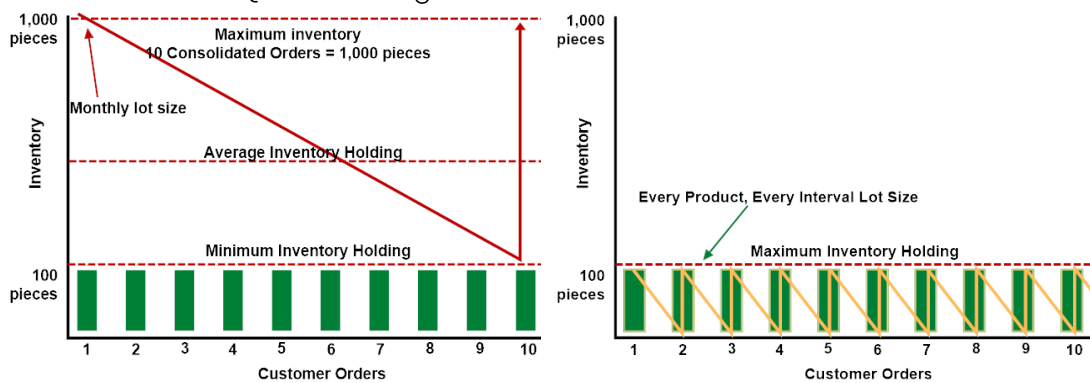


Implementation Program Quick Change-Overs

Achieving ‘Levelled Schedule’ and Reducing Inventory

To implement a ‘Levelled Schedule’, produce ‘Every Product, Every Interval’ (EPEI) and achieve significant Inventory Reductions, it is critical that we can do ‘Quick Changeovers.’



Reducing Inventory through ‘EPEI’




.... Dramatically reduces Cost.

Executing ‘Quick Changeovers’ means we can dramatically reduce Inventory, particularly our high-volume, repetitive ‘Green Stream’ products and services, reduce Cost, attack all ‘7 Wastes,’ and free up valuable warehouse space. Along the way you will improve quality and respond dynamically to changes in consumer demand.

Our Quick Changeover Program takes your people on a journey to dramatically reduce Changeover times through implementing ‘Single Minute Exchange of Die’ techniques, applying ‘Green Stream Thinking’ to identify Changeovers to improve. Your team will capture key Changeovers through our ‘Action Mapping’ methodology, and then implement ‘Improvement Projects’ to reduce Changeover times.

Quick Changeover Implementation Program

This program will be customised to meet the needs of your industry, sector and scope. A sample program may look like this:

Day 1	Introduce:  Green Stream Thinking & Levelled Schedule  Inventory reduction through ‘EPEI’  Quick Changeovers and ‘SMED’ techniques
Day 2	Capture key Changeovers – ‘Action Map’ video
Day 3	Analyse Changeover ‘Action Maps’ for opportunities Establish Project Teams to implement improvements
Ongoing	Project Team Support – online, Zoom/Teams every Friday

Program Concepts

The key concepts introduced in this Implementation Program are:

Green Stream Thinking	Apply 'Demand Segmentation' analysis to current product/service range to identify 'Green Streams' for Quick Changeover projects.
Every Product, Every Interval (EPEI)	Demonstrate how making EPEI will dramatically reduce inventory, increase responsiveness to customer demand and significantly reduce Cost.
Levelled Schedule	Demonstrate how a Levelled Schedule promotes 'economies of repetition' and is a pre-requisite for Quick Changeovers and implementing Kanban.
Quick Changeovers	Introduce 'Quick Changeover' philosophy and how Quick Changeovers are a competitive advantage.
SMED Techniques (Single Minute Exchange of Die)	Introduce the 7 SMED Techniques to achieve significant changeover time reduction.
Action Mapping	Introduce 'Action Mapping' methodology to capture key changeovers in time-lapse videos.
Visual Project Management	The principles and practices of effective Visual Project Management for Quick Changeover Improvement projects.
SMED Project Phases	Plan Quick Changeover Improvement projects based on SMED Project Phases.
'ECRS' – Eliminate, Combine, Re-Arrange, Simplify	Analyse Action Maps of changeovers and apply the principles of 'ECRS' to redesign changeover procedures and achieve improvements.
Standardised Work	Capture and document improved changeover procedures to ensure improvements are spread across operators and gains are achieved.

