



Reducing Food Waste in Fresh Produce

Workbook

[VERSION II]



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Introduction

The purpose of this workbook is to show how you can increase your business's profitability by reducing waste. Examples of waste include lost products (shrink), energy, labour, packaging and transport. VCM's work with the North American, European and Australasian produce industries shows that businesses can typically improve their financial performance by 10 plus per cent by implementing simple practices that lead to more effective processes. Consider the scale of opportunities available to your businesses through noticing things such as the fact that in fresh produce, waste typically accounts for 20 per cent of all costs incurred, and that reducing waste by one per cent results in the equivalent of four per cent increase in revenue. Improvements in quality and customer service that flow from improved processes also enable businesses to increase sales.

Most enterprises have processes in need of improvement – either because they are informal and therefore performed inconsistently, and/or they create rework or shrink, which costs time and money. Process improvement initiatives work and deliver good results when

- You adopt a project approach to each improvement opportunity
- Senior management commit to championing the cause
- Subject matter experts are engaged as a team
- Teams, comprising individuals from across the business, are allocated the time and resources to work on the project
- Decisions are based on data and facts, not opinions and assumptions
- Objective appropriate methodology and tools are used
- You don't try to "boil the ocean"

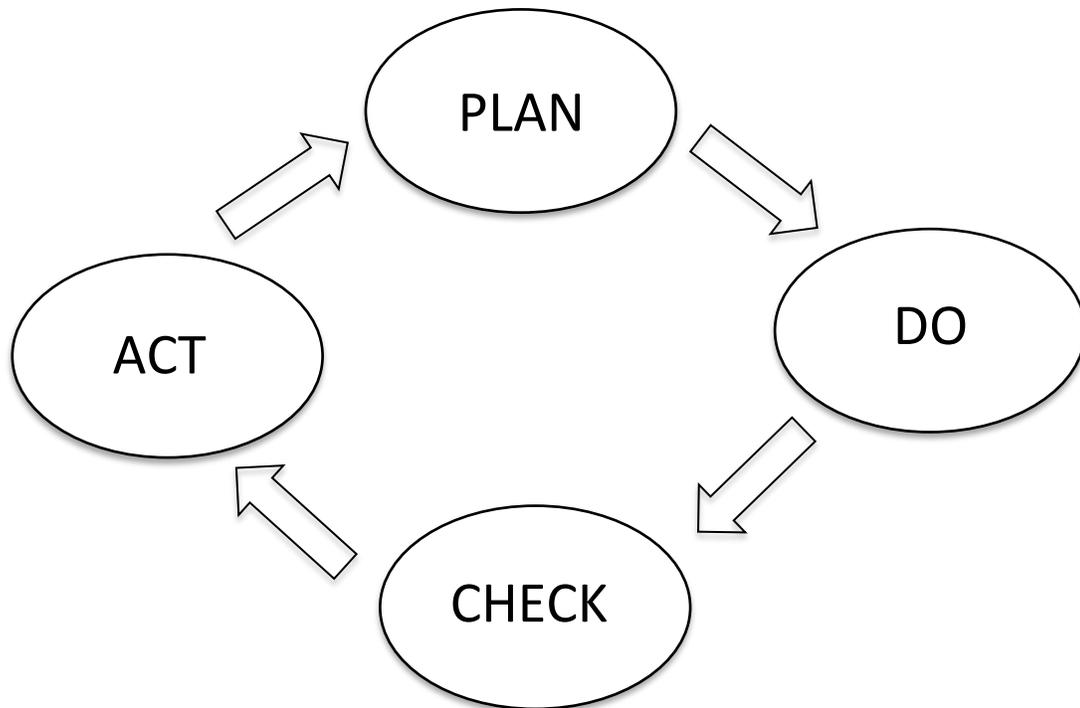
This workbook, provided through the Ontario Produce Marketing Association's food loss and waste reduction initiative, will enable you to begin improving your processes and secure the financial benefits described above. Reflecting the **Plan-> Do -> Check -> Act (PDCA)** concept described on the next page, the workbook is divided into ten easy to follow steps. Ideally each project should last no longer than four to six weeks, commencing with an initial two to three hour meeting to complete at least steps one to three. After the first meeting, teams will meet for 1 to 1.5 hours per week, with members sometimes tasked to complete assignments between meetings. An alternative approach is to set aside a full day to complete steps 1 to 6.

The tools contained in this workbook and kit are intended to be applied to address basic process problems that can be resolved in a relatively short time span, without capital investment to deliver measurable results. Ensuring that your efforts translate into higher margins and profits is aided by the ability to accurately target "hot spots", then monitor progress. Throughout your waste reduction journey the ability to measure performance enables you to create the enthusiasm required to increase the ambitiousness and impact of your efforts by securing support at all levels of your business. The workbook therefore concludes by presenting methodologies for collecting and analyzing data to determine where to focus attention, identify root causes, measure/monitor progress and implement sustainable solutions.

Blank templates are provided to record what occurs during the workshop, then help you translate what you learn to your own business. Examples of completed templates are provided.

Plan Do Check Act (PDCA)

The Plan Do Check Act (PDCA) cycle shown below provides a disciplined process of testing small, carefully designed changes, the impact of which is evaluated before the changes are rolled out across the company or more ambitious efforts are undertaken.



The workbook's structure is designed to reflect the iterating basis of the following PDCA process:

- Plan:** Determine improvement opportunities, establish objectives and processes that you believe will enable targeted improvements in performance to be achieved.
- Do:** Implement the plans established during steps 1 – 5 of the workbook on a small scale. To ensure that the pilot is implemented effectively and the monitoring process produces insights that enable you to verify (or not) the robustness and suitability of your changes, steps 6 – 9 of the workbook guide you through this process in a disciplined manner.
- Check:** Investigate the results of changes made by analyzing data gathered during the pilot (see section 10) and listening to those involved in implementing or who are effected by the changes (incl. suppliers, operators, customers). If outcomes did not meet your expectations or produced inconsistent results, investigate why by conducting a cause and effect analysis.
- Act:** Monitor the rollout process by measuring performance and supervising the implementation of new processes. Regularly enquire about the experiences of those responsible for implementing or those affected by the changes.

