warehouse where basically there's no lights in it. It's where large vinyl pallets are received, put away, and picked again without any human interaction.

Whatever automation approach you take some important things to consider are first that automation must be cost justifiable. I would also say decide the budget very early on, and definitely decide in the first, and know what returns you expect from the actual investments. The second thing is to be clear on is it-, is the-, whatever problem you're trying to-, to be clear on whatever problem you're trying to solve before you embark on any automation, and digitisation projects. It's not uncommon to find yourself in a situation where you've got this technology, and you have to go looking for a problem to fix. Some very common examples of successful digitisation solutions are, as I described (ph 36.33), warehouse management systems, voice picking, and augmented reality picking, which are also referred to as AR. Warehouse management systems, these are really bolt-ons to your company's existing ERP system, and they help you pick effectively, increase inventory accuracy, and provide management information reports to show where you're doing well, where you're not doing so well.

Many of them assist in pick sequencing, and mobile scanning for receiving picking, and both of these things improve efficiency, and (mw 37.00) warehouse. Mostly involve easy-to-access technology, as it's very prevalent, it's out there, you can buy bits and pieces yourself if you've got coding capability in your company. And implementation isn't difficult for that reason, but it can take a lot of time to set up, and you have to spend time to make sure that it's right and it's accurate.

Voice picking is a fairly recent technology, and it's very effective in large warehouses with lots of SKUs. Basically, reduce a lot of looking, and searching, and walking time. It uses software to guide a picker through the warehouse in the most efficient path. It's right to determine the most efficient path is, and tells them what to pick, reducing-, and that reduces searching time, and it also increases pick accuracy. AR picking, it involves the same principle. It basically has a tablet which basically guides the picker to the right location, and that can include a validation check which is basically checking the parts, and the location, versus what it thinks it should be doing in two scans, and that can further improve pick accuracy.

As with the warehouse management systems, these solutions, they're widely available technology, and hardware. You can buy bits and pieces yourself, as I said before, and it's not difficult to install. However, set up time is very significant, 'cause you've got lots of parts to set up in these systems, and they must be continually maintained for data quality. If the data quality isn't right, it's just gonna be wrong. Next area is around the management of obsolete stock. Product obsolescence is a risk area for any business that holds inventory. If you have to write-off, or downgrade stock it has to come off the bottom line. That means for every pound of stock that you write-off, and here that margin is 20%, you're gonna have to sell five more to make up for that loss, so it's very expensive. It's vital therefore that you have a good, robust, defined process that you use regularly to look at obsolete stock, first of all to, to make it visible, analyse what the risk is in, in pounds and pence, and then have an, an approach to deal with it. How to deal with it? It's once the items, the risk items are visible, you can take actions like design changes, basically to, to use the obsolete parts, and parts you wouldn't have done it.

Speak to your supplier about returns if it's still within date, and then at the minute the-, or nowadays there are lots of online, and physical auctions where you can go and try and sell it. Finally, another process you should look to employ around is cycle counting. It's linked to inventory accuracy, which as I said is very, very important for any business. It's fairly easy to introduce in that a-, you can choose what suits you. You can choose the sample size, and the time in the week, or the fortnight, maybe fortnight, whatever it is that suits your availability. And also what suits other parts of the business, because you, you do have to shut things down for a couple of hours to, to do it, and that can disrupt production further upstream, or further downstream. You can also choose to focus on elements that are at greatest risk. You don't have to do every part all of the time, or you can do, do random cycles. You can basically choose your risk parts, and those risk parts are the ones that can-, if, if, if the stock is wrong, if it's long lead time parts, or high value materials, it will be basically a, a large business impact. Basically, you design it to suit yourself.

So, most modern IT systems, they facilitate sector counts, but (audio distorts 40.29). I've dealt with a, a good few companies where it doesn't, and if it doesn't it's fairly easy to put a manual process in place, and it's definitely worthwhile doing it. And over and above the obvious benefits of better accuracy, reduced costs of, you know, the, the larger stock takes, introducing this regular type of

check to your warehouse brings that, kind of, like culture of continuous review, and improvement culture, and that will have a wider impact on the overall performance of your workers. So, that, that completes what myself and Enda consider to be the best practice warehouse management. There's probably other things we've missed, but I think for the purpose of this webinar that covers most things. To summarise then, the approach that, that we think you should take is first of all to look, and, and to look to arrange your layout, and organise your inventory to suit what your business needs. Make sure your people have defined roles, and processes. This is just standard type stuff for all businesses. Measure performance, use your, your KPIs well, and spend time to fix the recurring problems.