Implementation Program Highlights

The 'Quick Changeover Implementation Program' effectively engages all staff in identifying Changeovers to improve and implement Quick Changeovers to achieve a Levelled Schedule and move to 'Every Product, Every Interval' to reduce Inventory and Cost.

To give you some insight on what to expect in this workshop, some graphics, highlights and concepts include:

Green Stream Thinking

Product or Service Range

- 6-8% (Green)
- 50% (Orange)
- 70% (Blue)
- 100% (Red)

Cumulative Sales or Revenue

- 50%
- 95%
- 99%

Strategy - 'Mine for Time'

- Value Stream Map the Green Stream
- Action Map Green Stream
- Create Flow in Green Streams
- Balance Green Streams
- Implement 'Quick Changeovers'
- Level Schedule for 'Green Streams'
- Economies of Repetition
- Create Time for MTO/MTS Windows
- Create Time for Projects
- Reap Rewards for 'SQCDP&E' gains

Strategy - 'Piggy-back Green Stream'

- MTO - Make to Order 'Windows'
- MTS - Make to Stock 'Windows'
- Reduce Complexity
- Harmonise & Simplify

Strategy - 'Job-Shop & Custom-Order'

- 'Friday Afternoon' Windows
- Protect Margin - Renegotiate Terms
- Outsource, Discontinue or 'Job Shop'
- Do not pollute Green/Yellow Stream

Flour Packing - Levelled Schedule

Purpose: Maximise Mill output by producing to a fixed and levelled schedule

Monday: 7am-11pm (Italian '00', Plain White, Plain White, Plain White, Bread Flour, Wholemeal, Wholemeal, Speciality Order Window)

Tuesday: 7am-11pm (Italian '00', Plain White, Plain White, Bread Flour, Bread Flour, Wholemeal, Wholemeal)

Wednesday: 7am-11pm (Italian '00', Italian '00', Premium, Premium, Make to Order Window)

Thursday: 7am-11pm (Italian '00', Plain White, Plain White, Bread Flour, Plain White, Wholemeal, Wholemeal, Make to Stock Window)

Friday: 7am-11pm (Premium, Premium)

'SMED' – Single Minute Exchange of Die' Project Stages

- Stage 1:** Internal and external setup not distinguished
- Stage 2:** Separating internal and external setup
- Stage 3:** Converting internal to external setup
- Stage 4:** Streamlining all aspects of the setup operation

Practical Techniques Corresponding to Conceptual Stages:

- Using a checklist
- Perform function checks
- Improving die transportation
- Preparing operating conditions in advance
- Function standardisation
- Using intermediary jigs
- Improving storage and transportation of tools, dies, jigs, gauges etc.
- Implementing parallel operations
- Using functional clamps
- Eliminating adjustments
- Least common multiple system
- Mechanisation

Legend: Green = External Setup, Orange = Internal Setup

Quick Changeover Project Implementation Tools

Y-axis: Set-up Time Reduction (10% to 100%)

X-axis: Time and Effort (Easiest and Quickest to Hardest and Longest)

Cost: Cheapest (top) to Most Expensive (bottom)

Tools (from top-left to bottom-right):

- Organise with Set-in-Order, 5S/6S
- Standardise
- ECRS - Eliminate, Combine, Re-Arrange, Simplify
- Eliminate Adjustments
- Separate Internal from External
- Functional clamps & jigs
- Parallel Operations
- Mechanise

Implementation Program Outcomes and Results

The outcomes and results to expect from the ‘Quick Changeover Implementation Program’ will be agreed with your management team, and our workshop will be customized to meet your goals. To give you some insights and what can be achieved, some ideas include:

Spaghetti Map

Value Fields

Spaghetti Diagram of Changeover Activities

RLKVA Flow Assembly

Description of the task		Assembling RLKVA		Critical Work-in-Process Limits		What are the Performance Targets?
Where is this done?		Lighting: Reasonable		Station 1-9: 2 Legs		Gold: \$4.60 per hour
Where should this be done?		Top Right/Left RLKVA Locations		Station 2-9: 4 Legs		Green: 48-54 per hour
What tools and equipment are needed?		Impulse Solder, Power Drills		Station 3-9: 8 Legs		Red: <48 per hour
Important Steps	Key Points	Reasons	RLKVA Assembly Flow			
Station 1: Insert Piston Nut	1. Pick-up Leg 2. Insert Piston Nut, lock into place 3. Insert Rear Cover Plate (RP124) 4. Place Flat Washer (FW) on Leg 5. Pick-up Spring Washer, Flat Washer 6. Place Flat Washer (FW) on Leg 7. Place Spring Washer (SW) on Leg 8. Place Flat Washer (FW) on Leg 9. Manually screw Security Bolt into Piston Nut (1/2 Torque) 10. Manually screw Security Bolt into Piston Nut (1/2 Torque) 11. Place Plastic Cap over screws 12. Make small tag - add text and place on leg 13. Place Plastic Cap over screws 14. Positioning Check into leg, then seal 15. Insert End Cap	1. Place Nut 'temp' into place when screws 2. Spring Washer is contained between Flat Washer and Leg 3. If Security Bolt does not fit into Piston Nut, remove Piston Nut (temp) and return Leg to Station 1 4. Balance Line - move BB to Station 5				
Station 2: Insert Security Bolt	1. Manually screw Security Bolt into Piston Nut (1/2 Torque) 2. Manually screw Security Bolt into Piston Nut (1/2 Torque) 3. Place Plastic Cap over screws 4. Positioning Check into leg, then seal 5. Insert End Cap	1. If Security Bolt does not fit into Piston Nut, remove Piston Nut (temp) and return Leg to Station 1 2. Balance Line - move BB to Station 5				
Station 3: Assemble Detail/Key Bag	1. Insert Lock Barrel into End Cap 2. Lock Barrel into End Cap with Key 3. Place End Cap onto Leg	1. Balance Line - move E14 and/or E15 into Station 4, take D13 from Station 4				
Station 4: Place End Cap onto Leg	1. Insert Lock Barrel into End Cap 2. Lock Barrel into End Cap with Key 3. Place End Cap onto Leg	1. Balance Line - move E14 and/or E15 into Station 4, take D13 from Station 4				
Station 5: Assemble Detail/Key Bag	1. Insert Lock Barrel into End Cap 2. Lock Barrel into End Cap with Key 3. Place End Cap onto Leg	1. Balance Line - move E14 and/or E15 into Station 4, take D13 from Station 4				
Station 6: Assemble Detail/Key Bag	1. Insert Lock Barrel into End Cap 2. Lock Barrel into End Cap with Key 3. Place End Cap onto Leg	1. Balance Line - move E14 and/or E15 into Station 4, take D13 from Station 4				

Developed by: Rhino-Rack
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Action Map

Engineering

‘Action Map of Operations and Changeovers’ – Time Lapse Video

Team Review of Action Map Videos to identify Quick Changeover Improvement Projects

Workshop Details

Duration	Three Day program with ongoing support
Locations	On-Site at your premises.
How many people can attend?	This program is customised to your, attendance will vary depending on the scale/scope of your Changeover Improvement goals.
Target audience?	Operations, Maintenance, Planning/Scheduling, Finance, Logistics and Leadership Teams.
Is this workshop available for conference delivery?	No. This program is designed for implementation.
Is this workshop accredited?	No. For maximum flexibility, to enable customisation, and minimise cost, we do not offer accredited programs.
Can this workshop be customised?	Yes. We are happy to customize all resources – workbooks, handouts etc – with your corporate branding. Contact Glen for pricing.
Can we build In-House capability and deliver ourselves?	Yes. We are happy to help you build in-House capability. Contact Glen for pricing.
Is this program available for delivery in regional locations?	Yes. We enjoy travelling and delivering in regional locations. We minimize travel costs. Contact Glen for an estimate of t&a costs for your location.
Is this program available for on-line and/or remote delivery?	Yes. This workshop can be adapted for remote and on-line delivery. Contact Glen to discuss your needs and costing.
Is there any prework required?	No. This Improvement Program is an iterative process based on discovery and engagement.
Is there post-workshop support?	Yes. We make Fridays available for ‘free’ ¹ post-workshop support.

¹ Free workshop support is available any Friday – up to one hour per client company, upon booking any available slot through our Scheduling Calendar.