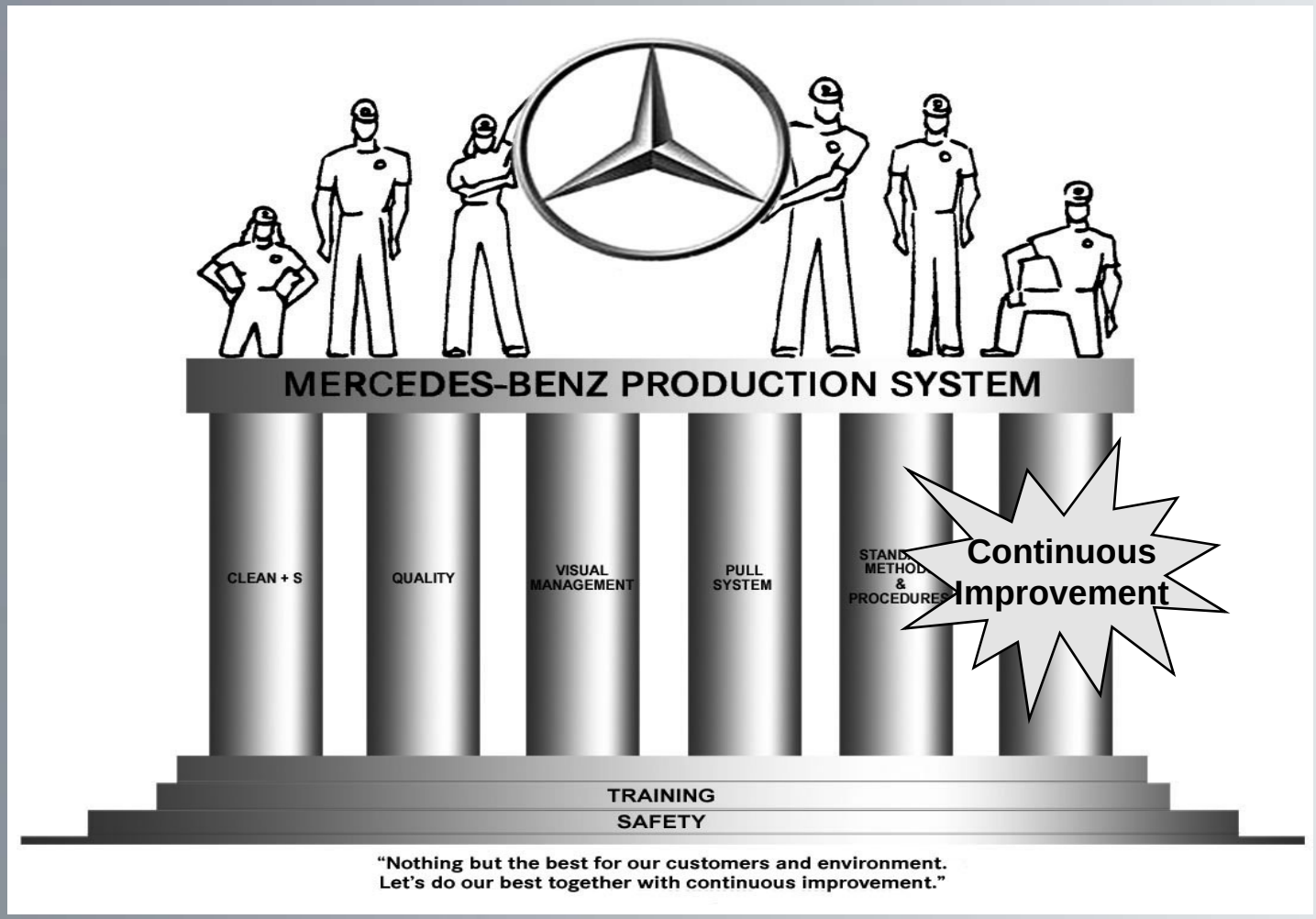
Mercedes-Benz



Supplier Training - Continuous Improvement

Alabama Industrial Development Training (AIDT)

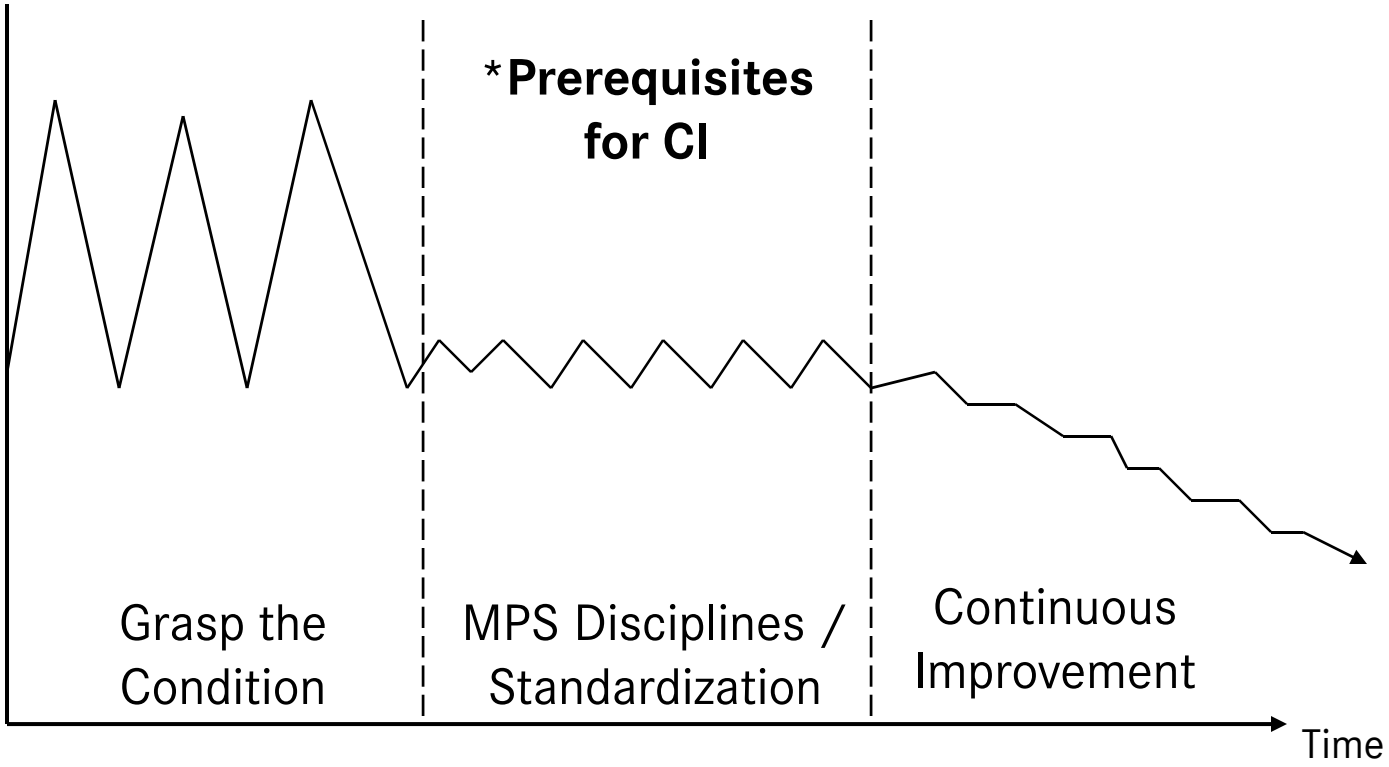
Objective

To gain an understanding of CI and current MBUSI CI methods, including the **Role of Management.**

Course Overview

- CI Overview
- Elimination of Waste (8 Wastes)
- Current CI Tool Review
- Current CI Workshops at MBUSI

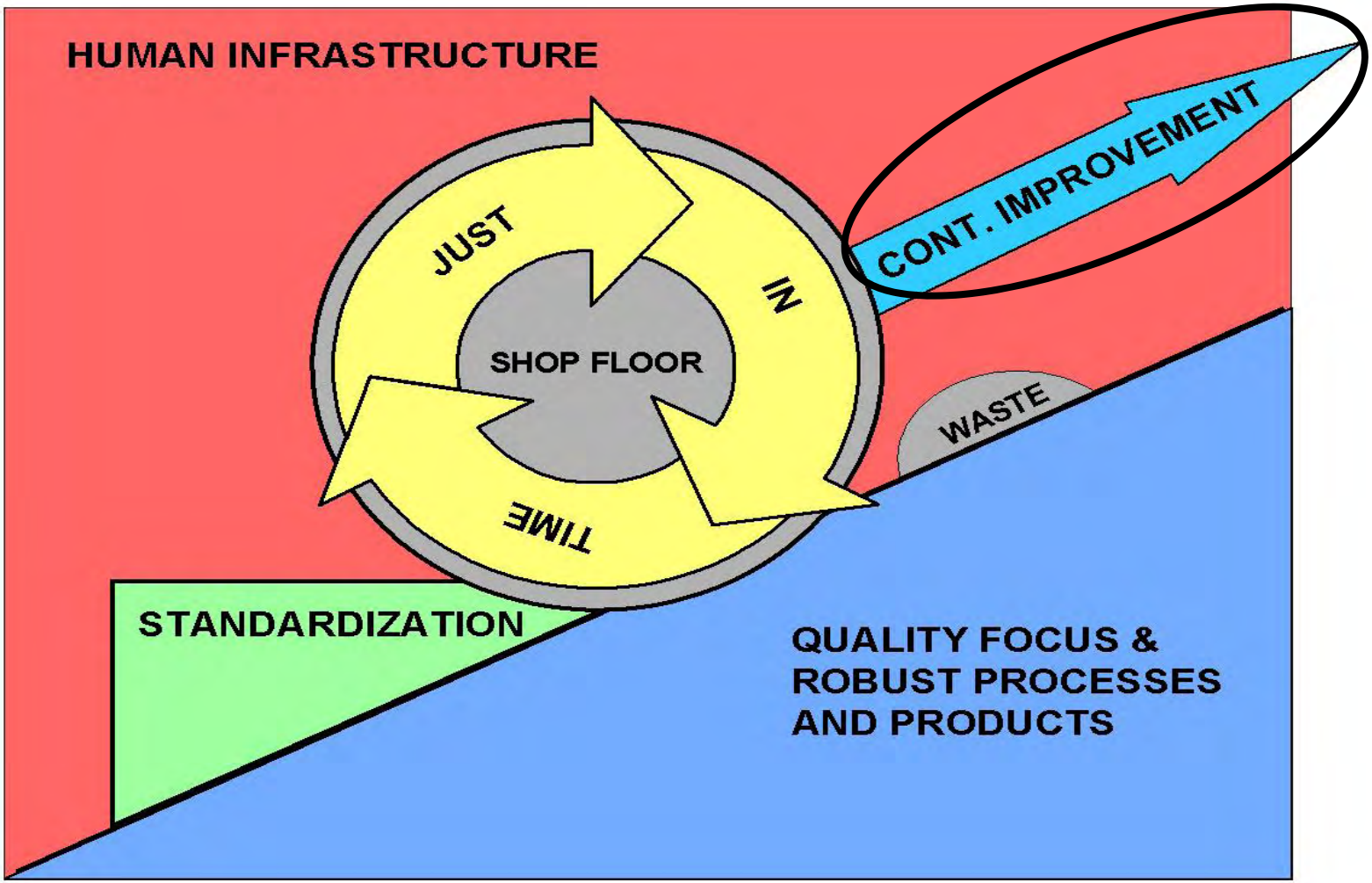
We are Finally There
Why the Last Pillar .....?