Use technology where it's feasible, and it's cost-effective, and that will definitely improve your standards, and improve your efficiency. And finally, make sure you have-, if you've got risk areas like stock accuracy, or obsolescence, make them visible. Don't hide them in the corners as happens in a lot of organisations. So, what are the next steps? What a good starting point is to take some time to do a bit of reflection, and review your warehouse functions, the processes, your setups, your, your-, for yourself physically, and from a process point of view. And ask yourself whether that there are areas, as we've covered in the webinar here today, where you can improve. Then if the answer is yes to that, and you would like some support from our team of supply chain experts, feel free-, feel free to contact us by a-, you can go to our supply chain support solutions webpage. If you go down towards the bottom of it there is a, a supply chain solutions online enquiry. Just click on the button, fill it in, and somebody will be with you shortly. Okay, so now myself and Enda will answer a few of your questions. Maybe if you stick your camera on there.

So, the first question, Enda, for yourself from up here is, someone's responded (ph 43.11), 'My warehouse has evolved over time, and been restricted on site (ph 43.15), where should I start to optimise?' So, maybe if you could address that?

Enda McKeever: Thanks, Jimmy. Yes, (inaudible 43.27). The one thing that's important in this is that the-, at the end of the day the customer is king. So, I talk within the presentation about what's value-add, what's non-value-add. A warehouse function is very definitely non-value-add. So, to be minimised. So, alignment with the, the value-add is the operation piece offered, or if you're going directly to the customer with a product, are what's key here. So, from the point of view of looking at a warehouse they-, you can use operational changes to drive significant change within a warehouse-, within the warehouse, and looking at the flow of material from gate to gate essentially. So, make sure that everything is joined up. We talked again within the presentation about good layout, aligning, aligning that to minimise flow, walking distance, and so on. So, from the point of view of when do you look at it, my, my suggestion is-, obviously is at a-, at its-, at a point that comes where you've driven the change to the point where you're not picking any further gains. That might be the time to review, and plan for a significant change.

How to do that? I would suggest you look at several options, get a-, build a team round, look at the-, use the breadth of the team, and look and see what, what, what options can, can, can be worked on, you know. So, if you've two, or three good options those can be blended, and come, come up with the optimum. So, that is required in most businesses as it grows at maybe certainly two, or three times within the, the, the ten year period of significant change to make sure you're getting the best out of that warehouse. Not easy to do. You will be restricted with the physical site, and the need to keep production going, but a lot of gain-, a lot of gain is possible, and certainly to take the pressure off a hard, hard pressed team.

Jimmy Moore: Okay, and just getting your experience, you, you said about getting teams together to try and figure out, to get the experts to figure out where the optimisation can take place. How often would, would you have done that in your experience?

Enda McKeever: That has-, we, we tended to-, I suppose my, my background is one of the major employers. We, we tended to do this as part of an, an alignment with an operational change. So, that you were looking at it from the material in the gate, to the material going out the gate. So, this typically would've happened on two, to three-year cycles, a significant change. Within those, of course, you're looking for continuous improvement, and that's more like an incremental improvement. So, you, you wanted to build a culture within the warehouse team of looking for improvements every day, every single day, every week, every month, you know, but that can only be taken so far, and there does come a point you say, 'Look, we really need to have a, a major realignment here to allow us to make further gains.'

Jimmy Moore: But just, somebody else has popped in a question just while you're talking there, and I think this really sets this. 'My warehouse is also a workshop for assemblies, and servicing. So, how would you advise optimising that type of warehouse?'

Enda McKeever: Okay, so again, and I'll make the comment is that the, the one thing that gets number one priority is operational efficiency. There, there, there is a level obviously that you can take that to. So, my tendency would be to give precedence to the operational piece, and that the warehouse essentially swings off that. If you're in a fast-moving environment where there's a tack time, then that becomes the heartbeat of the whole process, and the, the, the logistics operation needs to be in timing with that. So, whether you're using a kitting process, or feeding material directly onto the line through a Kanban (ph 47.27) type process, that's your starting point, and everything else then has to swing off that, if you like.

Jimmy Moore: So, the optimisation really should be focusing on getting visibility for (mw 47.39) that's required for those two real value streams, and then work back from that to see (talking over each other 47.44) and why do you have it maybe, so.

Enda McKeever: That's absolutely, absolutely right, Jimmy, it's about connection, and connecting to the end customer at the-, on the outbound, but also your internal customers as well. So, that's your-, that gives you a chance to make material flow, flow properly, do minimum touches, travel less distance, all those

things that are driving total non-value-added, and driving inefficiency.

Jimmy Moore: So, a, a related question here come in earlier. 'How do I know when my warehouse is performing at a high level?'