Getting Started

The steps laid out below will help you to improve your businesses' financial performance by reducing food and associated wastes. Before you dive into steps 1 – 5 below:

- Review available information to identify potential opportunities that warrant investigation.
- Secure support from senior management for you to commit the time required to complete a pilot initiative.
- Form a project team. It is better to form a small team from different areas of the business, who you believe will work well together and contribute different experiences and perspectives, rather than establish a large “town hall” group.
- Appoint an effective facilitator to lead the initiative. Effective facilitators have good listening and communication skills, are respected by their colleagues, and work to deadlines.

1. In addition to this workbook, compile a toolkit of materials that are common to most offices and available from any office supply store:
 - a. Eight flip chart sheets
 - b. Post-It notes
 - c. Coloured pens and markers
 - d. Roll of masking tape

2. Tape the eight flip chart sheets to a wall from left to right in the order listed below. If possible, leave the charts taped to the wall until the project is completed.
 - a. Project charter
 - b. Current state process map
 - c. Cause and effect diagram
 - d. Ideas board
 - e. Idea sorter
 - f. Top 10 actions
 - g. Future state process
 - h. “Pre-mortem”

3. At each meeting, give everyone a few Post-It notes and a marker.

4. The facilitator's responsibility is to
 - a. Manage the tools
 - b. Keep the process on track
 - c. Communicate the project to management and colleagues
 - d. Ensure everyone contributes
 - e. Prevent anyone from dominating the discussion

5. From here – follow the steps in the workbook and use the toolkit where indicated.

Step 1: Project Charter

Time to complete ~ one hour

<p>Objective:</p> <ul style="list-style-type: none"> • Ensure that your team agrees on the problem that it is seeking to resolve and that the problem can be documented in terms of desired improvements (how much), when and the project's scope. Remember to keep the project bite sized.
<p>An example of a project charter is shown on the next page. To develop a project charter:</p> <ol style="list-style-type: none"> 1. List the current undesirable effects (UDEs) that you want to eliminate or significantly reduce. Invite participants to list their thoughts on Post-Its (one UDE per Post-It), then group the UDEs on the Project Charter poster provided and summarize the UDEs into one or more problem statements. 2. Write out the problem statement that the team is agreed upon – clearly and concisely. 3. Set a measurable objective. Make it a stretch goal, as it is better to not fully meet a stretch goal than slightly exceed a small goal. After all, you want this project to make a difference. 4. Agree and record a narrow scope. It is better to fix a problem on one production line, then copy and paste the solution to other lines, than try to fix many different variants of the same problem. This approach helps you achieve a result quickly and not get bogged down in minutia. 5. Identify process performance measures, if you can. For example it could be cycle time, percent of defects, number of units lost, or number of rejections. Refer to step 10 for process data and performance. 6. If you have a unit of measure and know from the objective what the target improvement level will be, then estimate what the target business benefits (usually \$) are from this project.
<p>If possible:</p> <ul style="list-style-type: none"> • Try and ascertain an approximation as to how big the problem is. This can be an estimate or be based on historical data. From here, determine by how much you want to reduce the extent of the problem. • Visit the workspace and review performance data when developing a project charter. There is no substitute for firsthand insights and benchmark data.
<p>Be careful:</p> <ul style="list-style-type: none"> • Make sure the problem statement concisely lists the problem, not the symptoms. An analogy of a problem versus symptom is: <i>My car's lights-on warning buzzer failed; hence I left the lights on, which deadened the battery and the car would not start. A dead battery is the symptom; the problem is "I have a failed warning buzzer."</i> • If the UDEs indicate there is potentially more than one problem statement, make each problem statement a separate project and determine the logical sequence in which to execute the projects. • Make sure the scope of the project is such that improvements can be designed and implemented in a reasonable period of time, e.g. four weeks. Don't allow people to keep expanding the project scope.

PROJECT CHARTER: EXAMPLE

<p>CURRENT UNDESIRABLE EFFECTS</p> <ul style="list-style-type: none"> • Outflow jams up after product change over • Wait too long for maintenance to fix • Operators are frustrated • Asked to work late to compensate for downtime • Shipments are late at least one day a week 	
<p>PROBLEM STATEMENT</p> <p>The complexity of the product changeover causes excessive downtime when the conveyor jams. Product is damaged and downgraded. About 6 hours' overtime a week is required to meet schedule.</p> <p><u>Example:</u> 20 product changeovers a week take 10 minutes each for a total of 3 1/3 hours. The overall impact from the slowed production process can be the equivalent of losing 8 to 10 hours a week. Preventive maintenance is compromised as a result of working overtime.</p>	
<p>OBJECTIVE</p> <p>Simplify product change over to eliminate unplanned downtime, downgraded product and reduce overtime to no more than 2 hours a week.</p>	
<p>SCOPE</p> <p>Pack line number 2 – day shift. All products that run on line 2. See list below</p> <ul style="list-style-type: none"> • A • B • C 	
<p>PROCESS OUTPUT MEASURE</p> <ol style="list-style-type: none"> 1. Unplanned downtime 2. lbs downgraded 3. Overtime 	<p>POTENTIAL SAVINGS</p> <p>8 people x 6 hours at 1.5 x \$12/hr = \$43,000 per year</p>