What is Continuous Improvement (CI)?

A Process for Identifying and Eliminating Waste

CI is the engine that pulls the company forward.



Continuous Improvement Philosophies

- Many small improvements can have a greater impact than a few major improvements - 100% Participation
- Continuous Improvement is Everyone's responsibility
- Way of Thinking Not a Program
- Our daily work
- Our greatest avenue to ensure job security

Elimination of Waste (8 Wastes)

Continuous Improvement = Elimination of Waste

Eight Forms of Waste

- Overproduction
- Inventory
- Motion
- Transportation
- Wait
- Over Processing
- Repair, Rework
- Energy

We need to develop "CI Eyes" to see these wastes

Waste of Overproduction

The Production of Materials or Products that are not immediately required by the customer (internal or external). The worst form of waste because it is the root cause of many others forms of waste.

Visual Symptoms:

- Sub-Assemblies above Standard
- SIPS Standard Violated
- Buffers in Full Condition / Vehicles Off-line
- Sub-Assemblies in multiple locations

Root Causes:

- Poor planning
- Under utilization
- Part delivery problems
- Process has high variation
- Excess Capacity

Waste of Inventory

Material on hand not directly required for current customer orders.

Visual Symptoms:

- Parts on floor
- Storage areas above Standard
- Excessive Trailers in the Yard
- Order cards pulled from multiple totes of same part number

Root Causes:

- Too many Order Cards in System
- High SIPs Standards/no SIPs Standards
- Missed Production Schedule

Waste of Transportation

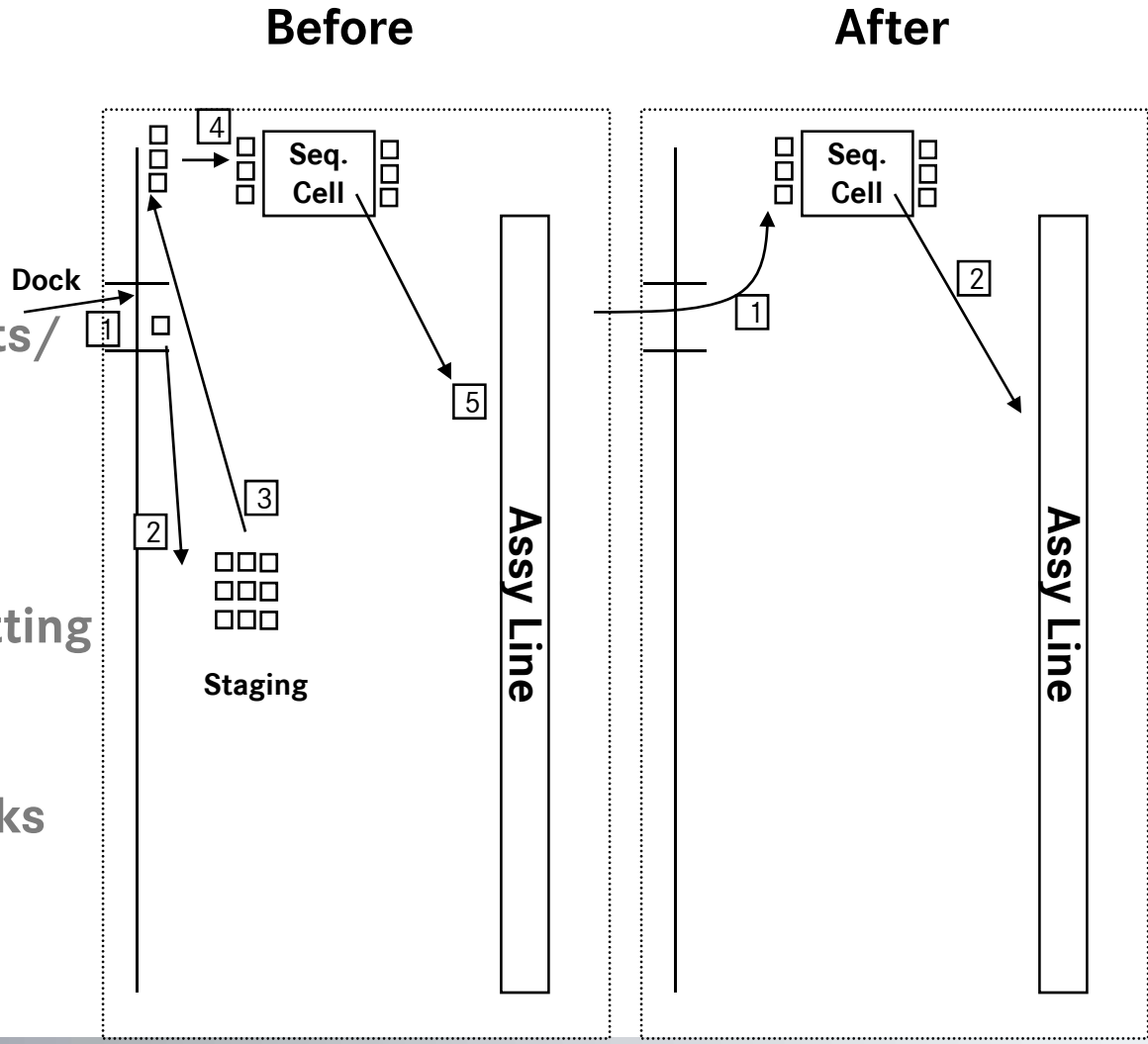
The unnecessary movement of materials.

Visual Symptoms:

- Multiple moves for one part
- Excessive forklift traffic in production areas
- Long travel distances for parts/ sub-assemblies

Root Causes:

- Unnecessary Sequencing/Kitting
- Poor parts storage
- Poor work area layout
- Inefficient segregation of tasks
- Packing / Dolly Design
- Multiple Linefeeds



Waste of Motion

Unnecessary movement in a process.

Visual Symptoms:

- Unnecessary walking
- Bending / reaching to locate parts or tools
- Poor ergonomic conditions
- Parts outside of station footprint
- Multiple Tool Changes
- Double handling of parts

Root Causes:

- Poor work station layout
- Poor process flow
- Poor parts/tool placement
- Tool Selection

Before

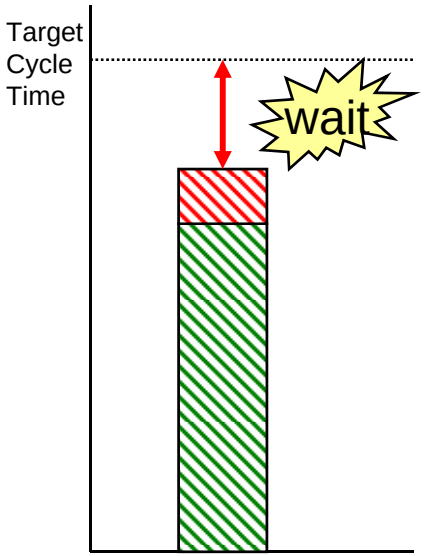
After

Waste of Waiting

Periods of inactivity.

Visual Symptoms:

- Excess Motion (NVA) - "Busy" Work
- Working ahead
- Idle Time
- Short / Full Conditions
- Team Member out of station



Root Causes:

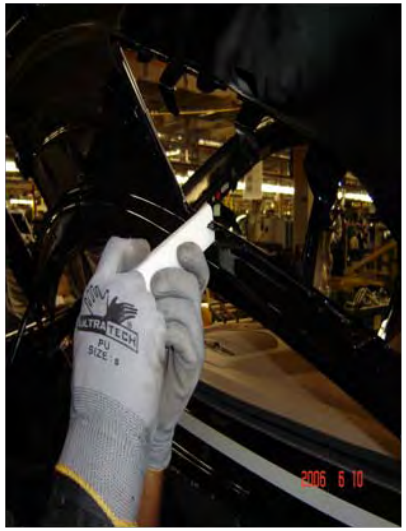
- Under Utilization
- Poor line balance between processes
- Poor work balance with an automatic Machine Cycle
- Equipment Availability

Waste of Over Processing

Producing more than the customer requires.

Visual Symptoms:

- Manual repeat of automated process
- Material (part manipulation) /Finesse
- Same rework on every car (i.e., Sanding)
- Same process repeated in multiple processes (i.e., Taillight adjust)



Root Causes:

- Unclear manufacturing specification
- Non-conforming parts
- Unclear understanding of standards
- Under utilization

Waste of Defects, Repair and Rework

Products or aspects of the production processes that do not conform to the specifications or the expectations of the customer.

Visual Symptoms:

- Repair/Lineside areas out of standard
- Team Leaders on-line
- Abnormal levels of activity at the end of a line
- Low FTC (First Time Capability)

Root Causes:

- Non-compliance to Mutilation Standards
- Non-compliance to SMPs/Pull Cords
- Non-robust processes
- Poor escalation processes
- Training system not followed

Waste of Energy

Consumption of any energy source not required to perform work.

Visual Symptoms:

- Lights on in unoccupied areas or between shifts
- Doors to air-conditioned/heated spaces left open
- Equipment running between shifts
- Leaking air lines
- Leaking oil/water
- Recycling standards not followed

Root Causes:

- Awareness / Management attention
- Shut-offs not accessible
- Poor TPM System

- Eliminating these wastes means we become more efficient. Thus eliminating Non-Value added work.

