



CANADIAN
MANUFACTURERS
& EXPORTERS

Introduction to Lean Information Session

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TRAINING SERVICES

Vision statement:

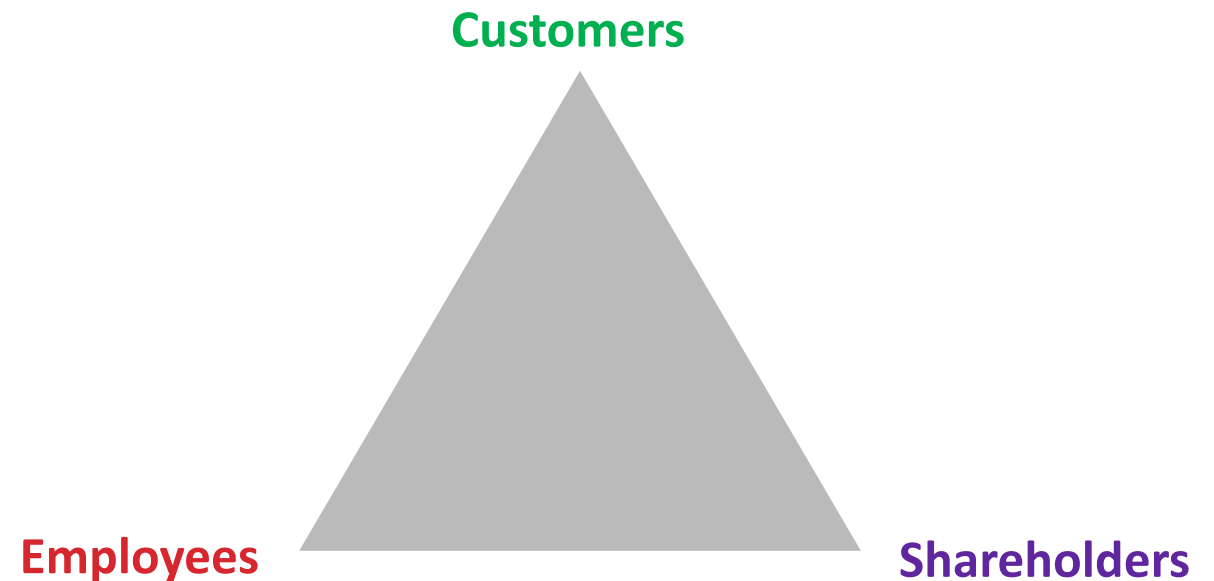
CME Training Services, built to offer consistent and standard training to manufacturers delivering organizational value and benefit helping them to compete and grow

WHY LEAN?

Shareholders want a greater return on investment...

Customers want better, faster, cheaper...

Employees want to add value...



FOCUS ON PROCESS

“Managers must change from the habitual focus on **results** to a different and less obvious focus on **process**”

David Mann - Creating a Lean Culture



THE TOYOTA WAY

“Everything we do is for the purpose of showing us where the problems are.

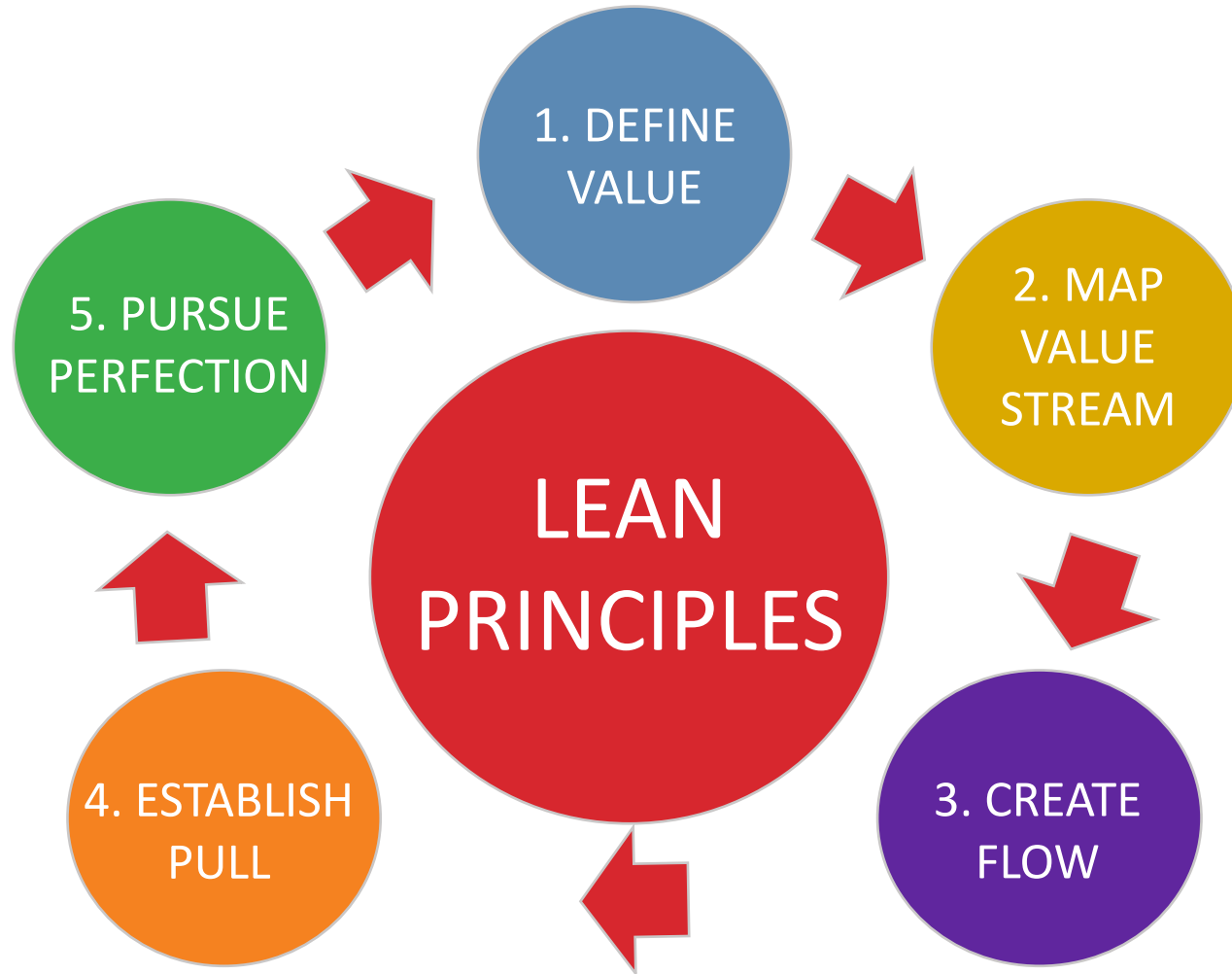
We must constantly identify problems, find their causes and solve them in order to improve for the long-term.”