PROJECT CHARTER: TEMPLATE

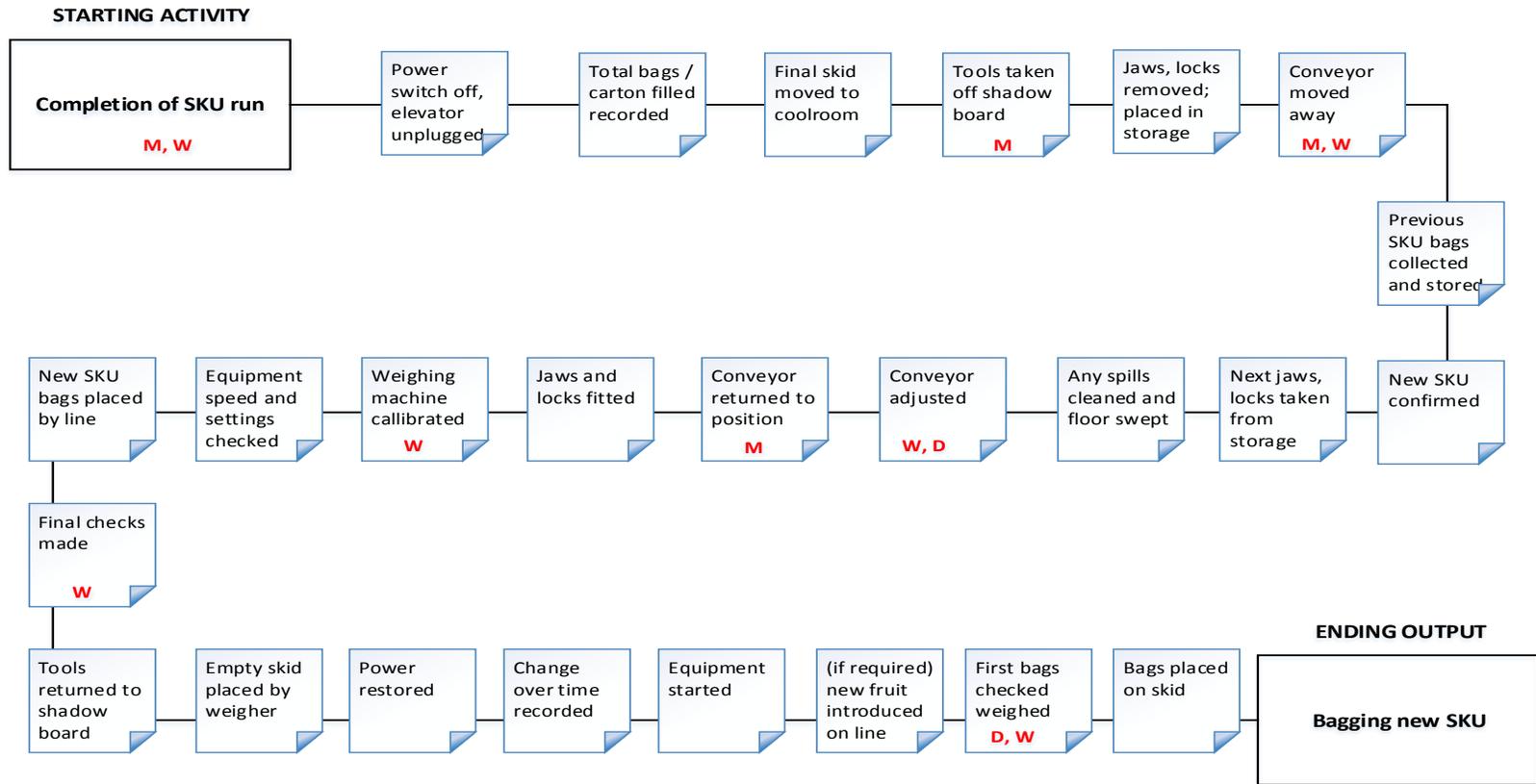
CURRENT UNDESIRABLE EFFECTS	
PROBLEM STATEMENT	
OBJECTIVE	
SCOPE	
PROCESS OUTPUT MEASURE	POTENTIAL SAVINGS

Step 2: Map the Current Process

Time to complete – 30 to 60 plus minutes

<p>Objective:</p> <ul style="list-style-type: none"> Understand the details of how the processes associated with the problem statement actually work currently – to identify waste (aka TIM WOOD) or non-value-added process steps and potential causes of the problem.
<p>An example of a process map is shown on the next page. To develop a process map:</p> <ol style="list-style-type: none"> List the activity or step that triggers the process. Write down the next few steps on Post-Its, then arrange the Post-Its on the poster in the order that they occur. Repeat until the final step or output is reached. If there appears to be more than one opinion as to how the process is performed, there is likely at least two variants of the process. This is an indication that the process is performed based on “tribal knowledge,” rather than a robust process. Evaluate each step for its contribution to TIM WOOD, by marking each process with the corresponding TIM WOOD letter, then discussing to see if the identified waste can be significantly reduced or eliminated. Examine if this mapping activity has identified any obvious root causes of the problem, or whether the team has identified any potential solutions? If so for either, make a note of any actions on the Top Ten Actions Poster – assign a priority number later.
<p>If possible:</p> <ul style="list-style-type: none"> During the mapping process visit workspaces to observe firsthand how operations are performed and investigate whether discrepancies exist between documents that describe how processes should be performed and how processes are actually being performed. Listen to the perspectives and experiences of those involved in performing or affected by processes associated with the problems that you are seeking to address. Identify TIM WOOD: <ul style="list-style-type: none"> T = Unnecessary Transportation I = Unnecessary Inventory – required as a result of buffering against defects or shrink M = Unnecessary Motion or Movement by people W = Unnecessary Waiting or delays O = Over Producing – making or producing more than is required which leads to Inventory O = Over Processing – making it better than it needs to be D = Defects of any kind
<p>Be careful:</p> <ul style="list-style-type: none"> Some non-value-added steps may be necessary to enable value to be performed – such as unloading or unpacking raw material.