- Maximum efficiency can be achieved through a “narrow” definition of Value added work.

Efficiency - Definitions

Value Added Work involves attaching/applying/installing a part to a part/vehicle one time.

Non-Value Added Work is typically not performed at the vehicle. If performed at the vehicle typically involves some form of rework. These are our targets for CI and fall into our 8 Forms of Waste categories.

MBUSI Efficiency Targets

Utilization > 90%

Value Added > 70%

Value Added and Non-Value Added Work

Examples of Value Added

- Assembling
- Clipping
- Fastening
- Screwing
- Gluing
- Welding
- Painting
- Sealing

First Time Only!

Examples of Non-Value Added

- Picking-up parts
- Walking
- Changing of Tools
- Quality Checking
- Stamping of Sheets
- Scanning
- Refilling of Parts in Container
- Transportation of Material
- Opening & Removing of Dunnage
- Observing
- Rework / Repair
- Adjusting

CI Tool Review

CI Tools

In this section, we will be exposed to MBUSI CI Tools to help identify wastes.

CI Tools are used to identify or validate waste reduction opportunities not immediately evident through observation alone.

Process Tool Box – (Available MBUSI CI Tools)

Tool No.	Process Tool	Purpose
I	**Practical Problem Solving**	Step by step root cause analysis of Problem
II	**Time Measurement**	Identifies fluctuation and standard element times in a process
III	**Elemental Wall**	Visual display of processes for line balancing
IV	**Ergonomic Analysis Tool**	Analyzes the impact of cumulative ergonomic burden (Arms/Shoulders / Backs)
V	**Phase 1/Phase 2 Ergonomic Process Tool**	Identifies obvious physical burdens to the T/Ms in a process (Hands/ Wrists)
VI	Standard Work Combination Table	Efficiency tool used in a process where Team Members and Machines interact
VII	Static SMP	Efficiency Tool used to identify station layout and walk path for a static station
VIII	**Moving Line SMP**	Identifies the layout and walk path for a moving line production process
IX	Process Stability Checklist	Used for identification of process robustness improvement items
X	Job Element Sheet	Used to visualize standards, details and helpful hints for a component point to ensure QAP

Selector Table – 8 Forms of Waste

MBUSI **8 Forms of Waste**	***Practical Problem Solving***	***Time Measurement***	***Elemental Wall***	***Ergonomic Analysis Tool***	***Phase 1 /2 Ergonomic Process Tool***	Standard Work Combination Table	Static SMP	***Moving Line SMP***	Process Stability Checklist	Job Element Sheet
Overproduction	●	●	●			●	●	●	●	
Waiting	●	●	●			●	●	●	●	
Inventory	●						●	●	●	
Transportation	●	●	●				●	●	●	
Motion	●	●	●	●	●	●	●	●	●	
Over processing	●	●	●	●	●				●	●
Defects / Repair / Rework	●								●	●
Energy										

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Time Measurement Tool

MBUSI

Operation (shop/line/station):

Operator Name:

Recorded by:

Date:

Takt Time:

Shift:

Time (sec)	0 - 10	11 - 20	21 - 60	61 +	TOTAL CYCLE TIME
Fluctuation Boundary (sec) = High Time - Low Time	3	4	5	6	5%

No. or Option	Operation Element or Walking	1	2	3	4	5	Standard Time	Comments	Walk	Value Added	Non-Value Added
Additional Step = A Replacement Step = R	Actual Cycle Times (seconds)										

Time Measurement Tool

Operation (shop/line/station): Assembly 2/Trim 2/Sta 10L and 10R
Operator Name: Tim
Recorded by: Casey
Date: 7/20/07
Takt Time: 171
Shift: A

Time (sec)	0 - 10	11 - 20	21 - 60	61 +	TOTAL CYCLE TIME
Fluctuation Boundary (sec) = High Time - Low Time	3	4	5	6	5%

No. or Option	Operation Element or Walking	1	2	3	4	5	Standard Time	Comments	Walk	Value Added	Non-Value Added
1	Walk	5	4	4	4	3	4		4		
2	Prep hood for vent	6	9	6	6	7	6				6
3	Walk	2	2	3	2	5	2		2		
4	Pick up vent	1	10	1	2	1	1	Damaged vent from supplier			1
5	Walk	3	3	2	2	1	2				
6	Install vent	16	16	16	19	15	16				
7	Walk	4	6	4	3	3	4				
8	Pick up soundpad	2	1	1	1	2	1				
9	Walk	7	6	4	4	4	4				
10	Install soundpad	5	4	2	2	2	2				
11	Walk	9	9	6	5	5	6				
12	Connect L/G glass wire	13	12	16	15	13	13			13	
13	Install soundpad	9	9	7	16	11	9	Removal of adhesive protection was difficult		9	
14	Connect 1/4 glass	10	10	11	9	8	10				
15	Install 1/4 glass	40	40	39	37	36	40				
16	Walk	3	4	5	4	4	4				
17	Build blowers	21	20	22	20	22	20				
Additional Step = A Replacement Step = R		Actual Cycle Times (seconds)	156	165	149	151	143	144		26	110	8

Time Fluctuation Table

- Time fluctuation will bring problems to the surface. Including Quality problems.

- **Check** for problems listed in this abnormal condition column. **Verify** that problems have been addressed.

-Times outside the fluctuation boundary must not average in.

Standard Time

- Must be selected by identifying the lowest repeatable time for each element.

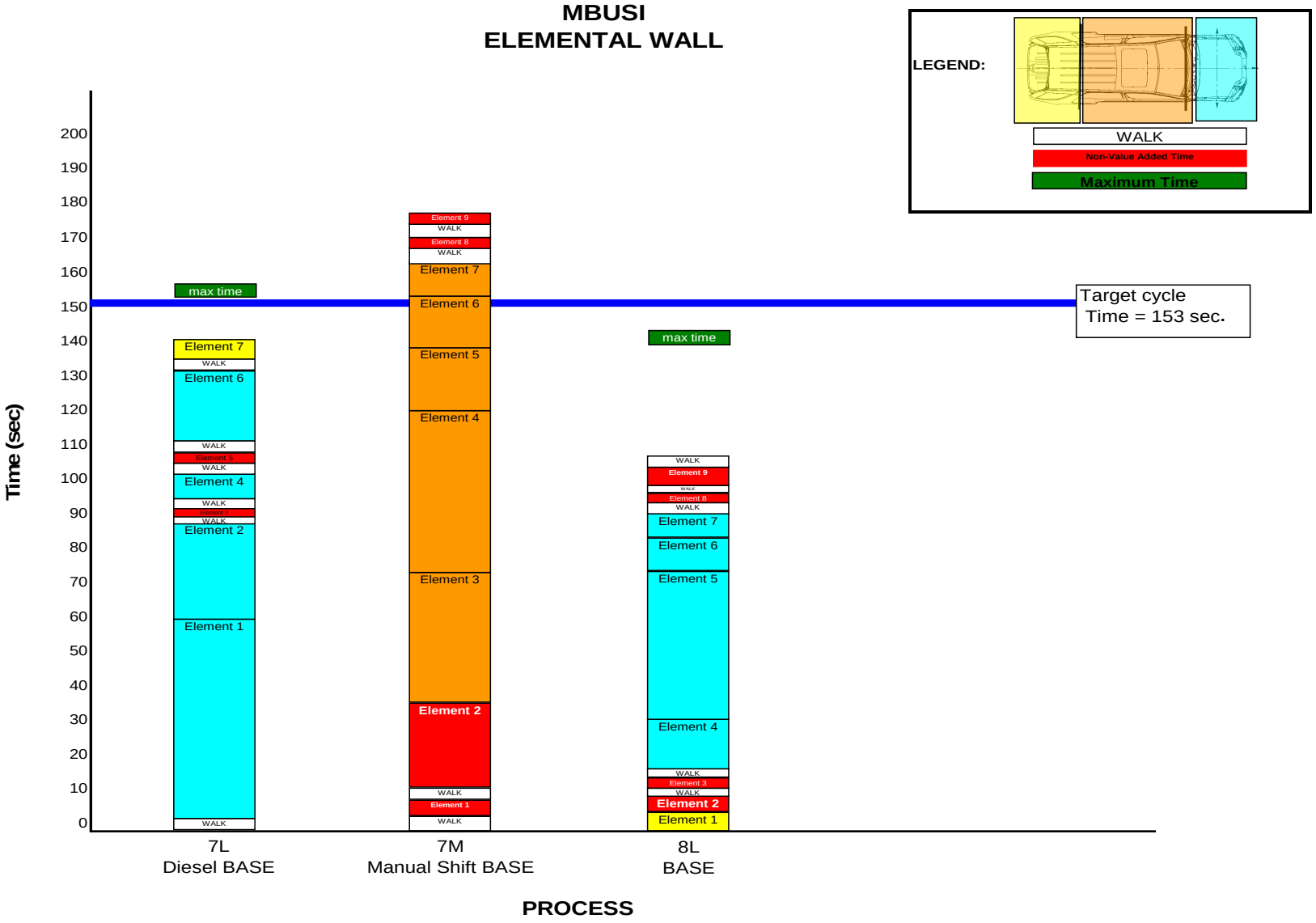
- Lowest time found during time study should not be selected for standard time if it was not repeated.

- Standard time cannot be determined until inconsistency in cycle time is under control.
  > Additional times should be taken to get lowest repeatable time.
  > **Verify** that reasons for inconsistent cycle times has been addressed.