David Meier - Toyota Talent



Toyota Assembly Plant

FIVE PRINCIPLES OF LEAN THINKING



Womack and Jones - Lean Thinking

FIVE PRINCIPLES OF LEAN THINKING

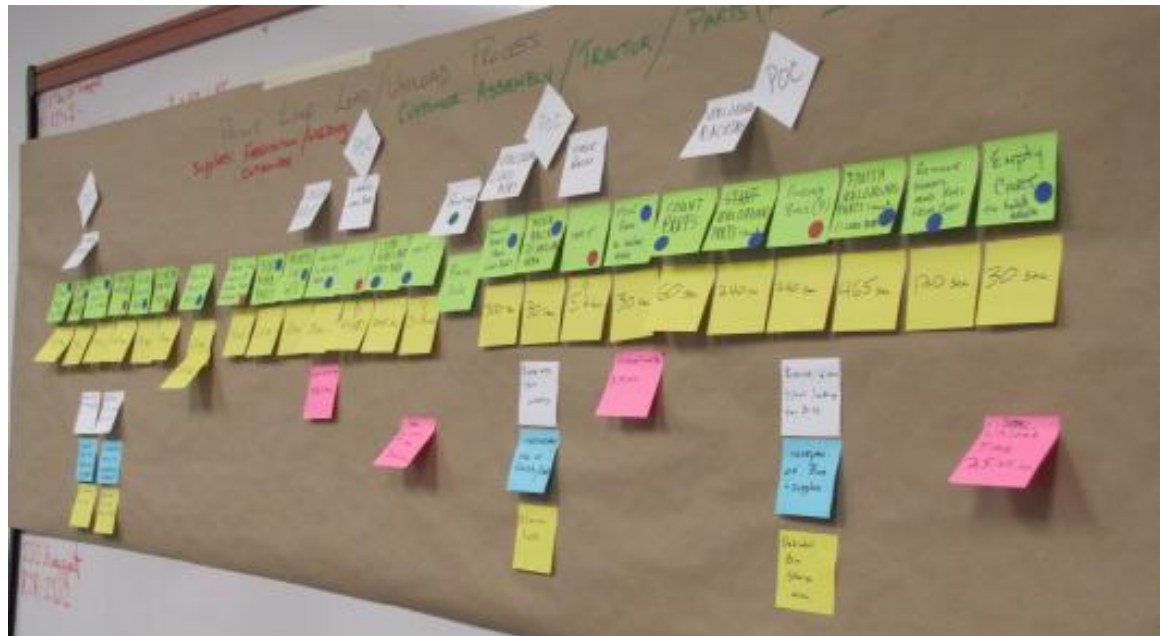
DEFINE VALUE - The only perception of value that matters, is the perception held by the customer

$$\text{Value} = \frac{\text{Quality} + \text{Service}}{\text{Cost}}$$

Womack and Jones - Lean Thinking

FIVE PRINCIPLES OF LEAN THINKING

MAP THE VALUE STREAM - Map the value stream – keep it simple & involve those who work the process... help them to see



Process Steps



Cycle Times



Constraint
Root Cause
Solution



“Wherever there is a customer, there is always a value stream...**your challenge is to see it.**”

Womack and Jones - Lean Thinking

FIVE PRINCIPLES OF LEAN THINKING

CREATE FLOW - Create flow – make everything flow without interruption...
stoppages collect cost, errors and waste



Womack and Jones - Lean Thinking

THE TOYOTA WAY

“All we are doing is looking at the time line from the moment the customer gives us an order to the point when we collect the cash.