MAP OF THE CURRENT PROCESS: EXAMPLE



KEY TO IDENTIFIED TIM WOOD

- T = Transport
- I = Inventory
- M = Motion

- W = Waiting
- O = Overproducing
- O = Over processing
- D = Defects

MAP OF THE CURRENT PROCESS: TEMPLATE

STARTING ACTIVITY



ENDING OUTPUT



TIM WOOD KEY

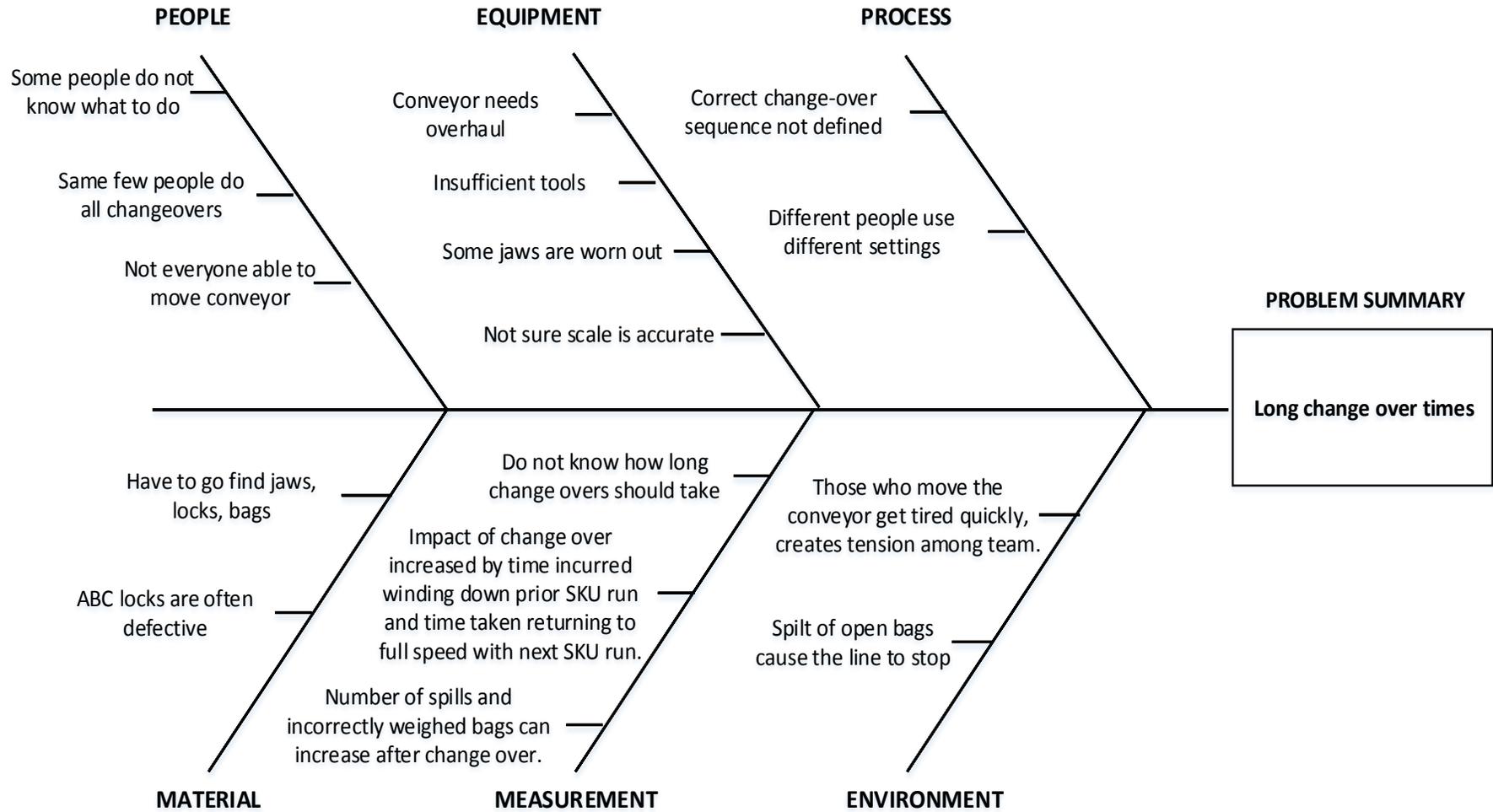
- T = Transport
- I = Inventory
- M = Motion
- W = Waiting
- O = Overproducing
- O = Over processing
- D = Defects