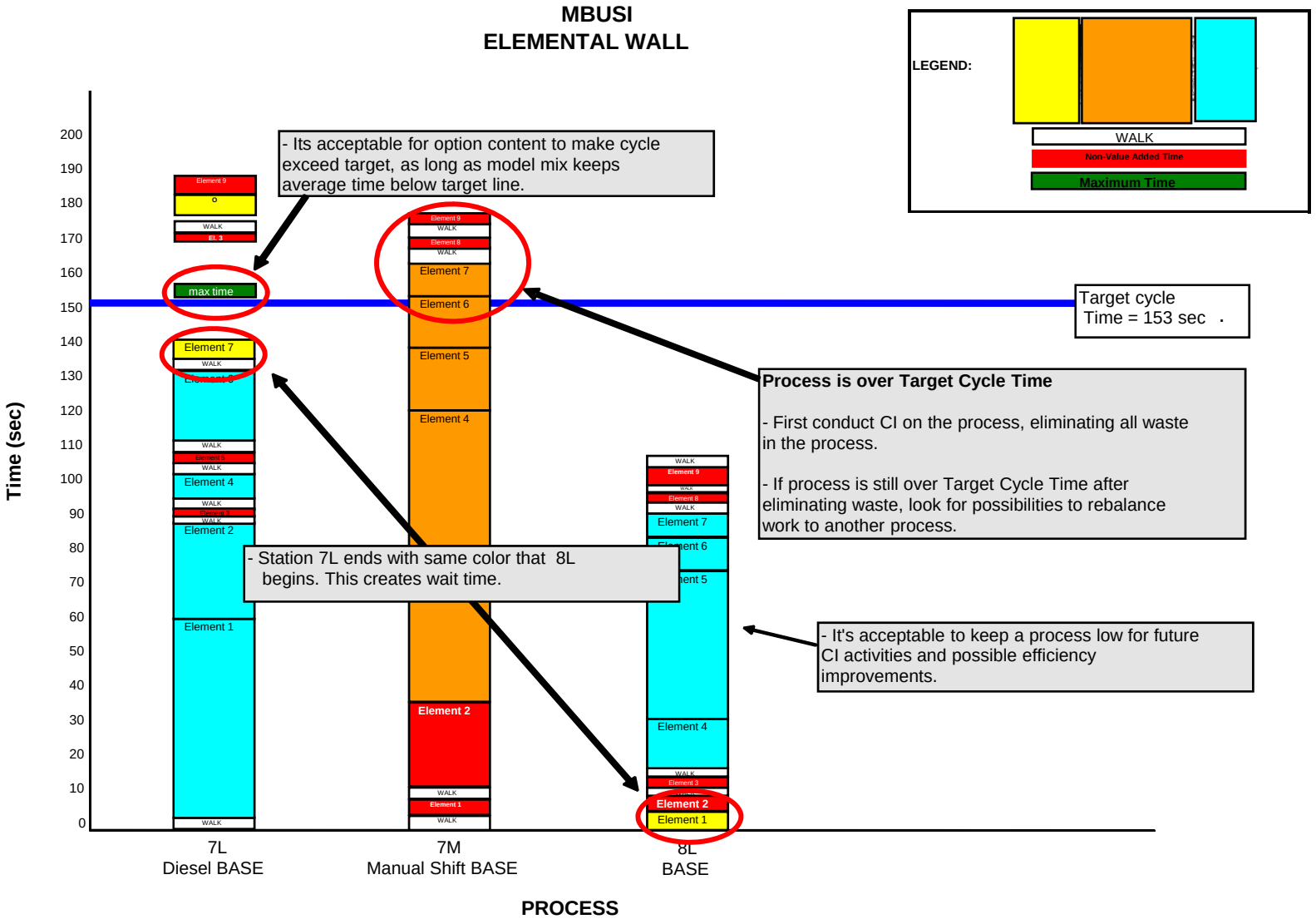
Actual Cycle times

- **Check** for fluctuation in actual time for each cycle. The time fluctuation for each cycle should not exceed 5%

Elemental Wall



Elemental Wall



Ergonomic Analysis Tool

Date:	Process:	Operator:
	Location:	(A) Cycle Time:

Element Description	B Time (sec)	C Arm Position Factor	D Add. Factors	E Weight Factor	F=(C+D+E)*B Arm score	G Back Position Factor	H Add. Factors	I Weight Factor	J=(G+H+I)*B Back score
Totals				(L) Arm Score				(M) Back Score	
				(N) Arm Burden =(L*60)/A				(O) Back Burden =(M*60)/A	
								(P) Total Back Burden Score (L+M)	

Shoulder/Upper Back Burden

Shoulder Position Factor

Arm Position Factor (C)						Additional Factor (D)
6	4	3	2	1	0	+2
>120°	90°-120°	behind >20°	45°- 90°	20°-45°	<20°	Out to Side
						

Weight Multiplier - Two-Handed Lift (lb.) (E)				Weight Multiplier - Two-Handed Push Pull (E)			
10	6	3	2	10	6	3	2
>30	26-30	21-25	10-20	>45	40-45	30-39	15-29
Request additional assistance for weight values above the two-handed lift and two-handed push/pull values shown above.							
Weight Multiplier One-Handed Lift (lb.) (E)				**Weight Multiplier – One-Handed Push Pull (lb.) (E)**			
10	6	3	2	10	6	3	2
>15	11-15	6-10	1-5	>20	15-20	11-15	5-10
When possible, use two-handed lifts during production processes when the weight is > 5lb.				If you cannot measure push/pull estimate with qualifiers very hard (10), hard (6), somewhat hard (3), light (2).			

Low Back Burden

Back Position Factor

Posture Score (G)				Additional Factors (H)		
6	3	1	0	+2	+1	
> 60° Bend	20° to 60° Bend	<20° Bend	Upright	Twisting Back	Side-bending	Kneeling Sitting Squatting
						

Weight Multiplier - Two-Handed Lift (lb.)				Weight Multiplier - Two-Handed Push/Pull			
10	6	3	2	10	6	3	2
>30	26-30	21-25	10-20	>45	40-45	30-39	15-29
Request additional assistance for weight values above the two-handed lift and two-handed push/pull values shown above.							

Ergonomic Analysis Tool–Phase 1

Date:	05/22/07	Process:	Pre-marriage F1	Operator:	Tim
		Location:	F2 - Sta 1	(A) Cycle Time:	94

Element Description	B Time (sec)	C Arm Position Factor	D Add. Factors	E Weight Factor	F=(C+D+E)*B Arm score	G Back Position Factor	H Add. Factors	I Weight Factor	J=(G+H+I)*B Back score
Pick-up spring	5	6	0	2	40	6	2	2	50
Install spring	10	2	0	2	40	0	0	2	20
Align fuel filler	10	6	0	0	60	0	0	0	0
Align axle	3	2	0	0	6	1	2	0	9
Align UCA	3	2	0	10	36	0	0	0	3
Connect UCA/Clamp harness	8	6	0	10	128	1	2	0	24
Totals	39		(L) Arm Score		310		(M) Back Score		106
			(N) Arm Burden =(L*60)/A		198		(O) Back Burden =(M*60)/A		68
							(P) Total Back Burden Score (L+M)		266

Shoulder/Upper Back Burden

Shoulder Position Factor

Arm Position Factor (C)						Additional Factor (D)
6	4	3	2	1	0	+2
>120°	90°-120°	behind >20°	45°- 90°	20°-45°	<20°	Out to Side

Weight Multiplier - Two-Handed Lift (lb.) (E)				Weight Multiplier - Two-Handed Push Pull (E)			
10	6	3	2	10	6	3	2
>30	26-30	21-25	10-20	>45	40-45	30-39	15-29

Request additional assistance for weight values above the two-handed lift and two-handed push/pull values shown above.

Weight Multiplier One-Handed Lift (lb.) (E)				Weight Multiplier – One-Handed Push Pull (lb.) (E)			
10	6	3	2	10	6	3	2
>15	11-15	6-10	1-5	>20	15-20	11-15	5-10

When possible, use two-handed lifts during production processes when the weight is > 5lb.

If you cannot measure push/pull estimate with qualifiers very hard (10), hard (6), somewhat hard (3), light (2).

Low Back Burden

Back Position Factor

Posture Score (G)				Additional Factors (H)	
6	3	1	0	+2	+1
> 60° Bend	20° to 60° Bend	<20° Bend	Upright	Twisting Back	Side-bending	Kneeling Sitting Squatting

Weight Multiplier - Two-Handed Lift (lb.)				Weight Multiplier - Two-Handed Push/Pull			
10	6	3	2	10	6	3	2
>30	26-30	21-25	10-20	>45	40-45	30-39	15-29

Request additional assistance for weight values above the two-handed lift and two-handed push/pull values shown above.

- **Verify** that the top 5 burdens are identified and are being addressed.
- **Check** to make sure that multiple operators have been evaluated.

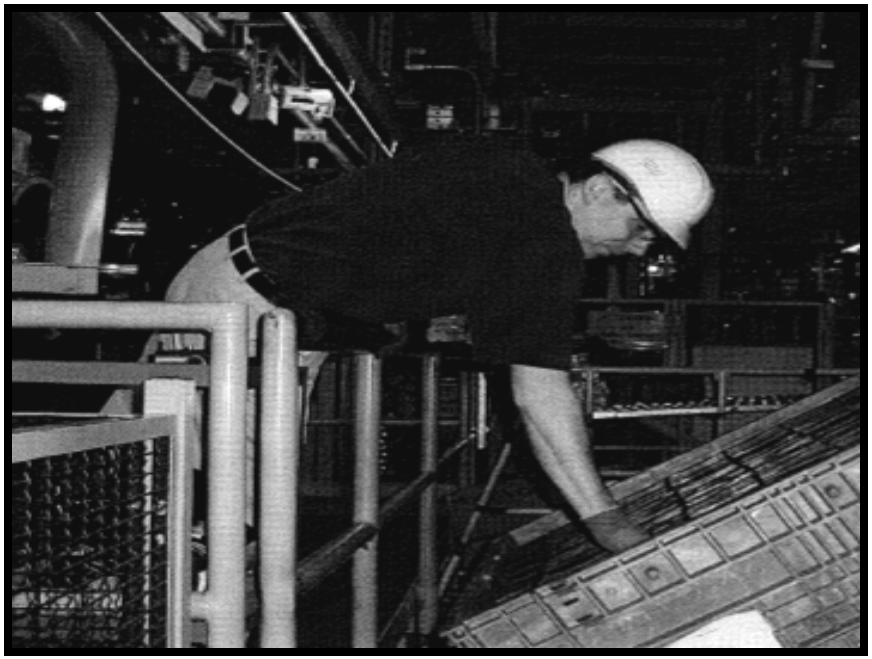
Note the Similarity to the Time Measurement Tool

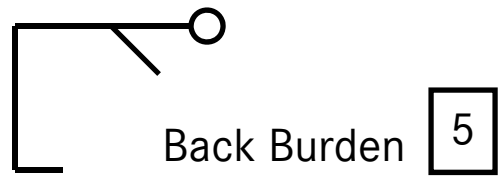
Key Point:

Improve versus Eliminate

Ergonomic Improvement

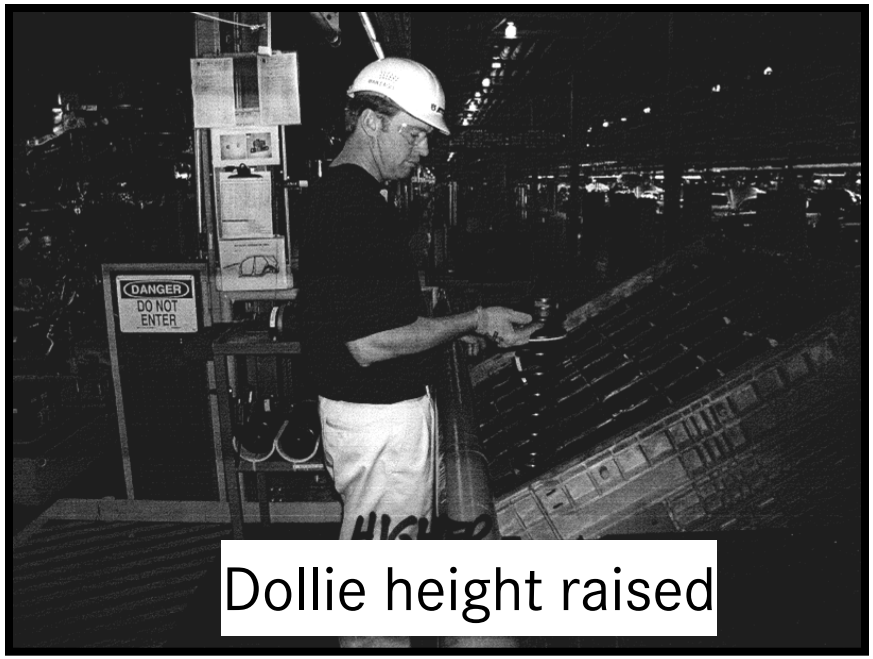
Before

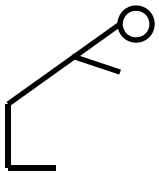




Back Burden 5

After





Back Burden 2

60% Improvement on this work element

Job Fit

Tall Team Member

Back Burden 5

Short Team Member

Back Burden 2

Also a 60% Improvement on this work <u>element</u>

Key Point: Job Fit is also a Factor

Moving Line SMP

MBUSI	Process Name: Bumper Bracket Installation		Takt Time: 154 secs
	Area / Line: Assembly/Trim 2	Vehicle Type: W163	Rev. Date: 6/13/2002
	Station: 20	Operator #: 20R	Rev. Level: 3

Moving Line SMP Visual Diagram

Key Symbols: Safety Quality Check < D

Step No.	Ref. No.	Symbol	Description: Major Steps	Description: model/ option	Element Time: Value Added	Element Time: Non-Value Added	Element Time: Walk	Element Time: Cum.
A = Additional Step R = Replacement Step				Total Time				

Information Block:

Ref. No.	JES No.	Ref. No.	JES No.
1		10	
2		11	
3		12	
4		13	
5		14	
6		15	
7		16	
8		17	
9		18	

Team Leader (A/B)	
Group Leader (A/B)	
Engineer	
Asst. Mgr. (A/B)	

Moving Line SMP

The ML SMP can be used to highlight areas for Continuous Improvement in the process

1. Slant Walks
2. Return Walks
3. Parts Placement

Note focuses on inputs versus drives

Process Name: Bumper Bracket Installation | Takt Time: 154 secs | Moving Line SMP Visual Diagram

Area / Line: | Vehicle Type: | Rev. Date:

Key Symbols: Safety | Quality Check | < DS > Critical | < E > Enviromental | < S > Significant

Page of

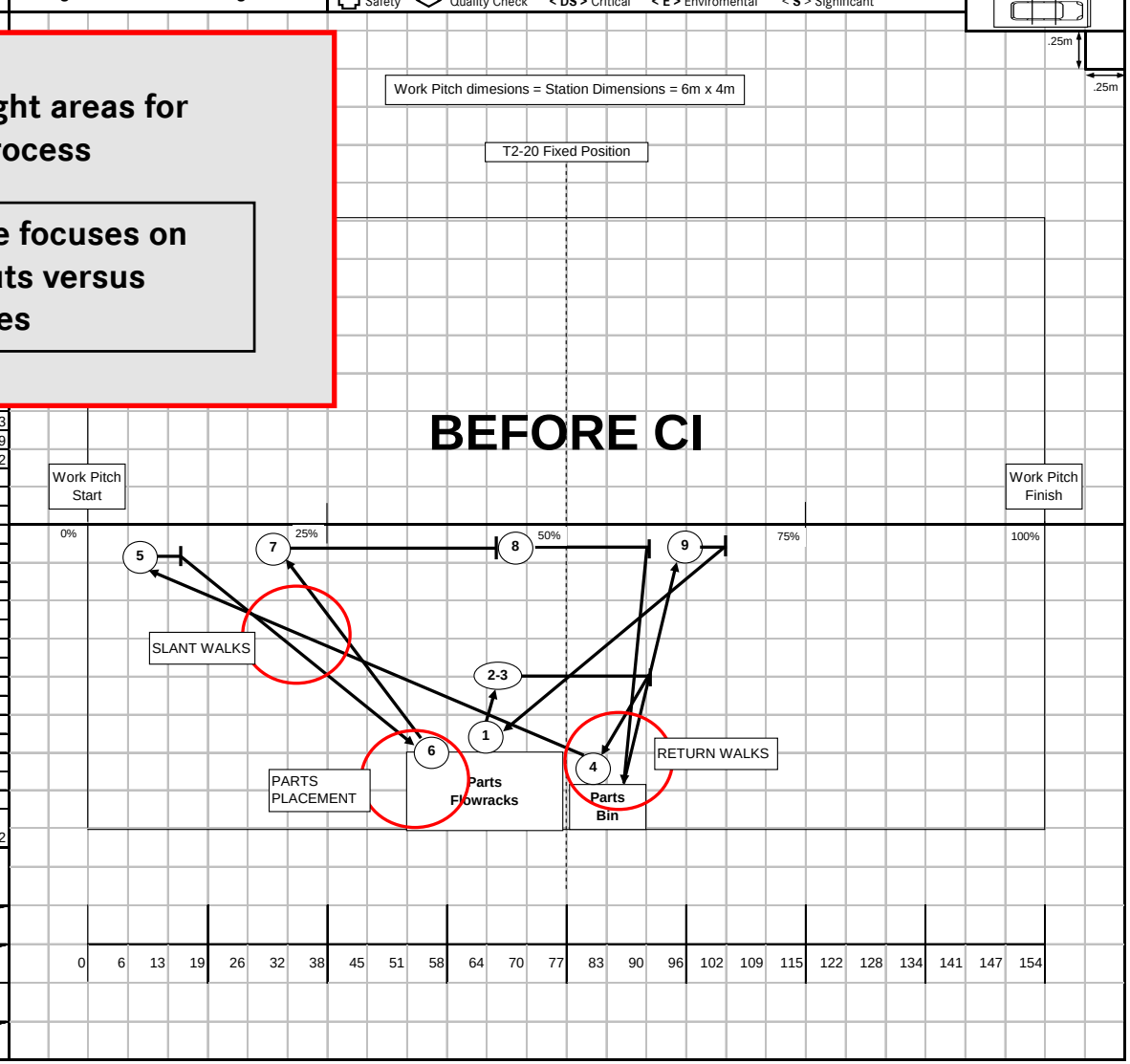
Step No.	Ref. No.							
1								
2								
3	1							
3R	1							
4								
5								
6								
7	2							
8	3							
			WALK and pick up cover				3	123
9			Place in LG floor			6		129
			RETURN WALK				3	132
				Total Time	75	27	30	132

A = Additional Step
R = Replacement Step

Information Block:

Ref. No.	JES No.	Ref. No.	JES No.
1	12345678-01	10	
2	12345678-02	11	
3	12345678-03	12	
4		13	
5		14	
6		15	
7		16	
8		17	
9		18	

Team Leader (A/B)
Group Leader (A/B)
Engineer
Asst. Mgr. (A/B)



Moving Line SMP

Process Name:		Takt Time:
Bumper Bracket Installation		154 secs
Area / Line:	Vehicle Type:	Rev. Date:
Assembly/Trim 2	W163	6/13/2002

Moving Line SMP Visual Diagram

Key Symbols: Safety | Quality Check | < DS > Critical | < E > Enviromental

AFTER CI

1. Reduced Slant Walks (6 ⟶ 3)
2. Moved parts and Separated Flow racks to reduce Return Walks (4 ⟶ 3)
3. Reduced Walk time by 7 seconds, reducing the overall cycle time to improve efficiency.

			WALK				5	47
6		◇	Pick up parts			6		53
			WALK				2	55
7	2	◇	Install bumper bracket		34			89
8	3	◇	Install hooks in liftgate floor		24			113
			WALK and pick up cover				3	116
9			Place in LG floor			6		122
			RETURN WALK				3	125
				Total Time	75	27	23	125

A = Additional Step

R = Replacement Step

Information Block:

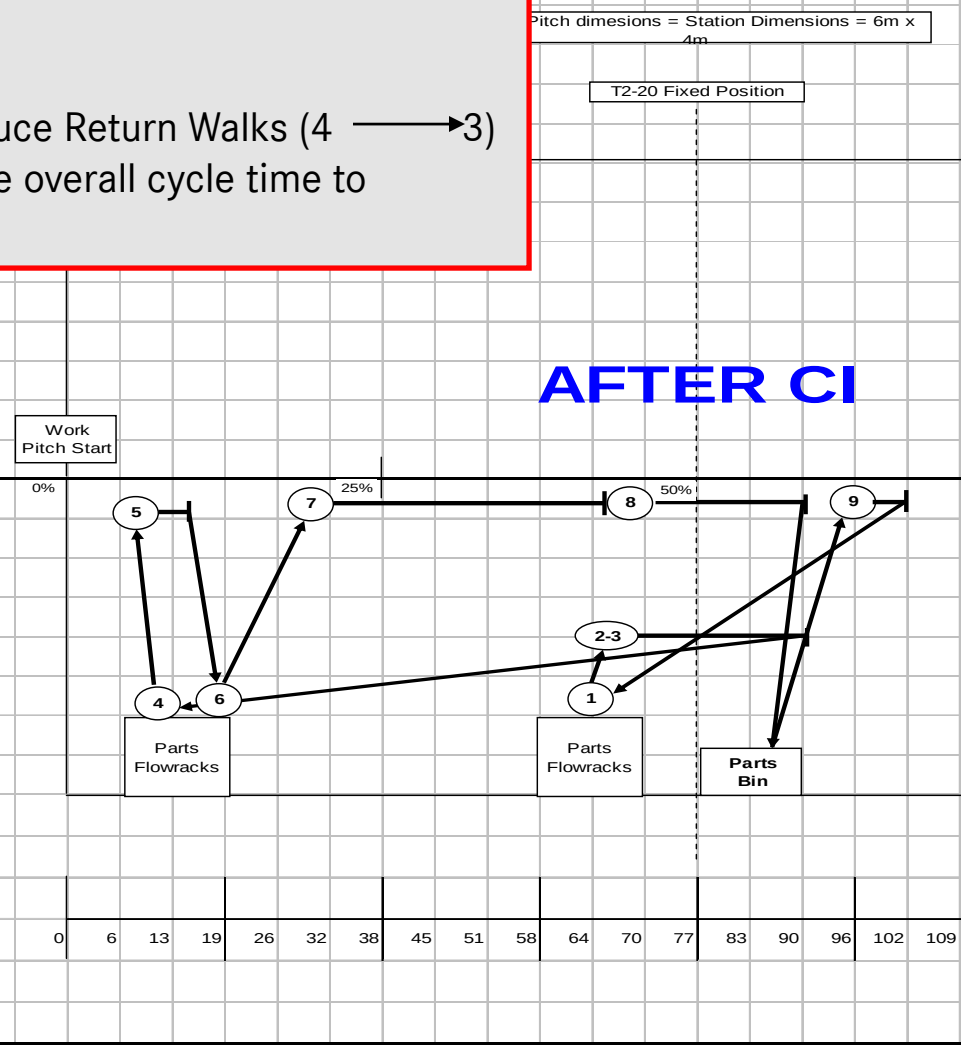
Ref. No.	JES No.	Ref. No.	JES No.
1	12345678-01	10	
2	12345678-02	11	
3	12345678-03	12	
4		13	
5		14	
6		15	
7		16	
8		17	
9		18	

Team Leader (A/B)

Group Leader (A/B)

Engineer

Asst. Mgr. (A/B)



CI Workshops at MBUSI

MBUSI Currently Runs 3 Types of CI Workshops

CI Safety Workshop:

Ensure that jobs can be performed by people in a safe, efficient, effective, and pain-free manner through reduction of ergonomic burden.

CI Quality Workshop: (Being Adapted to Greenbelt Certification – May 2009)

Reduction in Loop 1 or 2 Defects through detailed observation and application of the MBUSI Practical Problem Solving Process.

CI Efficiency Workshop:

Increase efficiency through elimination of waste with the following targets:

- 70% Value Added Work
- 90% Utilization

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Shop CI Workshop Structure

4. Workshop SMP (E, Q, S) (Owner: MPS)

Grasp the Current Condition	Day 1	☐ Meet the team members ☐ Observe the process ☐ Validate the SMP ☐ Perform time measurement
Determine C.I. Target	Day 2	☐ Quantify what can be achieved ☐ Get T/M input and ideas
Trials and Simulations	Day 3	☐ Execute the plan (Both Shifts) ☐ Gauge effectiveness of ideas through simulations
Implement Changes	Day 4	☐ Change layout, modify equipment, improve workflow, information flow, material flow work sequence ☐ Support T/Ms in maintaining production/quality
Present Results	Day 5	☐ Prepare report out material throughout the workshop using "Process Toolbox" tools (Material should be handwritten. Each participant should highlight/demonstrate

1. C I (Monthly) Circle of Skills (Owner: C I Leader)

MPS Standard: CIRCLE OF SKILLS

DEPT:	Paint 2	GROUP:	C I	TEAM:		T/L:		SHIFT:		DATE:	3rd Quarter

STATION

Name	T/M Status	Efficiency	Quality	Safety	Creform	Hand Tools	Machine Shop
Charlie Sellers (27-Feb-07 / 24-Aug-07)	TL	Level 1	Level 3	Level 4	Level 2	Level 3	Level 3
Cristian Hernandez (27-Feb-07 / 24-Aug-07)	TM	Level 1	Level 3	Level 4	Level 2	Level 3	Level 3
Brandi Hartley (06-Aug-07 / 08-Feb-08)	TM						

Team Member	T/M
Team Leader	T/L
Group Leader	G/L
Temporary Team Member	Temp
Hestair	Hestair

Level 1	Level 2	Level 3	Level 4	
basic skills	work with assistance	work w/o assistance	able to train	The box above Circle of Skills shows forcasted date for next level of achievement. Each new forcasted level must be dated. If it's not applicable, leave it blank.

1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		
G/L		G/L		G/L		G/L	AM	Chart to be signed off quarterly by G/L , annually by A/M.
Rodney D. Mines		Rodney D. Mines						

3. Red Dot (Weekly)Schedule (Owner: C I Leader)

CW 35	9/3/2007	Create jig template visual management system at Maclellan [Q]	
CW 35	8/27/2007	Elimination of PVC spits [Q]	
CW 34	8/20/2007	Prep Deck ergo. eval [S] *	
CW 33	8/13/2007	E-coat Sand LH/RH ergo. eval. [S] *	
CW 32	8/6/2007	E-coat Sand Hood, Roof Liftgate ergo. eval. [S] *	
CW 31	7/30/2007	Prime Sand ergo. eval. [S] * / Polish Line ergo. eval. [S] *	
CW 30	7/23/2007	Window Flange Masking ergo. eval. [S] *	Prime tack ergo. eval. [S] *
CW 29	7/16/2007	Confirm standards and eliminate non-value added work in Japanese car processing [Q]	
CW 28	7/9/2007	Elimination of RH quarter panel dirt/defects found in Assembly 2 [Q]	
CW 27	7/2/2007	**Summer shutdown - no activities**	
CW 26	6/25/2007	Elimination of cavity wax buildup on skids [Q]	Basecoat tack-off and Primer tack-off ergo. evil. [S]
CW 25	6/18/2007	Reduction of sanding scratches/spots at Polish Line [Q]	Polish Line 3R/3L and 4R/4L ergo. evil. [S]
CW 24	6/11/2007	Improve internal kick-out process and standards [Q]	Polish Line 1R/1L and 2R/2L ergo. evil. [S]
CW 23	6/4/2007	Improve internal kick-out process and standards [Q]	Prime Sand 1, 2, 3 ergo. evil. [S]

Efficiency	[E]
Quality	[Q]
Safety	[S]
Training	[T]

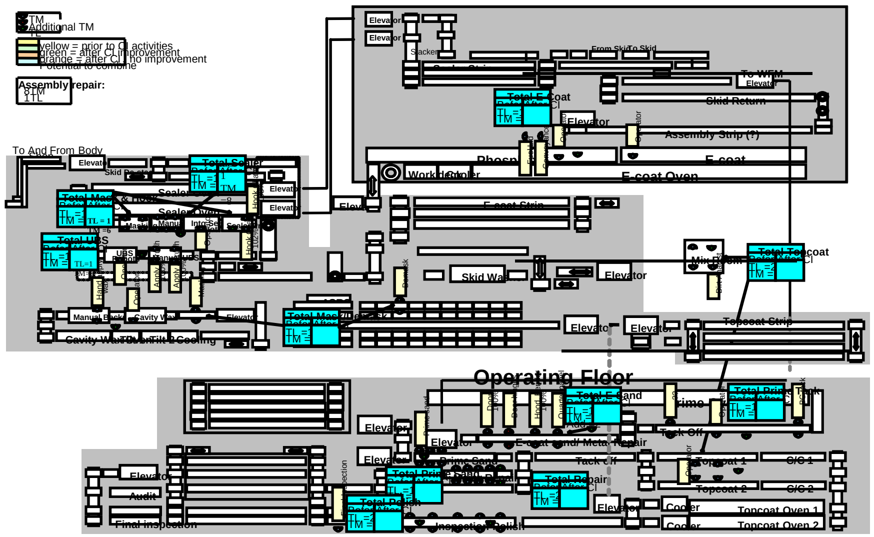
Efficiency [E] or Quality [Q] or Safety [S] Red Dot	Hood/Lift gate jig and lift implementation
Charlie Sellers Cristian Hernandez	Jared Jones

* Re-check, may not require entire week. Once complete, team will move to next area.

CI Group Leader	Engineering / Production Manager

- current

2. Red Dot (Monthly) Map (Owner: Engineering/Quality/Safety)



CI Circle of Skills Chart (Monthly)