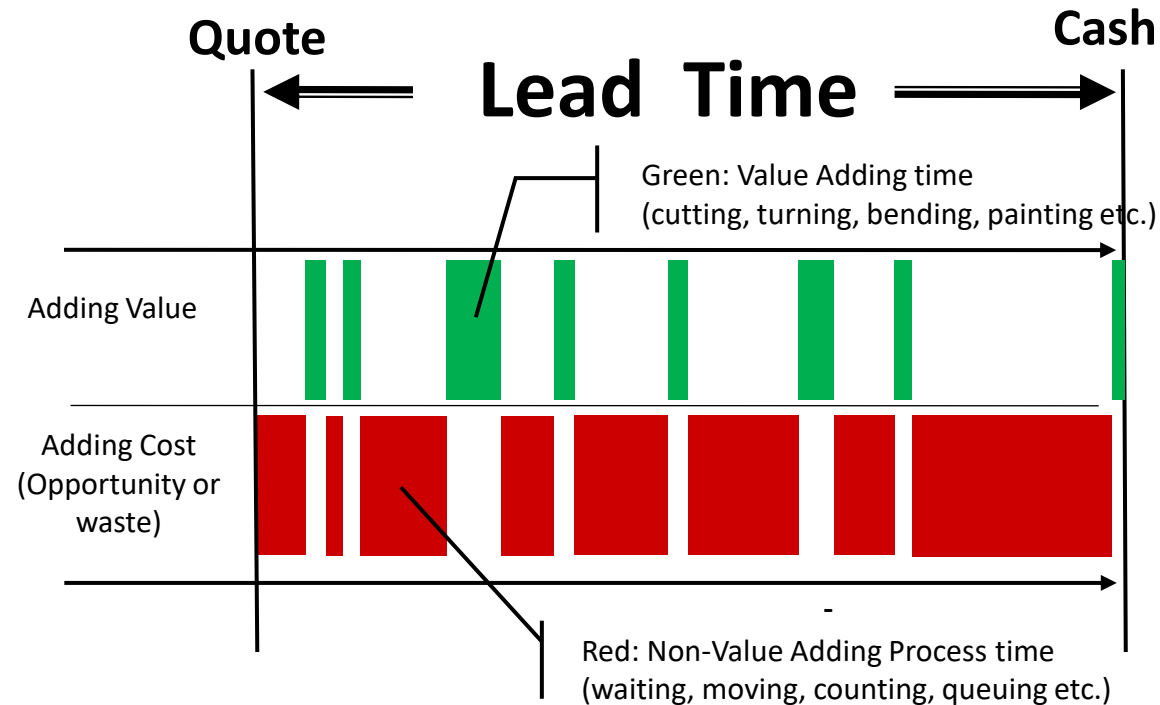
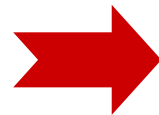
And we are reducing the time line by reducing the non-value adding wastes.”



Taiichi Ohno

HOW LEAN THINKERS THINK

Thinking Lean begins by focusing on these spaces



More than 95% of total lead time
is usually *non-value adding* time [SME]
[Of remaining 5% ~ 2.5% is NVA but necessary ~ Hence 2.5 is VA]

EIGHT FORMS OF WASTE

T



TRANSPORTATION
Moving items or information

I



INVENTORY
Items or information that customer has not received

M



MOTION
Excessive movement within workspace

W



WAITING
Waiting for information or items to arrive

O



OVERPROCESSING
Doing more than is necessary

O



OVERPRODUCTION
Doing work before it is needed

D



DEFECT
Mistakes and errors that need to be reworked

S



SKILLS
Not using workers to fullest of abilities

THE TOYOTA WAY

Average Person
+
Standardized Work Environment
+
Challenge
=
Performance Excellence