Step 3: The Cause and Effect (Fishbone) Diagram

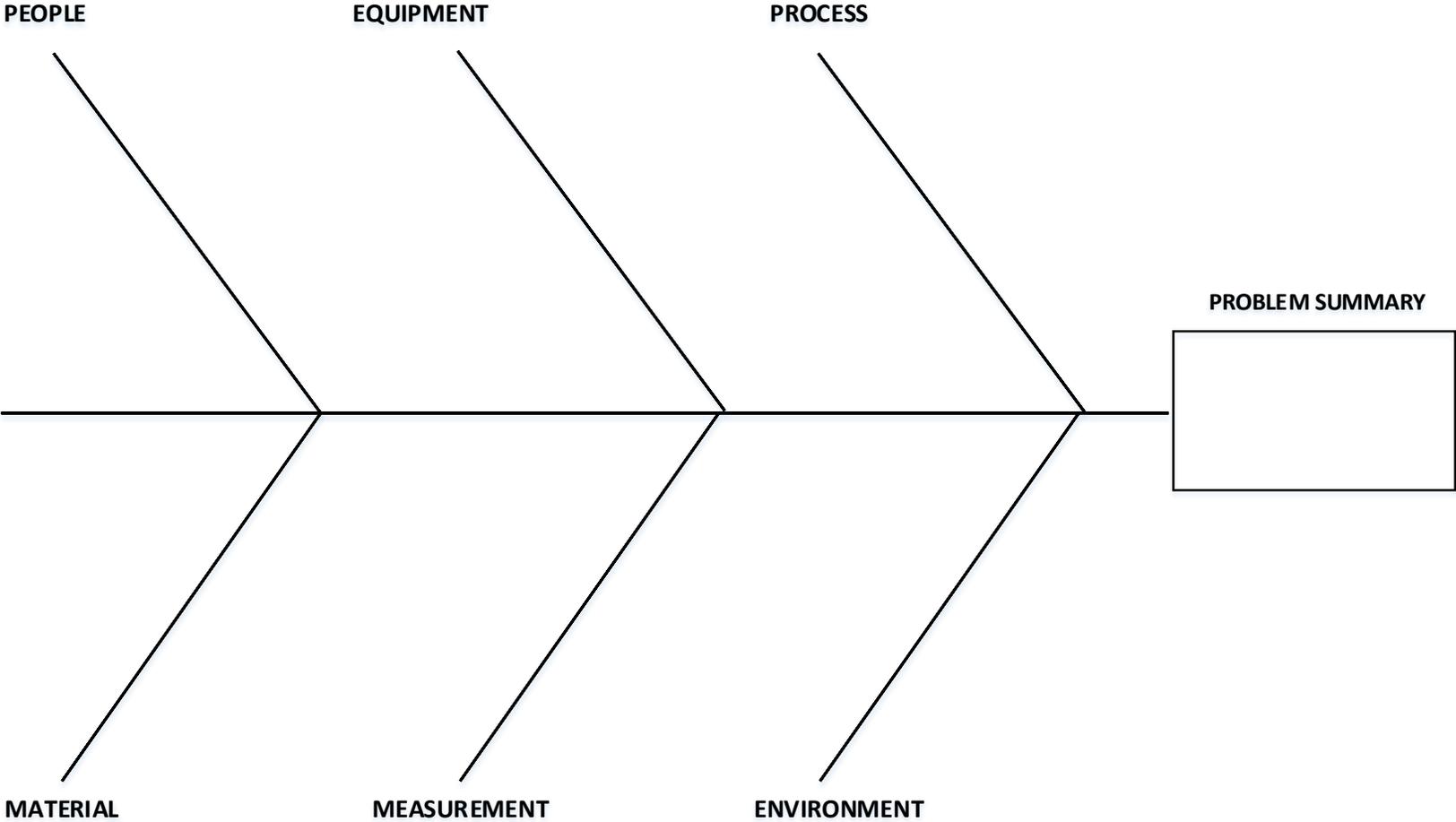
Time to complete – 30 to 40 minutes

<p>Objective:</p> <ul style="list-style-type: none">• Identify potential root causes of the problem for addressing or conducting further investigation.
<p>An example of a cause and effect diagram and a blank template are shown on the next pages. To create a cause and effect (fishbone) diagram:</p> <ol style="list-style-type: none">1. Assign a facilitator at the Cause and Effect poster.2. Write a short summary of the Problem Statement in the “Problem” box at the head of the fish bones.3. Each participant will call out as many potential causes of the problem as they can. There are no wrong ideas.4. The facilitator will capture each by writing it on a Post-It, which is placed next to the appropriate “bone” of the fish. Accuracy is not paramount.5. For each potential cause listed – ask “why” this is a potential cause. List the reason(s) offered, then ask “why” again for any new/additional reasons offered.6. Continue asking “why” until the team reaches a definitive potential root cause. (This technique typically involves asking “why” five times, and is aptly referred to as the “5 Whys.”)7. Once there is a natural end to the flow of ideas, and reasons why, ask each participant to write three items they would act on or investigate first – one Post-It for each idea.8. Gather and group all the “action” Post-Its, then decide on the priority items that will be acted on or investigated.9. Make a note of each action on the Top Ten Actions Poster (shown in step 6). A priority number for each proposed action will be assigned later.
<p>If possible:</p> <ul style="list-style-type: none">• Do not rule out an idea because only one person thought it was significant. For example, the maintenance person may be the only participant that is aware of an equipment performance issue that contributes to the problem.• If someone offers lack of training as a potential cause and others agree, you have a quick win. Training is required and should be provided ASAP.
<p>Be careful:</p> <ul style="list-style-type: none">• Don’t be dismissive of unusual ideas. Remember all ideas are being offered as <i>potential</i> causes for investigation.• Don’t let the exercise drag on for too long; there is usually a natural conclusion to the flow of ideas.

CAUSE AND EFFECT: EXAMPLE



CAUSE AND EFFECT: TEMPLATE



Step 4: The Ideas Board

Time to complete – 20 to 30 minutes

Objective:

- Having understood the process(es) associated with the problem and potential causes of the problem, you are now ready to start developing ideas that will solve the problem, eliminate the UDEs and achieve your improvement objectives.

An example of an Ideas board and blank template is shown on the next two pages. To complete an Ideas board:

1. Aided by the process map and cause and effect diagram, invite each participant to list their ideas for solving the problem and improving the process. Use one Post-It for each idea.
2. Place each Post-It on the Ideas board.
3. Once all ideas have been placed on the board, group similar ideas together.
4. If an additional Post-It would summarize the group of ideas better than currently conveyed, replace the group of ideas with one succinct Post-It.

If possible:

- Get the entire team engaged by giving everyone Post-It notes to complete. (Suggestion: provide three Post-Its to each person at the start of this step.)

Be careful:

- Don't allow ideas to be limited to just those appearing on or developed during the process map and cause and effect diagram activities.
- Allow enough time for engagement, though don't let the exercise drag on.
- Manage discussions on implementing ideas; these insights will be valuable for the next step in your improvement process.

IDEAS BOARD: EXAMPLE

1. Establish and document the correct jaw, scale and bag setting for each SKU

2. Buy a dedicated conveyor for each of the 3 main product types

3. Overhaul the existing conveyor

4. Add a reversing motor to the existing conveyor

5. Prepare product changeover jaw, lock and bag kits

6. Make fixed jaw and conveyor setting pieces (rods and spacers)

7. Train everyone to participate in all changeovers

8. Have a full changeover toll kit available

9. Sequence customer order to minimize changeovers

10. Ensure production knows what the next 2 SKUs are

11. Appoint someone the trainer and changeover coach

12. Reorganize the plant layout to improve product flow

13. Record each changeover time and review the results at a weekly huddle

14. Celebrate our improvements when we make them

IDEAS BOARD: TEMPLATE

IDEAS BOARD

A large empty rectangular area defined by a thin black border, intended for an ideas board. The border consists of a horizontal line at the top, a vertical line on the left, and a vertical line on the right. The bottom horizontal line is located near the bottom of the page.

Step 5: The Ideas Sorter

Time to complete = 30 to 40 minutes

<p>Objective:</p> <ul style="list-style-type: none"> • Arrive at a set of ideas that will deliver meaningful results and can be implemented quickly and easily. • Avoid ideas that will be difficult to implement or will deliver minimal improvement.
<p>How to populate the Ideas Sorter:</p> <ol style="list-style-type: none"> 1) Pick off one complete idea at a time from the ideas board. 2) With some discussion, put it in the most logical box on the sorter poster: <ul style="list-style-type: none"> • Big rewards/big effort = do later <ul style="list-style-type: none"> ○ Example – reorganizing the plant layout may be an obvious improvement, but the downtime and money required is significant • Big rewards/low effort = do now <ul style="list-style-type: none"> ○ Example - eliminating TIM WOOD, documenting the process, providing training and recording process results ○ Scheduling regular preventative maintenance of process equipment • Low reward/big effort = park <ul style="list-style-type: none"> ○ Example – repainting the plant floor and/or repainting the machinery • Some reward/low effort = do when we can <ul style="list-style-type: none"> ○ Example – sharing this improvement methodology with suppliers
<p>If possible:</p> <ul style="list-style-type: none"> • Present the ideas and proposed actions (step 6) to management. • Have management advise on any items that the team cannot decide upon.
<p>Be careful:</p> <ul style="list-style-type: none"> • Not to lose track of the objective and scope of the project.