MPS Standard: CIRCLE OF SKILLS

DEPT:	Paint 1	GROUP:	C I	TEAM:		T/L:		SHIFT:		DATE:	3rd Quarter

STATION

Name	T/M Status	Efficiency	Quality	Safety	Fabrication	Facilitaion									
Bobbie Billingsley (22-Jan-07 / 14-Sep-07)	TM	◔	◕	●	◔	●	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
Brooke Higdon (16-July-07 / 18-Jan-08)	TM	⊕	⊕	◑	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
Jimmie Hood **(**06-Aug-07 / 08-Feb-08)	TM	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
		⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
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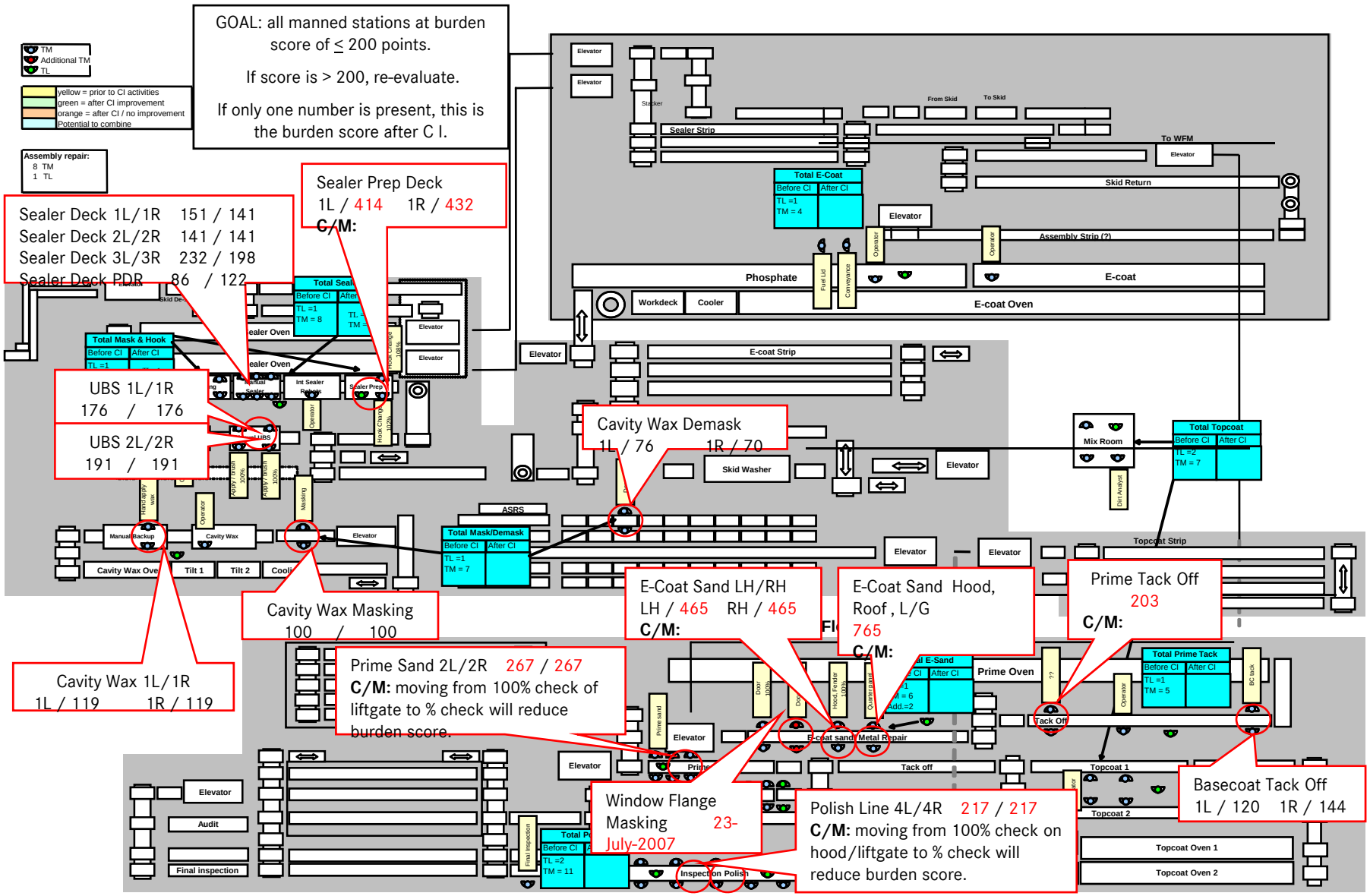
		⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
		⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕

Team Member	T/M
Team Leader	T/L
Group Leader	G/L
Temporary Team Member	Temp
Hestair	Hestair

Level 1 ◔	Level 2 ◑	Level 3 ◕	Level 4 ●	The box above Circle of Skills shows forcasted date for next level of achievement. Each new forcasted level must be dated. If it's not applicable, leave it blank.
basic skills	work with assistance	work w/o assistance	able to train	

1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Chart to be signed off quarterly by G/L , annually by A/M.
G/L		G/L		G/L		G/L	AM	
Rodney D. Mines		**Rodney D. Mines**						

Paint 2 Red Dot Map Safety 2007 Mid-Year Status



CI Workshop Schedule – Body Shop (Weekly)

C.I. Workshop Plan '07

Date	Criteria	Description	Team	Completion
CW 29	Qaulity	Weld Flash 164 Quarter Window	Jimmy/Sid	7/20/2002
CW 30	Quality	Weld flash	Sid/Deborah	7/27/2007
		Fab	Jimmy	
		TPM	Doug	
CW 31	Quality	Weld flash	Sid/Deborah	8/3/2007
		Fab	Jimmy	
		TPM	Doug	
CW 32	Quality	Weld flash	Sid/Jimmy	8/10/2007
	Safety	Z1 sta. 60	Deborah	
		TPM	Doug	
		C.I. training class	Jamey Payne	
		First responder prelim.		
CW 33	Quality	Weld flash 251	Sid/Deborah	8/17/2007
		First responder follow up	Jimmy	
CW 34	Qualitty	Weld flash	Sid/Deborah	8/24/2007
	Safety	Safety carts	Jimmy/Jamey	
CW 35	Efficiency	251 closure mount	Deborah/Jamey	8/31/2007
	Safety	Safety carts	Sid/ Jimmy	
CW 36				
CW 37				
CW 38				

Hayes

Gilliam

Key Point: Needs to be 2 week in advance of current week.

CI (Daily) SMP

Each Workshop has a specific SMP

Grasp the Current Condition	Day 1	☐ Meet the team members ☐ Observe the process ☐ Validate the SMP ☐ Perform time measurement ☐ Complete burden analysis ☐ Identify wasted and C.I. points ☐ Visualize time measurement data using Balance Table ☐ Meet with G/L and Support Team
Determine C.I. Target	Day 2	☐ Quantify what can be achieved ☐ Get T/M input and ideas ☐ Identify obstacles to reaching the target & countermeasures ☐ Create a plan for trials and simulations ☐ Meet with G/L and Support Team
Trials and Simulations	Day 3	☐ Execute the plan (Both Shifts) ☐ Gauge effectiveness of ideas through simulations ☐ Demonstrate the benefit of changes, gain buy-in ☐ Gather T/M feedback ☐ Meet with G/L and Support Team
Implement Changes	Day 4	☐ Change layout, modify equipment, improve workflow, information flow, material flow work sequence ☐ Support T/Ms in maintaining production/quality ☐ Confirm the impact of the changes ☐ Refine the changes ☐ Capture the improvements by modifying the SMP, JES, TPM, PM with ownership from appropriate sources ☐ Submit Process Change Request/Linefeed Changes ☐ Meet with G/L and Support Team
Present Results	Day 5	☐ Prepare report out material throughout the workshop using "Process Toolbox" tools (Material should be handwritten. Each participant should highlight/demonstrate implemented improvements). ☐ Collect and display before and after data from both shifts ☐ Review/present open and follow-up items (What, Who, When)

Summary

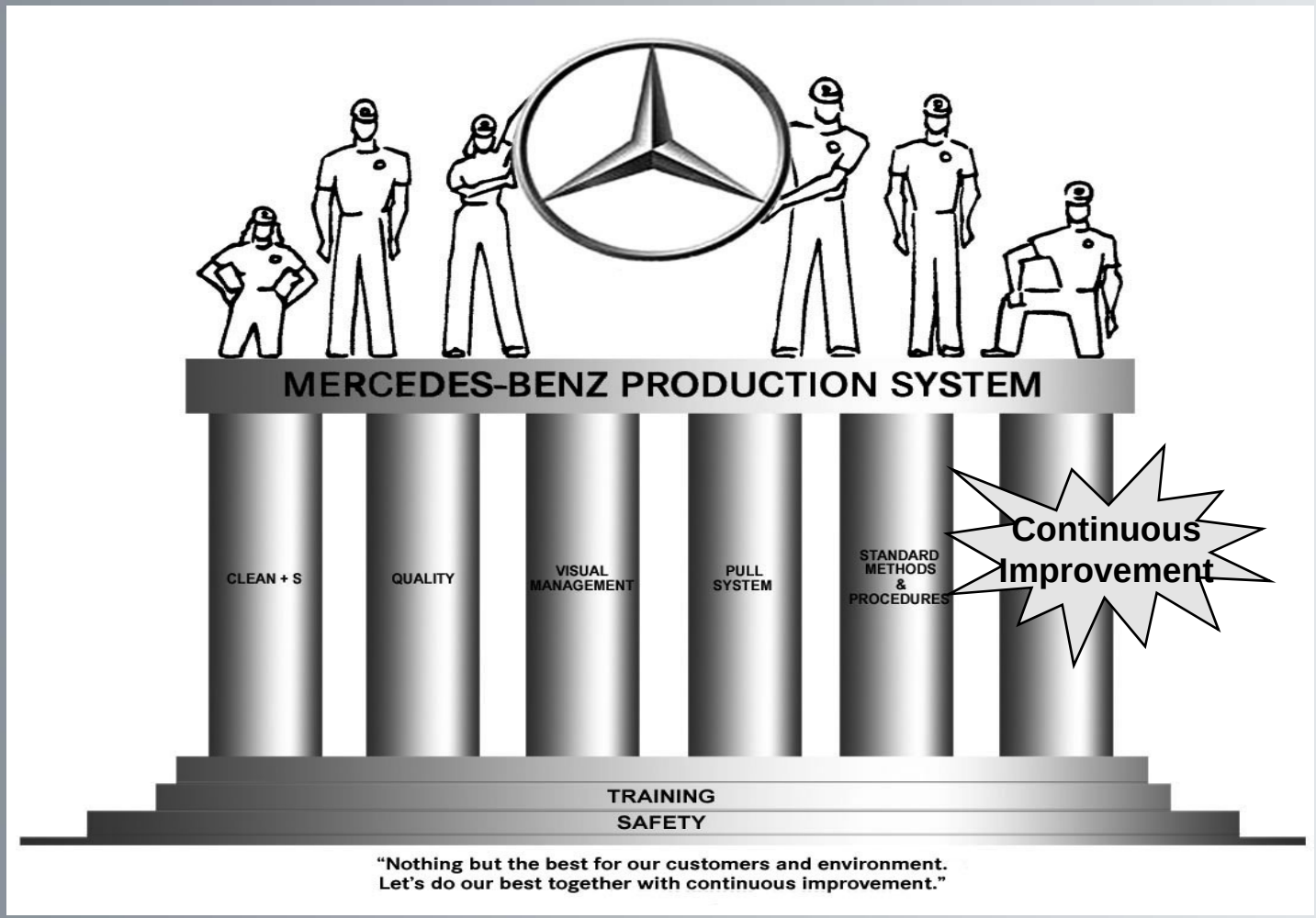
Continuous Improvement has **always** been a key part of how MBUSI does business,

AND

MBUSI has **always** been the leader for Continuous Improvement within the Mercedes Car Group.