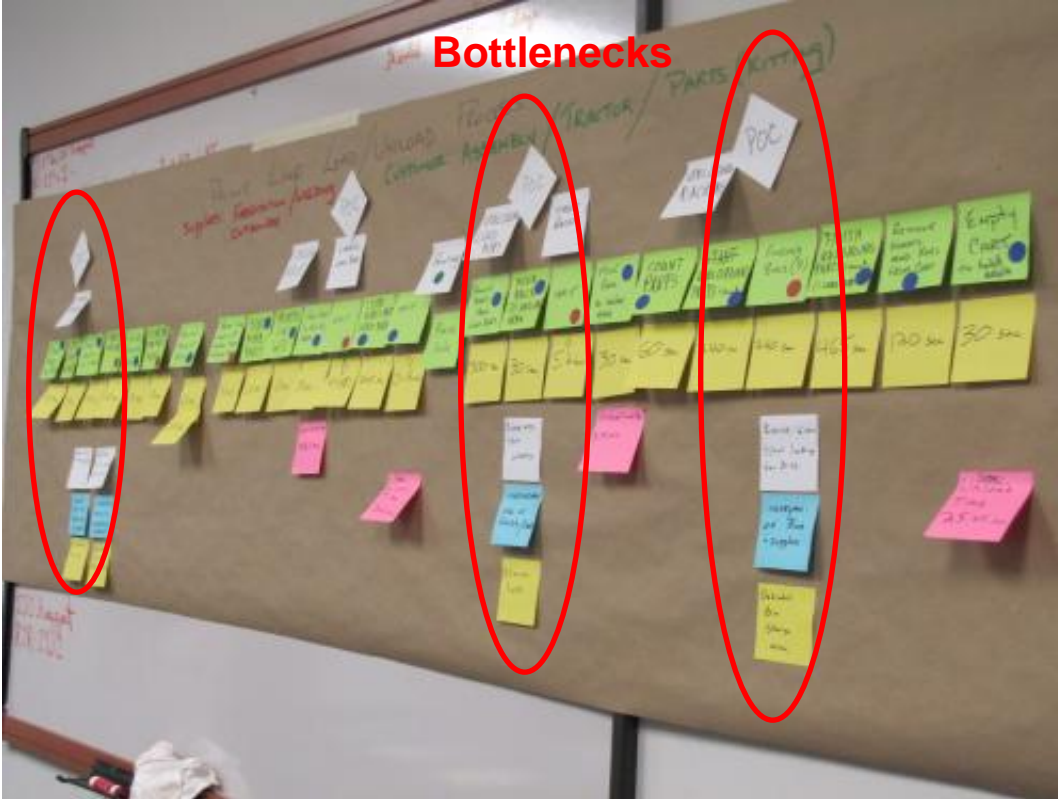
FIVE STEP PROBLEM SOLVING METHOD



← Day 1 → ← Day 2 → ← Day 3 →

Three-day Kaizen Blitz or Rapid Improvement Project

CLARIFY THE PROBLEM



Process Step



Cycle Time



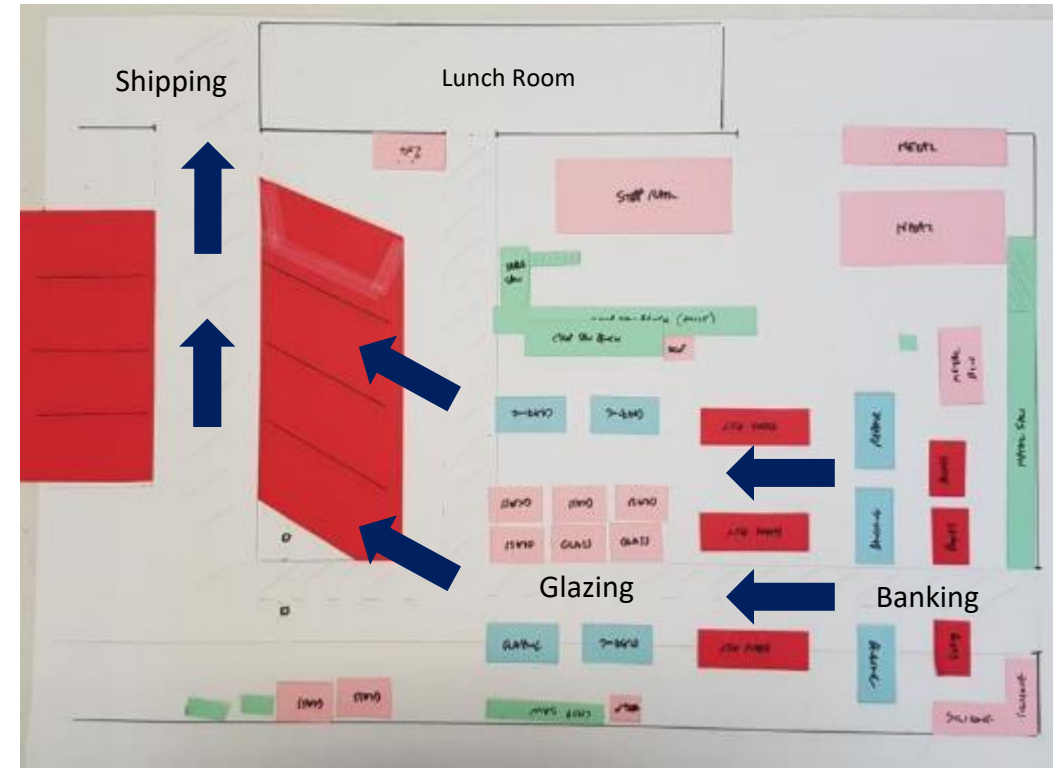
Constraint
Root Cause
Solution



KAIZEN BLITZ RESULTS – CYCLE-TIME REDUCTION



Order processing reduced from 7 days to ½ day through elimination of batching!



Custom window throughput time reduced 50% and productivity increased 100% through line-balance and flow!

