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Moderator questions in Bold, Respondents in Regular text.

KEY: Unable to decipher = (inaudible + timecode), **Phonetic spelling** (ph) + timecode), **Missed word** = (mw + timecode), **Talking over each other** = (talking over each other + timecode).

Catherine Boyle: This webinar is about how do you introduce consistency into your processes using Standard Work. My name's Catherine Boyle and I work for Invest Northern Ireland as an Operational Excellence Coach. The Operational Excellence team are trained coaches with numerous years of business experience across a wide range of sectors and sizes of companies. We work with Northern Ireland businesses to improve their productivity, profitability, and competitiveness. If you've any queries or you want some more information about the support that we offer then please send your request through to opexquery@investni.com. This session will give you an understanding of what Standard Work is, how to prepare it, and the benefits of having it in place for your processes. I'll also talk about Takt time and how to balance your work. So, what exactly is Standard Work? A Standard Work document details all the steps which are required to perform an activity. It should be a quick-to-reference guide which is easy to follow. Standard Work also includes the amount of time needed for each task within the process. It should be developed by those who actually perform the activity. Standard Work documents need to be kept updated and continually improved otherwise you slip back into old habits. Standard Work should capture the best last known way to perform a task.

Why should you introduce Standard Work across your business processes? The standardisation is one of the pillars of Lean. Standard Work helps eliminate variation and improve consistency by capturing all of the worker's tricks of the trade. This helps to give a more consistent performance across the workforce no matter what the experience level. Standard Work gives a true and realistic picture of how long jobs should take which helps with balancing workloads to make them fairer and make scheduling of jobs easier. It identifies and encourages the elimination of waste as well as helping to sustain gains achieved from past improvement activities rather than slipping back into old habits. Standard Work also empowers people at all levels and encourages ownership. So, how do you actually go about creating a Standard Work document? Firstly identify and define the best practice that delivers a consistent quality result. What does your customer deem a good quality result to be? Next document the activities for performing the best practice. Get those who actually do the work to come up with this as everyone will have their own knacks and workarounds. Ensure that you make your Standard Work visual by using a combination of symbols, pictures, and text. So, that it's easy to read quickly when a refresher is needed rather than having to wade through reams of text. Complex processes with multiple steps may require more than one Standard Work sheet which are summarised in the high-level operation summary sheet. Place a copy of the relevant Standard Work documents at each work station where this process is being performed. If needs be it can be laminated or put in a see-through folder to protect it but ensure that it's still visible to anyone performing the task. Train employees to do the task as they are defined in the Standard Work document. If the process is changed or improved in any way make sure the relevant Standard Work document is also updated to ensure it reflects what's actually being done.

Here are some examples of Standard Work sheets. As well as details of the tasks required to complete an activity you can see that they include photos, diagrams, symbols, and layout sketches. The timings are separated into the time required to complete manual and automatic activities as well as the time spent waiting and walking. Standard Work sheets can also include details of the PPE required to carry out the activity as well as symbols to highlight safety and quality checks. We're often asked why it's important to include timing in Standard Work. Well, it's there for a number of reasons. Having accurate timings facilitates better resource allocation and improves accurate costing and scheduling of projects. It helps to balance processes fairly to share the workload between workers and reduce bottlenecks. Focused improvements can be quantified and prioritised which can also be used to help justify potential expenditure on further improvements. It sets a fair standard for all to follow. Timings should be carried out across different shifts and a range of experience levels to ensure they are representative. Having agreed standard timings prevents jobs being rushed. If jobs are completed quicker than expected then make sure that safety or quality have not been impacted. If not a better way of working may have been developed which should be incorporated into the Standard Work sheet and other employees trained on the new process. Timings also protect the worker from unrealistic expectations on the part of their supervisor. So, how do you actually time a process step? Observe the work and break it down into smaller repetitive elements. Timing should be carried out by a person with relevant knowledge of the process. Timing each repetitive element separately can facilitate line balancing to reduce bottlenecks. For example, if there are ten elements in this process step and six in the next step then it's worth checking if some of these smaller tasks can be carried out at the next station downstream, or if this step needs to be spread across two stations so it doesn't cause a bottleneck. Capture the manual, automatic, waiting, and walking associated with each operation. This will help to identify opportunities for improvement. Conduct comparisons across workgroups and shifts to make sure the timings are a fair reflection of the ability of the entire team in the area. Look for best practice that can be shared from both individual tasks and across the overall process. Can any of the knacks or tricks of the trade be used in other areas or process steps?