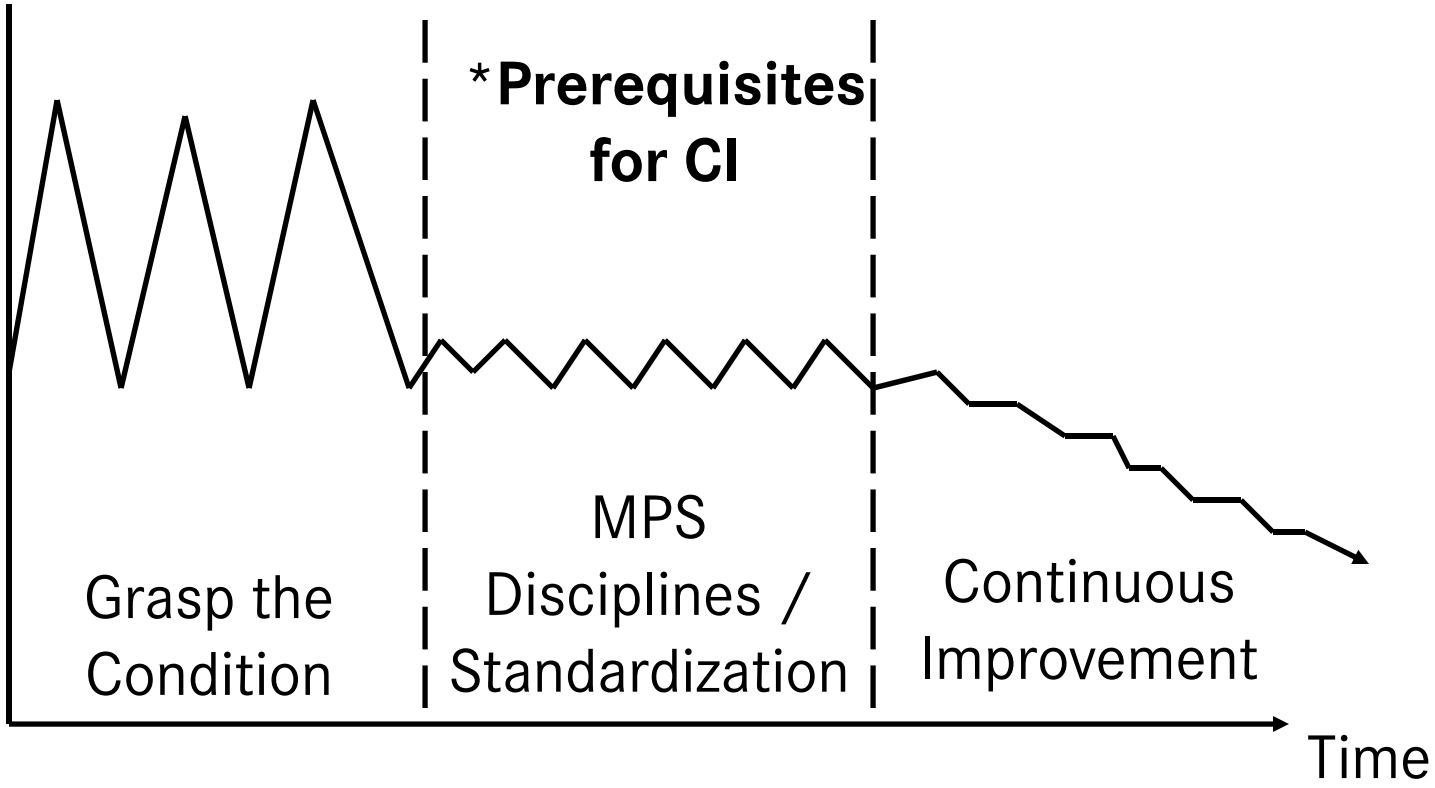
Our task is to ensure that we continue this in the future!

Mercedes-Benz



Continuous Improvement – Role of Management

Continuous Improvement – Are We Ready?



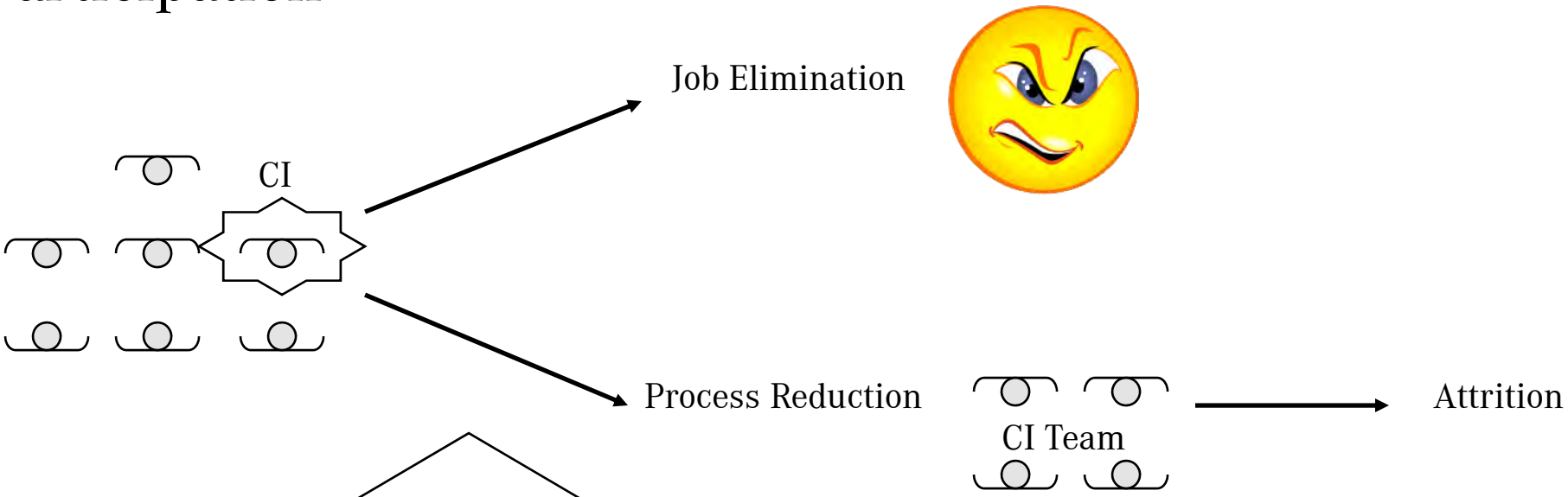
Continuous Improvement Philosophies

- Many small improvements can have a greater impact than few major improvements – 100% Participation
- Continuous Improvement is **Everyone's** responsibility
- A Way of Thinking **not** a Program
- Our daily work
- Our greatest avenue to ensure job security

Continuous Improvement – Create the Environment for CI

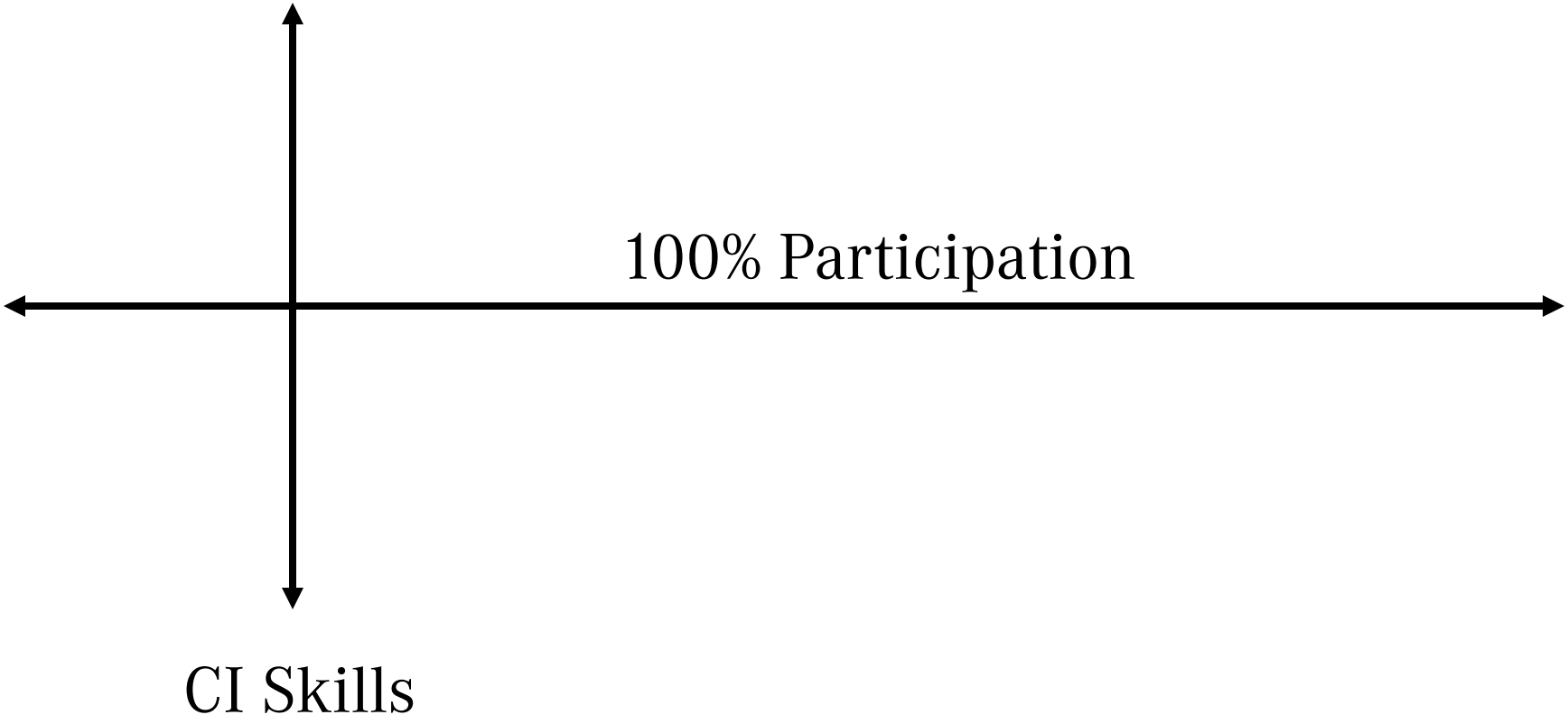
- Okay to fail/have Courage – Try new ideas that might not be successful
- Celebrate Success – CI should be motivational experience
- Visible Support
- Align resources to the priority – Speed!
- Challenge your organization to create the need for CI. Never accept steady state.
- "Stretch" Your Team
- Train, Train, Train
- Don't walk by a problem

Continuous Improvement – Creating Motivation for 100% Participation



Why Do I Want to Support / Participate in Continuous Improvement?

Continuous Improvement – Skill / Participation Balance



Continuous Improvement – Creating the Environment for CI

“Management Fuel”