Enda McKeever: Yeah, I-, so I notice there (inaudible 48.21), you know, if you're-, if you're not in a position where you've measured your performance. There's, there's very obvious ones about the use of facility, first of all. That's about how good you're making of use of the space. So, it's one of the things you mentioned in your part of the presentation about taking a measure of the percentage utilisation. There's two ways of doing that. One is utilisation based on the number of used pallets within a warehouse, okay, and you, you tend to hit higher numbers in that. Or others will measure, and probably maybe a better way of measuring is by-, could be volume of materials stored as opposed to cubic volume of space that you can store in. And the reason to do that is that sometimes people putting shelving up there's too much space between those shelves. So, therefore, you're using a pallet okay, but you're not using it as efficiently as possible. So, if, if, if you a ladder as a-, as a method, that tends to drive improvement, and then you give yourselves targets to that.

In that environment, yes, if you're given 25%, if you're somewhere between 17% and 25% utilisation it's probably optimum. Higher than that then you're impeding people's safety. Lower than that you're not getting good returns. So, that's one thing. The other one then is about-, we talked about the walking distance inefficiencies that are driven, driven with that. So, there's, there's other key metrics there about order fulfilment, and the efficiency of that. So, the starting point here is start measure it, so, you know, see how you're performing, look at it over time, and drive-, and drive improvement. If you're measuring it you won't focus on it.

Jimmy Moore: Yeah, okay. So, another question here. We're, kind of, running out of time here. So, I'll take this one. It says, 'What are the digital tools that bring best returns for least investment?' So, for me I, kind of, alluded to it in, in the presentation as well, is the most important thing in a warehouse is inventory and accuracy. You know, with the costs, your overheads, and walk time, your number of pickers, that type of thing, but it is definitely the case that if your inventory isn't accurate you have got such a huge impact across the business. So, if you've got a factory it means you've got downtime because the materials aren't there when they need them. You've got a parts department who are constantly expediting because, you know, you, you thought you had the parts and you didn't. And then you've got your, your finance department who are saying, 'Well, why, why, why are we having to get rid of all this stock at the end of the year that we thought had more value, because it got too much?' And that's because the others often turned up in the stocktake that you didn't think that you had.

So, for me, the technology that can bring a better improvement to that is the one that you really

should consider at a very basic level, you know, again, as we said, it was doing sector (ph 51.14) counting, or doing some sort of regular (inaudible 51.16) call it is very, very important. So, if you are able to get a bolt-on onto your current system, a warehouse management bolt-on, or an, an addition to your current warehouse management, that facility, it's easy sector counting. And, you know, sometimes systems can be-, basically, they can prevent you from doing it, because they're too bloody complicated, like. So, something like that, that's very simple, that's, that's in your, your low thousands of pounds would be able to make that change in a bit of time within your warehouse. Beyond that then it's, like, it's actually probably the most effective low cost option is to look at bar coding, and scanning within your warehouse. So, if it's something that the, the physical parts of it, the actual bar codes, and the bar code scanners, and the setting them up with the, the, the software isn't overly expensive, you know, the prices have come down significantly in the last fifteen, twenty years from what it used to be. It used to be an expensive option.

So, you're only talking about your £5,000 to £10,000 that you can invest in a bit of software, and get your scanners in for a, a, medium, small, medium size warehouse. And that means that everybody is scanning everything in, and scanning it out. There is a lot more time, and setup, and making sure the setup's correct. If you don't set your systems up right in the first place then it's still gonna be wrong, which, which defeats the purpose. But, you know, if, if, if you-, as I said, if it's not-, it's not overly expensive to implement, but it if it is a change in people's attitude, and people's approach to things as well, so that has probably the bigger change. Beyond that then you're into five, six figure sums in to using some of the more detailed, you know, really smart type systems that are gonna doing things for people, and remove your-, by removing the, the, the human input to-, altogether. But certainly, from the, the average SME, get a warehouse management system that can do sector counting, and has, kind of, a decent-, a decent procedures, and also implement bar coding, and scanning if you can. That would be the advice from myself. I don't know if you have anything to add, Enda?

Enda McKeever: No, it was just on looking at the process, where are there manual interventions within your process? And ask yourself the question, can you-, can I automate those? Because those manual interventions are driving-, tending to drive inaccuracies, and using people very, very poorly. You want to, where you can, have data transferred automatically. So, that's, that's a starting point. Again, then the, the final question you have for yourself, have invest to do that automatically, optimum payback. So, everything has to be costed, you know, on a return, and some of that, you know, some of the technology we talked about is relatively cheap, and probably well worth investing in it certainly as you grow.

Jimmy Moore: Okay. Well, that's-, we've, we've come to the end of our hour. It's not usual for us to fill up an hour, but obviously it's, it's a big topic, and lots to cover. So, thanks very much, Enda, for your input, and for answering the questions. And thank you for everybody who's attended, for coming today, and as I said, just check out our website, and see there'll, there'll be more webinars coming up in the new while. So, make sure you check our website to see what's coming up. And hope you enjoyed it, and thanks very much for attending.

Enda McKeever: Thank you.

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