5S METHODOLOGY



KAIZEN BLITZ RESULTS – 5S

Before



After



DAILY IMPROVEMENT



Paint protector

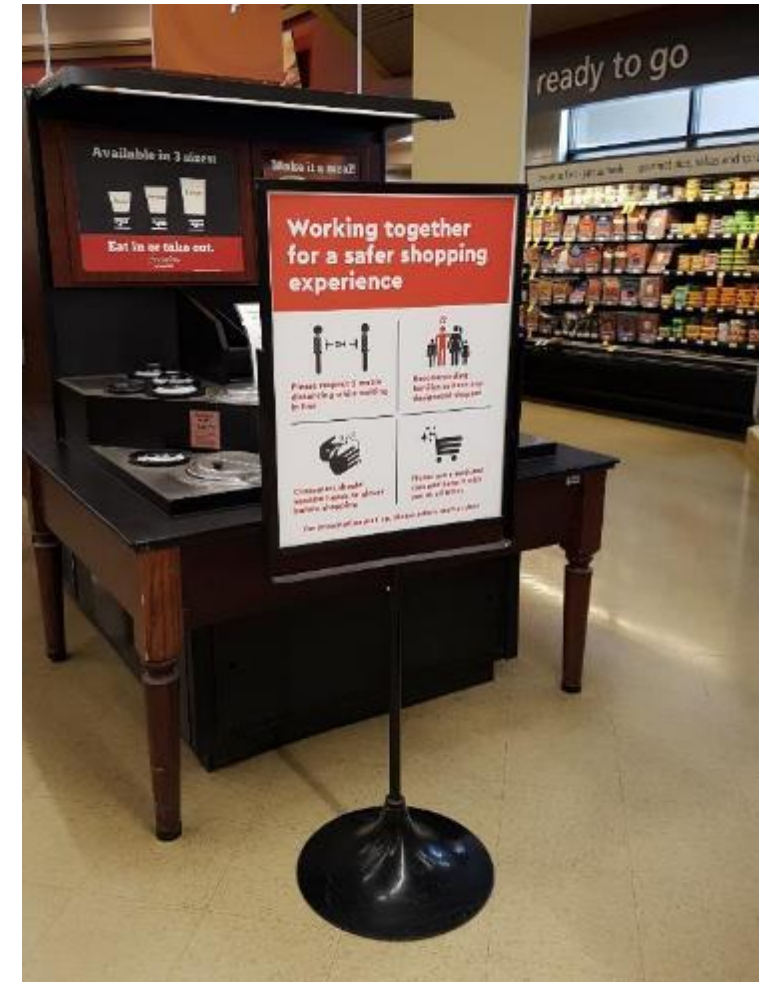
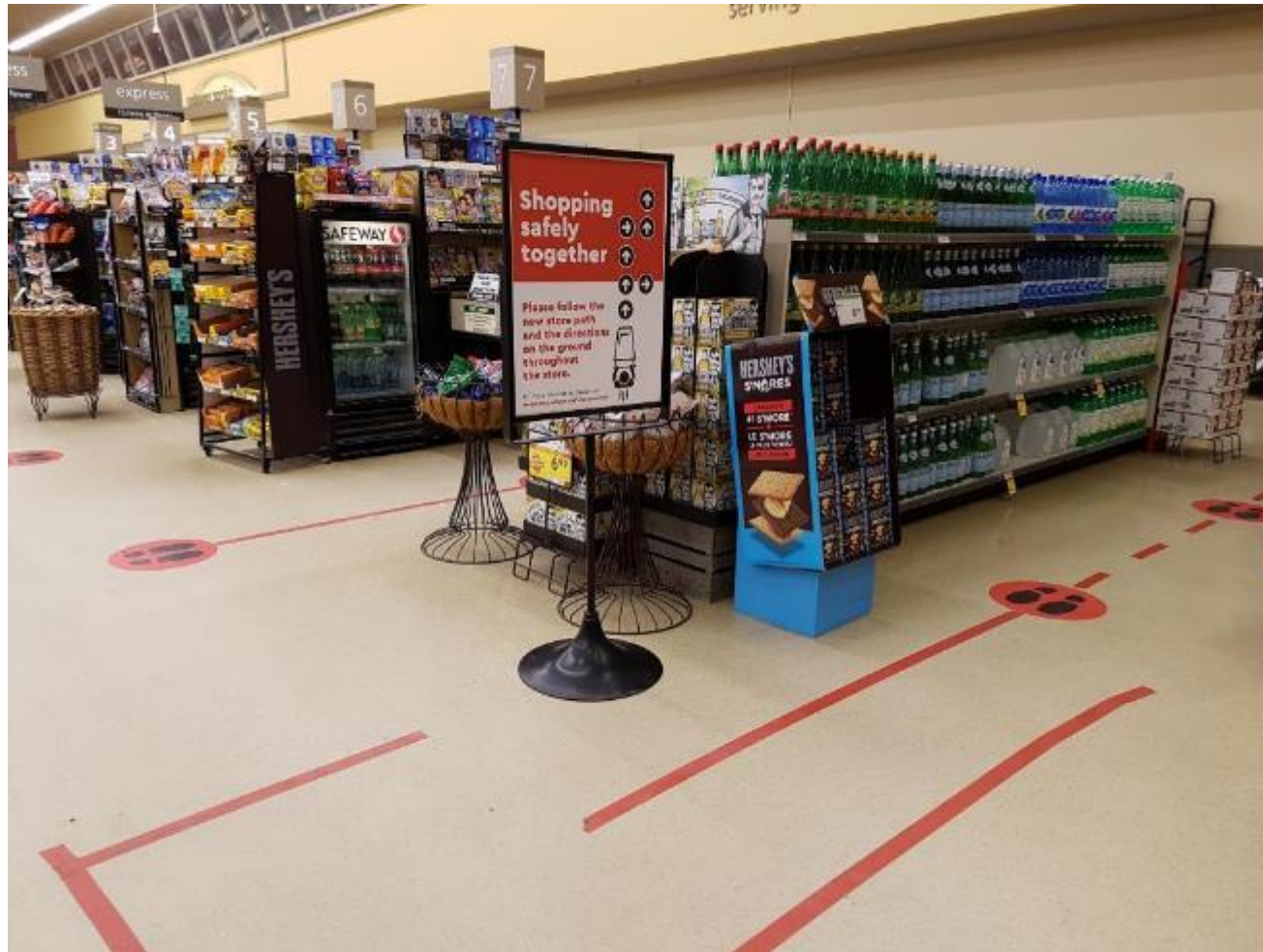


Sequencer



Place marker

THE VISUAL WORKPLACE



LEAN IN JAPAN



LEADER STANDARD WORK

Go to visuals regularly to verify they are being completed

Conduct Standard Accountability meetings around visuals

- Ask about 'misses'
- Make assignments and act on the misses
- Follow-up on assignments



David Mann - Creating a Lean Culture

STEPS TO IMPROVEMENT



5S in the office



VSM



Daily Huddles

Visual Workplace

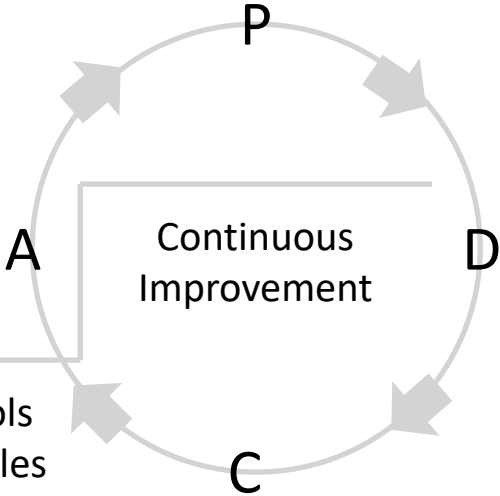
VSM/Process Improvement & TWI JI

5S

Standardized Work

Visual Controls & Daily Huddles

Lean Management



“Begin with stability producing Lean projects and use them to prepare the ground for Lean management”
David Mann- Creating a Lean Culture

IS THIS SHOP READY FOR LEAN + ADVANCED MANUFACTURING?