IDEAS SORTER - EXAMPLE

BIG REWARD / BIG EFFORT DO LATER

- 2. Buy a dedicated conveyor...
- 12. Reorganize the plant layout...

BIG REWARD / LOW EFFORT DO NOW

- 1. Establish and document correct jaw....
- 5. Prepare product changeover jaw...
- 6. Make fixed jaw and conveyor...
- 7. Train everyone to participate...
- 8. Have a full changeover kit...
- 10. Ensure production knows...
- 11. Appoint someone the trainer...
- 13. Record each changeover time...
- 14. Celebrate our improvements...

LOW REWARD / BIG EFFORT PARK

- 9. Sequence customer orders to...

SOME REWARD / LOW EFFORT DO WHEN WE CAN

- 3. Overhaul the existing conveyor...
- 4. Add a reversing motor to the...

IDEAS SORTER - TEMPLATE

BIG REWARD / BIG EFFORT
DO LATER

BIG REWARD / LOW EFFORT
DO NOW

LOW REWARD / BIG EFFORT
PARK

SOME REWARD / LOW EFFORT
DO WHEN WE CAN

Step 6: The Action Log

Time to complete -20 to 30 minutes

<p>Objective:</p> <ul style="list-style-type: none"> • From the Ideas Sorter, as well as any items noted from the process map and cause and effect diagram activities, list up to around 10 key actions that should be undertaken. • If possible, complete the action, then report back on the process and any outcomes achieved next time the team meets.
<p>An action log template is shown on the next page. To populate the action log:</p> <ol style="list-style-type: none"> 1. List together related ideas posted on the Idea Sorter. 2. Write a concise statement of the action required to implement the ideas. 3. For each activity, identify the person who will be responsible for the action's completion (the owner). 4. For each action, have the owner identify a date when they will have the action completed.
<p>If possible:</p> <ul style="list-style-type: none"> • If there are more than 10 actions to be completed, add another page. • Ensure to set completion dates that are achievable.
<p>Be careful:</p> <ul style="list-style-type: none"> • Not to lump several actions into one. • Not to leave one person to do all the work. • Not to appoint action owners who do not possess the authority, knowledge or respect required to complete. • Action owners are responsible for ensuring that completion dates are met or advising the team of completion slippages in a timely and accurate manner.

ACTION LOG: EXAMPLE**TOP TEN+ ACTIONS (REQUIRED PLANNING & RESOURCES)**

Idea #	ACTION	OWNER	BY WHEN	STATUS
1	Establish & document the correct scale, jaw and conveyor settings for the top 10 products	Production supervisor and maintenance person	End of week	
1	Establish & document the correct sequence of changeover tasks	Production supervisor and maintenance person	End of week	
1	Make sure conveyor can be lifted by the lift truck – modify conveyor as required	Maintenance person	End of February	
5	Define what constitutes a changeover kit and how to prepare and stage	Production team	End of next week	
6	From action 1, design, make and test jaw spacers and conveyor setting rods for top 10 SKUs	Maintenance person	End of March	
7	From action 1, train everyone in changeover process and assign daily tasks based on current skills	Production supervisor and maintenance person	End of February	
8	Define what tools are required for changeover, and how they will be stored/made available	Production team	End of next week	
8	Buy and locate required tools that company presently does not own	Maintenance person	End of February	
10	Include how this will be done in the changeover process	Production team, led by supervisor	End of next week	
11	Lead hand will coach and time all changeovers. Lead hand can call time out if changeover not performed correctly.	Production supervisor	Ongoing	
13	Establish a chart to record and display results	Lead hand	Ongoing	
14	Address when improvements are achieved	Production supervisor	TBD	

ACTION LOG: TEMPLATE**TOP TEN ACTIONS (REQUIRED PLANNING & RESOURCES)**

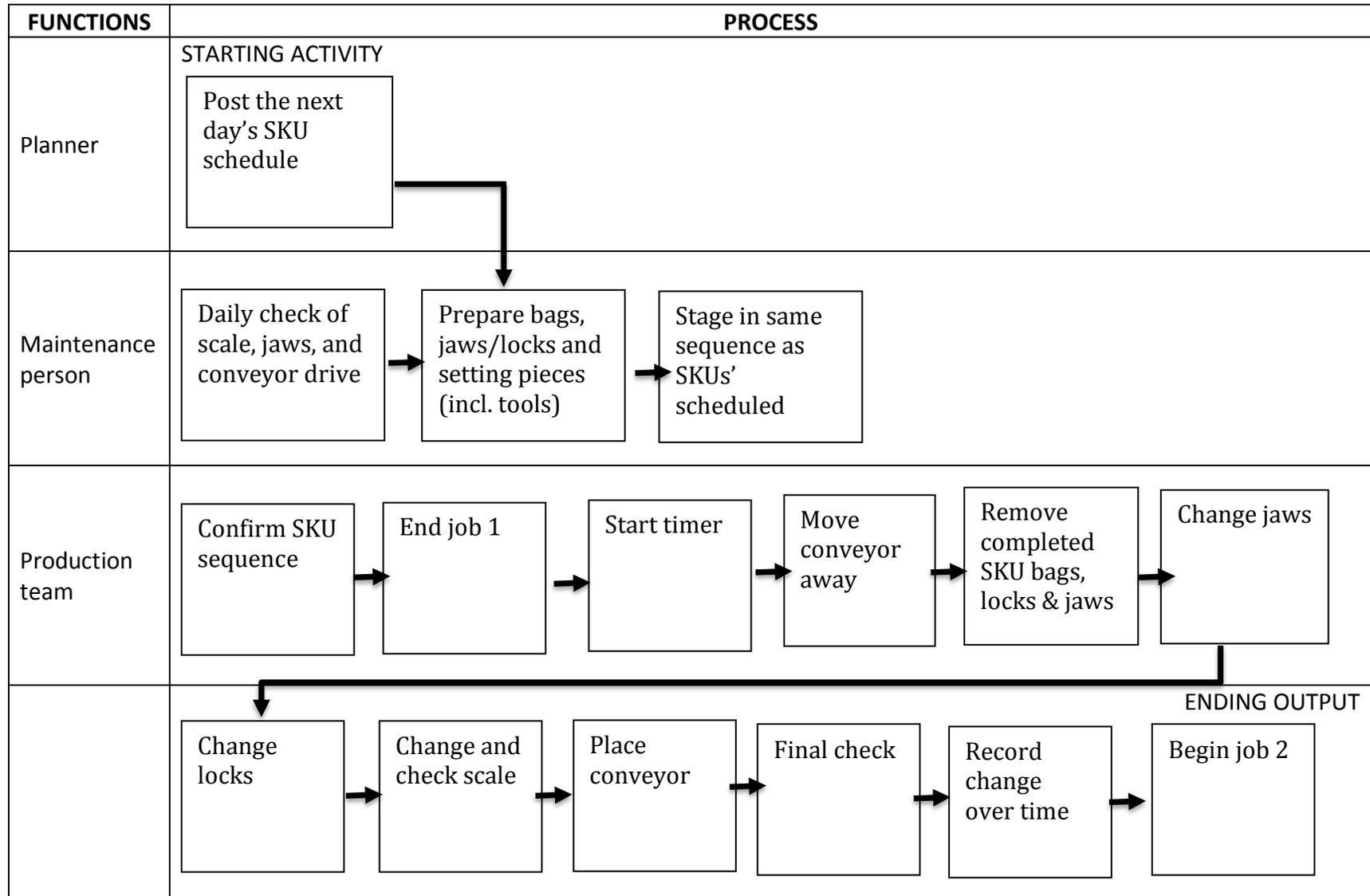
#	IDEA	ACTION	OWNER	BY WHEN	STATUS
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Step 7: Future State Process