The concept of Takt time is useful to help you balance your line as it gives the target cycle time for each process step. Takt time is the frequency with which your customer is buying your product or service, for example, two palettes a week, five units a day, etc. Reducing faster than the Takt time i.e. faster than the customer demands is overproduction and will lead to a build-up of inventory. Now I'm going to take you through how to create a work balance chart. For each process, plot the times for each process step on a bar chart. Calculate the Takt time for this process and mark this as a line across the plot. This will quickly show you which process steps take longer than Takt and which workstations potentially have some capacity to take on more work elements. Work with the team to identify any tasks which can be moved to another process step to balance the work and which workstation would be best to move them to. You can then work on reducing the cycle time of those process steps which are still greater than the process Takt time by removing the waste. Prioritise improvement activity on the process constraint or bottleneck in other words the process step with the longest cycle time. Within each process step, there will be activities which add value from the customer's perspective and those which are non-value adding or waste. You need to come up with ways to eliminate as many as these non-value adding tasks as possible. The Invest Northern Ireland training video on how to carry out a waste walk will help you to identify different types

of waste within your processes. In other words, the activities that customers are not willing to pay for. Once the cycle time for the constraint process step has been reduced to lessen the Takt time the bottleneck may now have shifted to another step with the next longest cycle time which then becomes your new area of focus for improvements.

Once you developed Standard Work for a task now you want to work on how do you improve it. There are a number of things to consider when working on process improvements. Think about how materials flow through the process. Would it help if you established some ground rules for operations? How can you prevent defects and rework? What about equipment utilisation and availability? What impacts these? Is it an option to increase flexibility by shifting from specialisation and dedicated processes to multi-skilled workers and more flexible processes? Think about the people side of activities and the work station layout, are there any improvements that could be made that would reduce motion or the time spent walking about or waiting? Would it be possible to shift from one-handed to two-handed tasks? Think about the location of tools and equipment relative to the worker, could any improvements be made here to make them more readily accessible? There's a simple process to follow for developing Standard Work. First, calculate the Takt time for your process or the rate of customer demand for the product or service. Then identify what the sequence of work really is based on discussions with those who actually do the work. Break this down into the different work elements or steps involved in completing the task. Time each of the steps in the process then generate a work balance chart which will help you to identify the process bottleneck. Break down this constraint process step into value-adding and non-value adding tasks and use this information to identify potential opportunities for improvement. Issue the Standard Work sheet, train staff on this, and place a copy at each work station. The Standard Work document should be reviewed on a regular basis and when there has been a change to the process or tasks involved. When you're reviewing the Standard Work observe the process and work with those performing the task to see if any improvements can be identified. Update the Standard Work document to include these changes and retrain staff on the new process.

It's important to maintain your Standard Work in order to get full benefit from it and to keep it live. Establish standard operations throughout the workplace, in the offices, in the maintenance workshop, the warehouse, human resources, etc as well as for production processes. Make sure you have buy-in from everyone and that they understand the importance of having Standard Work. Involving those who do the work in the Standard Work development process will help with this. Post visual displays to remind everyone of the correct process they should follow as these can be a good refresher and particularly useful for someone who hasn't performed the task in a while. Use graphics as much as possible with brief descriptions and make sure photos and diagrams are kept updated to keep the document live and useful. Challenge and reject the status quo, listen to all ideas and suggestions for improvement. Regularly conduct group improvement activities to ask for ideas, make sure you involve those who do the work including support functions, for example, maintenance and administration to get their input. It might be worth including others from outside the department every so often for a fresh perspective. Systematically pursue improvements in Standard Work. Be proactive in asking for improvement ideas instead of waiting for them to come forward.

So, just to recap on what I've covered in this session. Standard Work details the steps required to perform an activity and the time taken for each. It should be developed by those who actually perform the tasks and include tricks of the trade. Standard Work should be easy to follow and be comprised of photos, diagrams, and symbols as well as text. Timings for individual activities can be used to schedule jobs, balance the line, and identify opportunities to remove non-value adding tasks. Standard Work needs to be kept updated to ensure it truly reflects the current process. It's important to be proactive in working to continually improve the standard process. If you want any more information on anything that's been discussed during this session please send your request through to opexquery@investni.com and thank you for listening.