Tools organization matched to work orders



Pencil sharpener supporting data collection

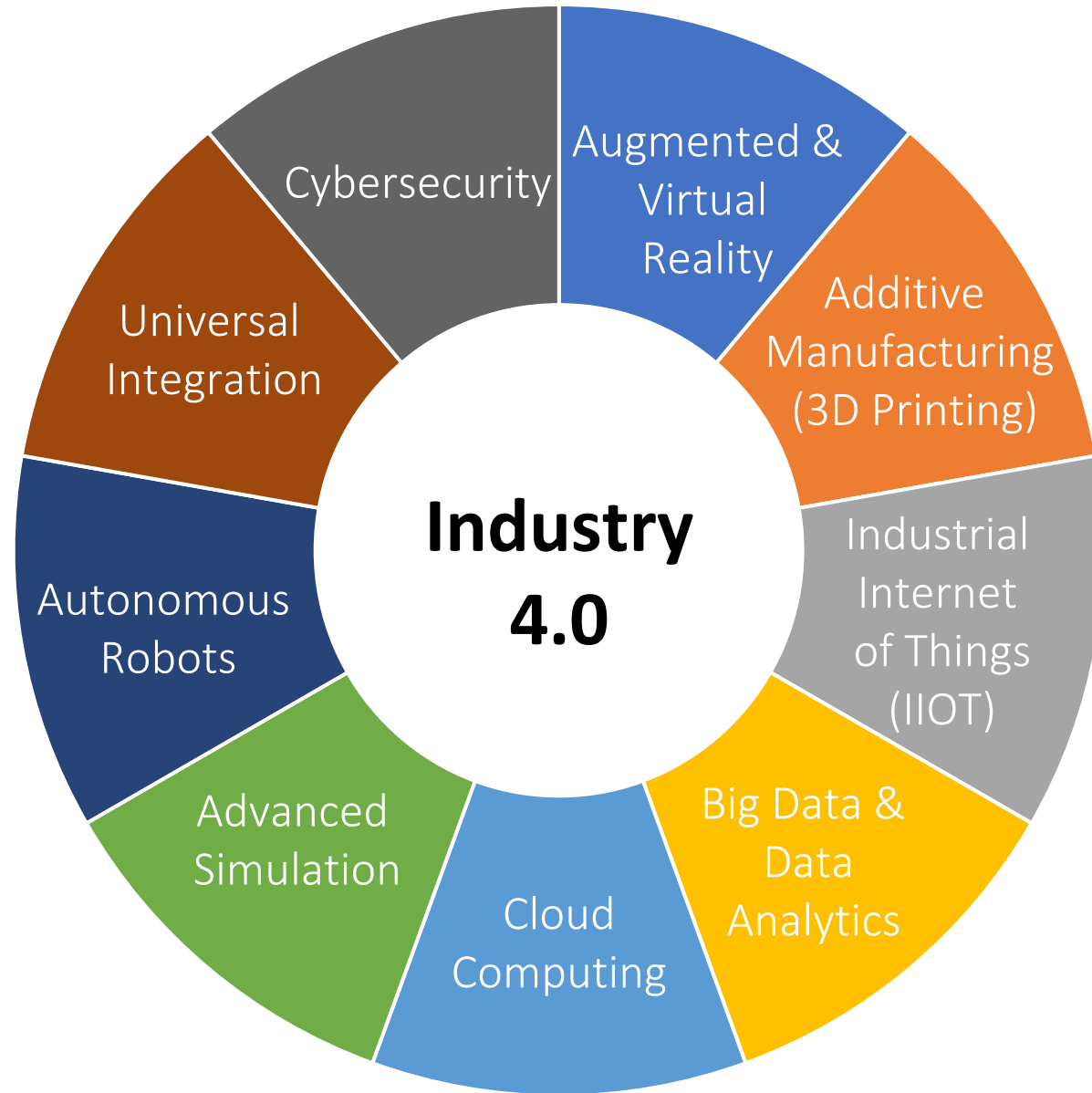
Work flow controlled by Grey boxes (KANBAN)

- Well-organized machine shop! It is OBSERVABLE and STABLE

Lean is Just the Beginning!

Effective and Efficient Transition to Technological Solutions Starts with Lean and Lean Culture!

Nine Pillars of Industry 4.0



TECHNOLOGY ADOPTION

The winners will not be determined by who has better technology, but who is better able to:

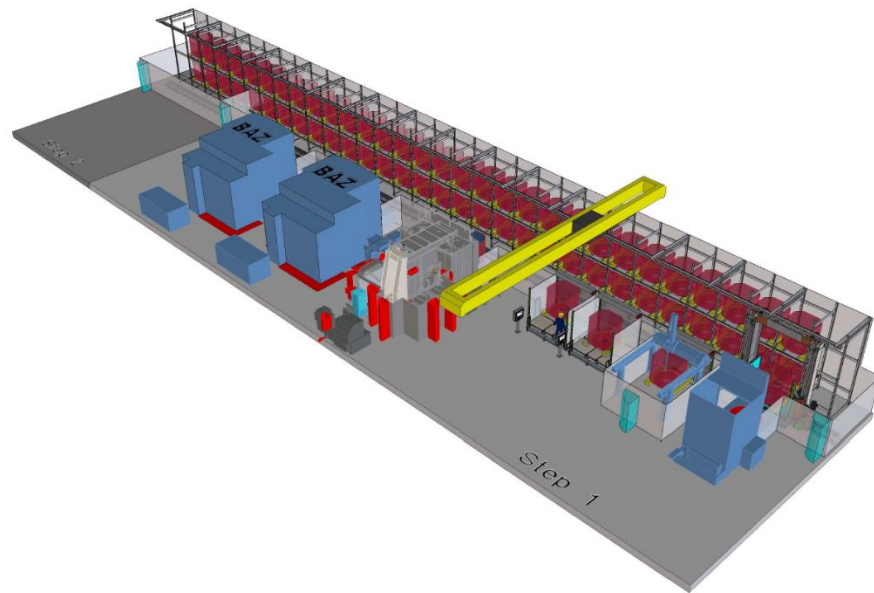
- adapt the new technology to transform the dynamics of their current system
- provide products and services that are easy to incorporate into their customer's existing systems

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Improvement Initiatives			
1	MOS™ Score	Performance: 93%	Process: 88%
2	Delivery	Increased monitoring of backlog hours and dept. utilization & efficiency. Focused on: arrears reduction & On Hold WIP.	
3	Quality	<p>Quality Clinics Goal 2023: 24 (one per Business Unit per Month) 8 Quality Clinics completed in Q2 2023 (20 YTD)</p> <p>Countdown to Zero Defects – Level 1.0 average over 12 months Goal: Achieve Level 0.8 by 2023-Dec-31</p>	
4	Lean/Six Sigma	<p>CI Events Goal 2023: Qty 24 CI Events (14 YTD)</p> <p>3 - Transformation project Kaizen events (3 YTD)</p> <p>4 - 6S events (4 YTD)</p> <p>1 - TPM events (2 YTD)</p> <p>9 - CME MCSI Events</p>	
5	Cost Reduction	<p>Active projects/activities on F35 H/Tail & F414 Exhaust Frame (total of 11)</p> <p>2023 Cost Savings Budget = \$1,400K / 2023 Cost Savings Actual YTD = \$429K</p>	
Human Resources			
1			
2			

Magellan Winnipeg

Capital Investment / Industrialization	
1	Automated Cloth Cutter/Picker (\$1,902K) – Site Acceptance Test complete – Qualification activities underway. Spar qualifications Complete / All programming / FAI complete and approved.
2	New Trumpf 5-Axis Laser (\$2,300K) – 12 part FAI's complete. Net shaped programming underway for RM12 & F414
3	Rockwood magazine Farm - CEA Approved, construction has begun (piles/foundation) - \$5,500K (\$2,000 for 2023).
4	PAR Laser NDI Upgrade CEA submitted and approved for 2023 - \$2,000K
5	Mill/Turn/CMM and FMS cell CEA submitted - \$25M planned for 2024/2025/2026



Mill/Turn/CMM/Wash & FMS Cell

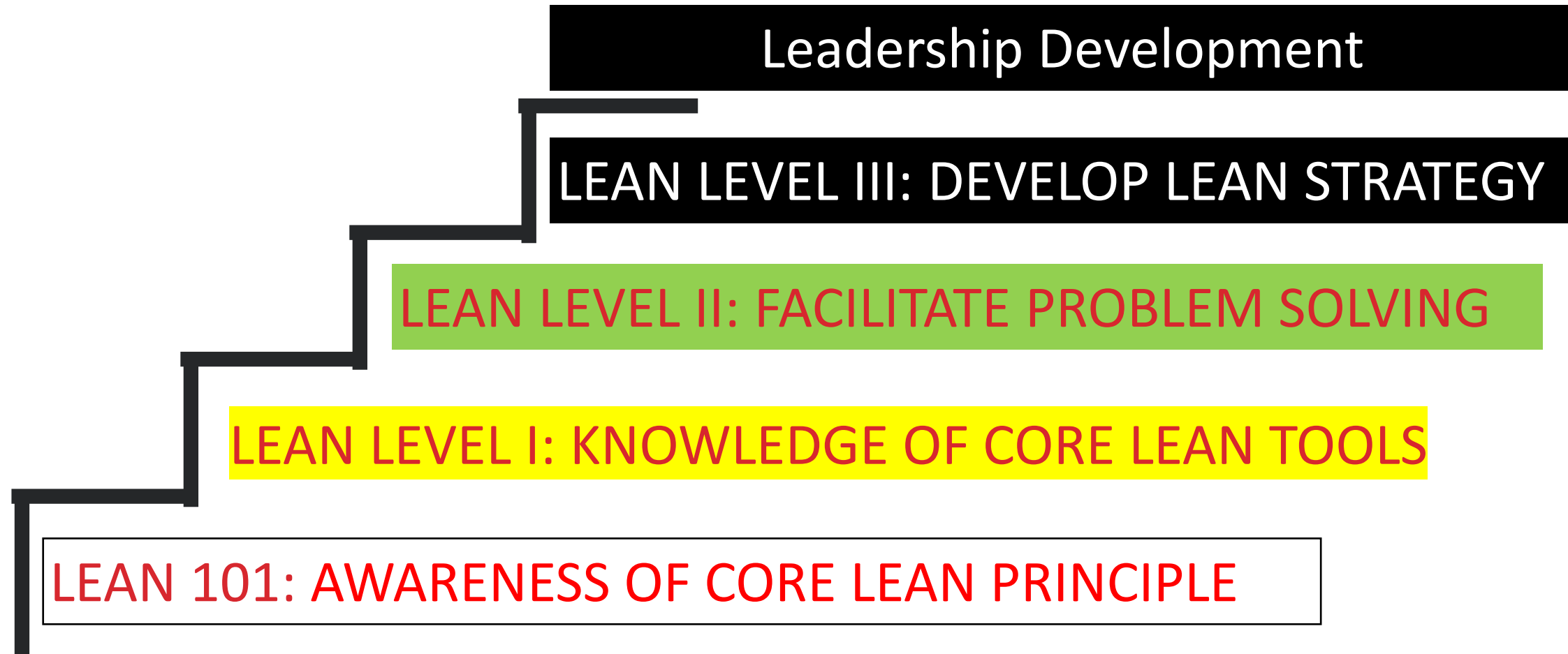


New 5-Axis Laser!