Time to complete – 45 to 60 minutes

<p>Objective:</p> <ul style="list-style-type: none"> • Draw out what the process flow will look like once all the ideas are implemented and TIM WOOD has been reduced or eliminated.
<p>How to complete the future state process:</p> <ol style="list-style-type: none"> 1. The format provided is called a swim lane process map. It shows what each function of the business is responsible for, which helps define their roles and responsibilities. 2. Each function of the business that is involved in the process being improved has its own swim lane. Add extra paper if there are more than four functions. 3. Document the activity or step that triggers the process. 4. List each subsequent step, ending with the final step or output. 5. Question each potential step. Does the step add value from the customers' perspective? If not, is it really necessary? 6. Consider how steps that are critical to the overall process can be error proofed. This is, they are set up in a way that there is only one means to perform the step: the correct way. 7. Whenever there is a process set up, consider how the set-up time can be reduced. Think of a NASCAR or F1 pit stop refueling and tire-change analogy. 8. Ideally the process should cascade from the top function down to the last without doubling back.
<p>If possible:</p> <ul style="list-style-type: none"> • Eliminate flow backs to earlier steps or functions. • Minimize decision points; they cause delays. • Identify any necessary non value-added steps.
<p>Be careful:</p> <ul style="list-style-type: none"> • Don't assume. • Don't combine process steps.

MAP OF THE FUTURE PROCESS: EXAMPLE



MAP OF THE FUTURE PROCESS: TEMPLATE

FUNCTIONS	PROCESS
	STARTING ACTIVITY 
	ENDING OUTPUT 

Step 8: Pre Mortem

Time to complete – 30 to 45 minutes

<p>Objective:</p> <ul style="list-style-type: none">• Whereas a post mortem occurs after the event, a pre mortem views the future from the perspective of what is likely to go wrong, and how we prevent it from going wrong before the process is implemented.
<p>How to conduct a pre mortem:</p> <ol style="list-style-type: none">1. Invite all participants to record what they think could go wrong to the process being implemented: one item per Post-It.2. Place each completed Post-It in the appropriate grid for likelihood of occurrence, (high/medium/low) and if it does occur, its impact on the process or the customer (high/medium/low).3. For items placed in the RED grids, a solution needs to be found before the process is implemented.4. For items placed in the YELLOW grids, a solution needs to be found as soon as possible.5. Items placed in GREEN grids should not require solutions beyond the implementation of robust management and monitoring of that process.6. The future state process map should be revisited as necessary.7. To reduce the probability of a detrimental event occurring, follow step 9 to create an instructional document on how to perform the process.
<p>If possible:</p> <ul style="list-style-type: none">• Consider and collect inputs on each step of the process, one step at a time.
<p>Be careful:</p> <ul style="list-style-type: none">• Don't get hung up on the exact location of any item on the grid. If in doubt, be conservative and go for a higher rating.

PRE-MORTEM: EXAMPLE

		IMPACT		
		LOW	MEDIUM	HIGH
PROBABILITY	HIGH			People rush changeovers and injuries result = coach can call time out and team does not score green for the week
	MEDIUM		Risk of injury to those moving the conveyor = have lift truck available for start of each change over	Jaw and conveyor settings may be wrong = maintenance person will test, supervisor will approve, and lead hand will monitor the first few runs of each SKU
	LOW	Someone makes a mistake = coach will check each changeover before starting the line		People do not know how to use tools and set the jaws = document how to complete task, train everyone, assess proficiency and assign tasks based on skills