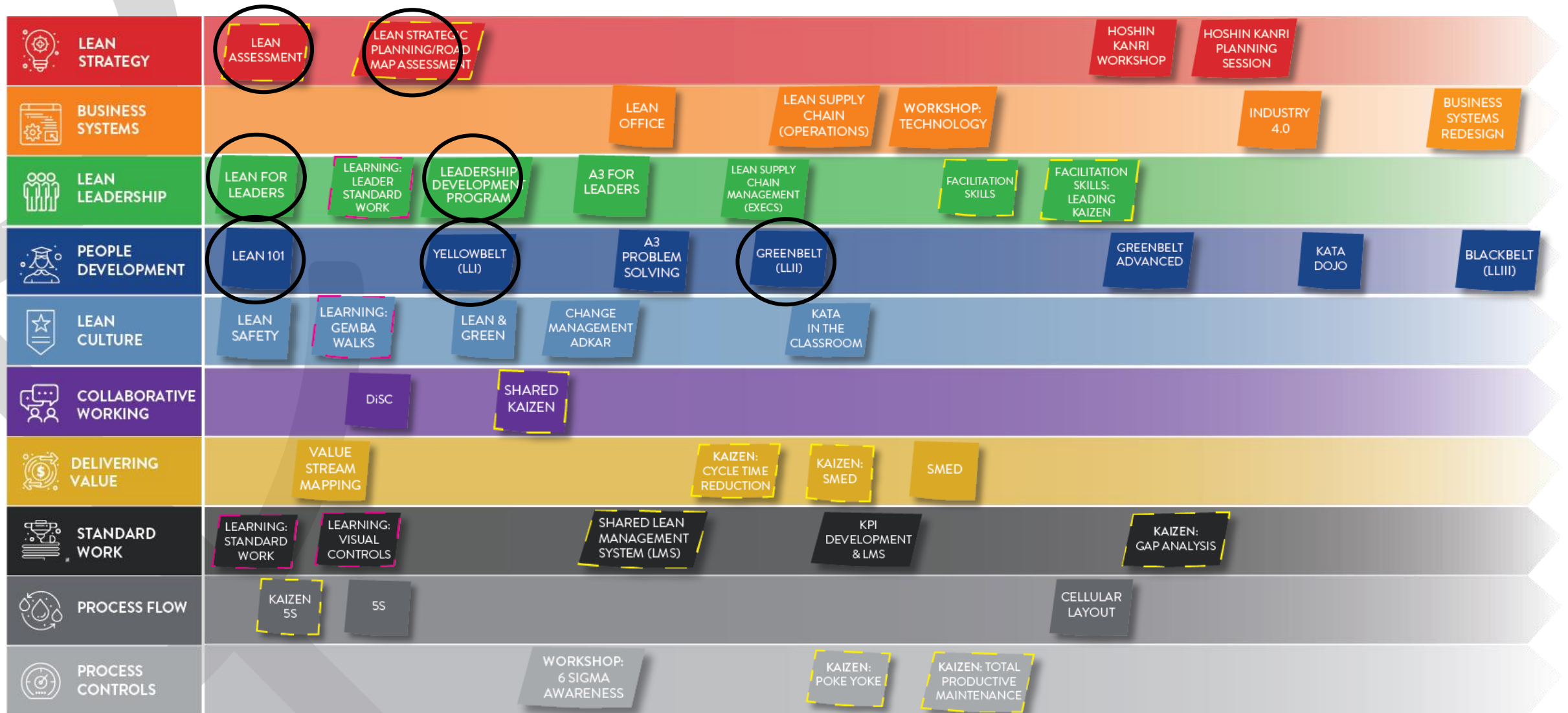
HOW TO PROCEED?

CME CERTIFICATION LEVELS



Safety

LEAN JOURNEY MATURATION



NO OUTLINE – CME course offerings

YELLOW OUTLINE Optional consulting and/or facilitator days

PINK OUTLINE Available as video learning

Lean Development

Lean 101 – 1 day awareness workshop. Builds awareness and common understanding of Value vs. Waste

Lean Yellowbelt – 5 day Certificate Program. Gives participants the skills to own improvement and actively contribute to Lean transformation

Lean Greenbelt – 15 day Certificate Program. Develops Lean Facilitators with the skill to lean Kaizen Teams

Lean 101 for Leaders – 1 or 2 day awareness workshop. Lean to support

7 day Lean for Leaders – Executive Lean Training. Combines Lean 101, Lean YB, Lean Greenbelt and Leadership

Scheduled Programs

Lean 101 – Available online regularly. Private delivery also available

Lean Yellowbelt – Next Session in Ontario, Feb 7, 8, 21, 22.

Lean Greenbelt – Being scheduled for October 2024

Lean 101 for Leaders – Private delivery available

7 day Lean for Leaders – Private delivery available. Will also schedule a public session once we have enough interest.

Questions? 10 mins for Q&A



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