PRE-MORTEM: TEMPLATE

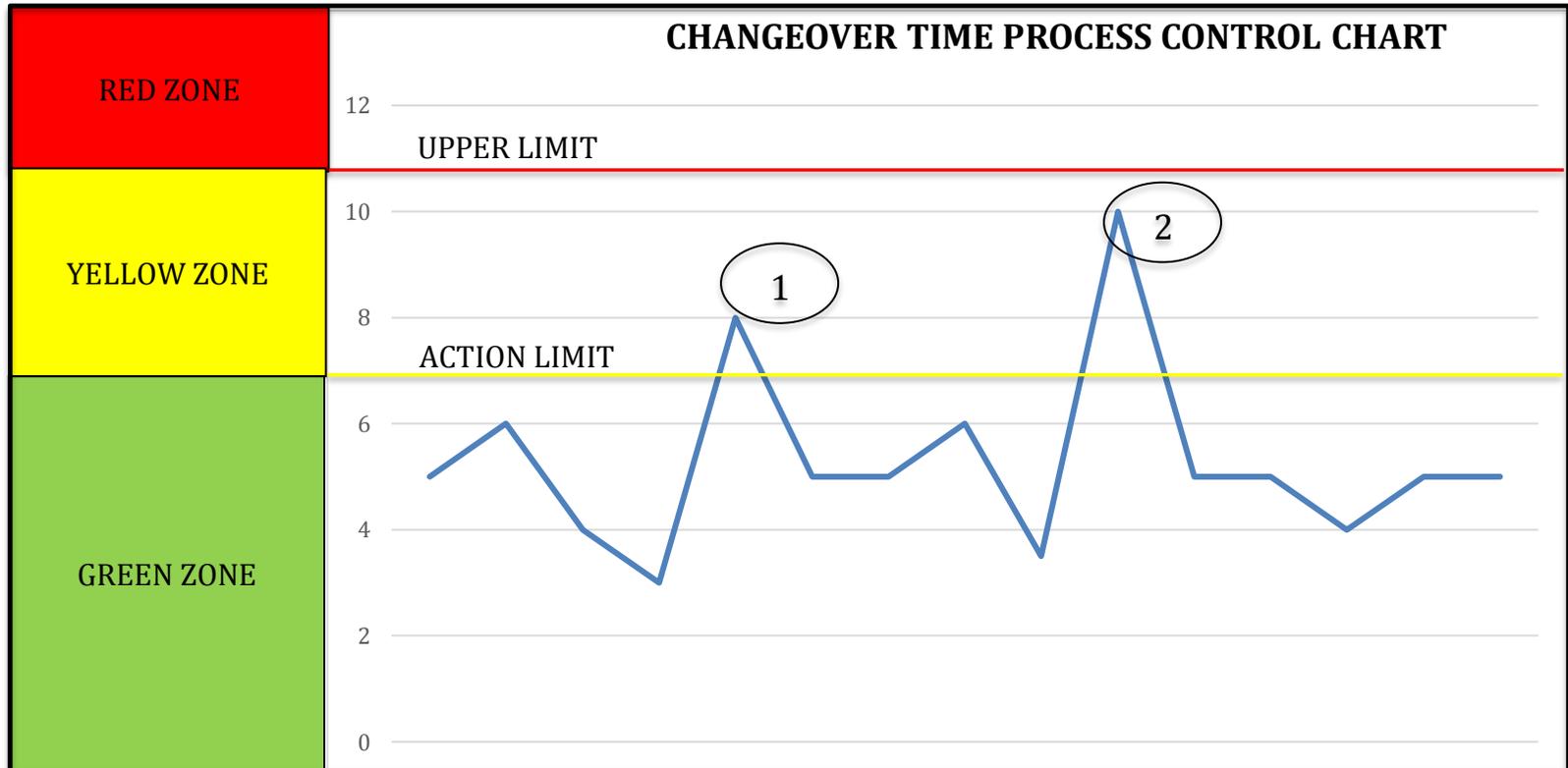
		IMPACT		
		LOW	MEDIUM	HIGH
PROBABILITY	HIGH	Yellow	Red	Red
	MEDIUM	Green	Yellow	Red
	LOW	Green	Green	Yellow

Step 9: Pulling It All Together

Time to complete - TBD

<p>Objective:</p> <ul style="list-style-type: none"> • Document, communicate and train staff on the improved processes. • Establish means of measuring the process's performance that is reviewed by management. • Realize the benefits of having improved the process.
<p>How to pull it all together:</p> <ol style="list-style-type: none"> 1. Create a process document that contains the map of the new process, along with roles and responsibilities and notes or instructions for any step of the process where the absence of instructions would have an adverse effect. 2. Communicate the new process to all employees affected by the change. Expect some resistance and ensure that affected line supervisors are prepared to deal with types of resistance that may arise. 3. Train all affected employees in the details of the new process, then observe them performing the new process the correct way. 4. Perform 30-, 60- and 90-day post-implementation reviews to observe that the new process is being performed as set out in the process document. 5. To continually improve performance, ask for employee feedback and make adjustments to the process as appropriate.
<p>If possible:</p> <ul style="list-style-type: none"> • Review each process document once a year to check it is still current and adequate.
<p>Be careful:</p> <ul style="list-style-type: none"> • Ensure that the process document indicates who prepared and approved the document, that the version is numbered and that it displays the approval date.

“PULLING IT TOGETHER” DOCUMENT: EXAMPLE



INCIDENT DESCRIPTION AND REMEDIAL ACTION

1: FORGOT TO PLUG-IN CONVEYOR. No action needed (NAN)

2: TOOLS FELL ON GROUND, HAD TO MOVE CONVEYOR TO REACH. Hang tools on better clips.

ACTIONIZING THE CONTROL CHART

If time exceeds upper limit = **RED** = address cause of problem within 1 business day

If time is less than upper limit, but exceeds action limit = **YELLOW** = address root cause in weekly team huddle

If time remains below action limit all week = **GREEN** = team celebration Friday PM

Step 10: Process Data and Performance

Time to complete - TBD

<p>Objective:</p> <ul style="list-style-type: none">• If it is deemed that a process is sufficiently complex or requires the development of data to monitor performance, know how to collect and analyze data to provide a clear understanding of process performance and determining factors.
<p>How to collect and gather process performance data:</p> <ol style="list-style-type: none">1. Establish what information is needed. Often required information includes a) cycle time (how long); and b) percentage of production within specification, on time, or saleable. Determining the information required to monitor the process will determine the type of data that you need to collect.2. Visit the process to determine if the required data is already available or a measurement and collection plan needs to be established.3. A data collection plan must articulate what, where, when, how, how-often and who measures and records the data.4. Visit the person collecting the data each day. Collect and review the data with them. Have them explain any unusual data points.5. Examples of information we might derive from the data includes<ol style="list-style-type: none">a. Where is the process centered, what is the mean and medianb. What is the process variation, range and/or standard deviationc. What percentage of production is on time/within specificationd. What are the major types of defects recordede. What is the cause of any production/product outliersf. What is the cycle timeg. What is the downtimeh. What are the major causes of downtime
<p>If possible:</p> <ul style="list-style-type: none">• Collect data throughout shifts, after changeovers and any other major variabilities that may impact the process.• Remember to thank those collecting the data; it is usually more work for them.
<p>Be careful:</p> <ul style="list-style-type: none">• Do not exclude any data unless there is a solid reason to exclude it.• Do not make assumptions about the data.