

Hong Kong Society for Quality

Lean Management Principle & Practice

Mike Sheahan

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www.iscea.hk

Speaker's Introduction

Mike Sheahan, CLM, CFPIM, CIRM, MBA is an ISCEA CLM and APICS Certified Instructor who has helped many organizations with ERP assessments and implementations, educational programs, and lean initiatives.

He is a former International President of APICS and is a frequent conference presenter in the world.

The World Class Imperative

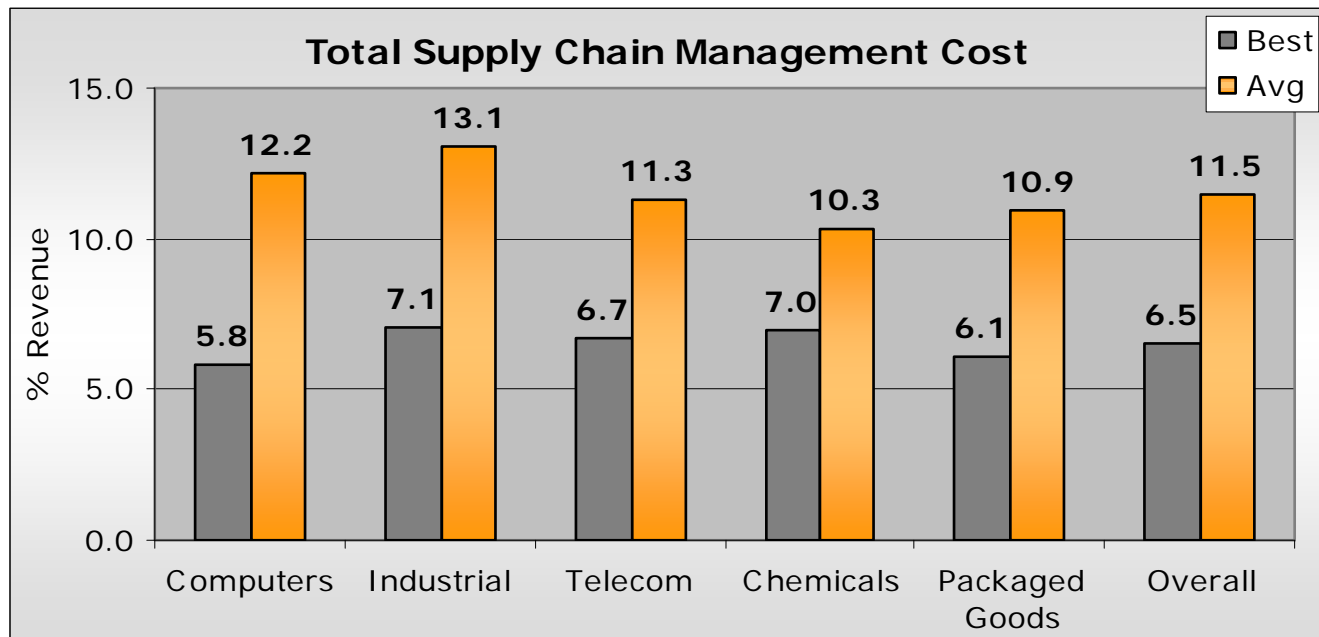
Business Strategy

Supply Chain Capabilities

Market Leadership

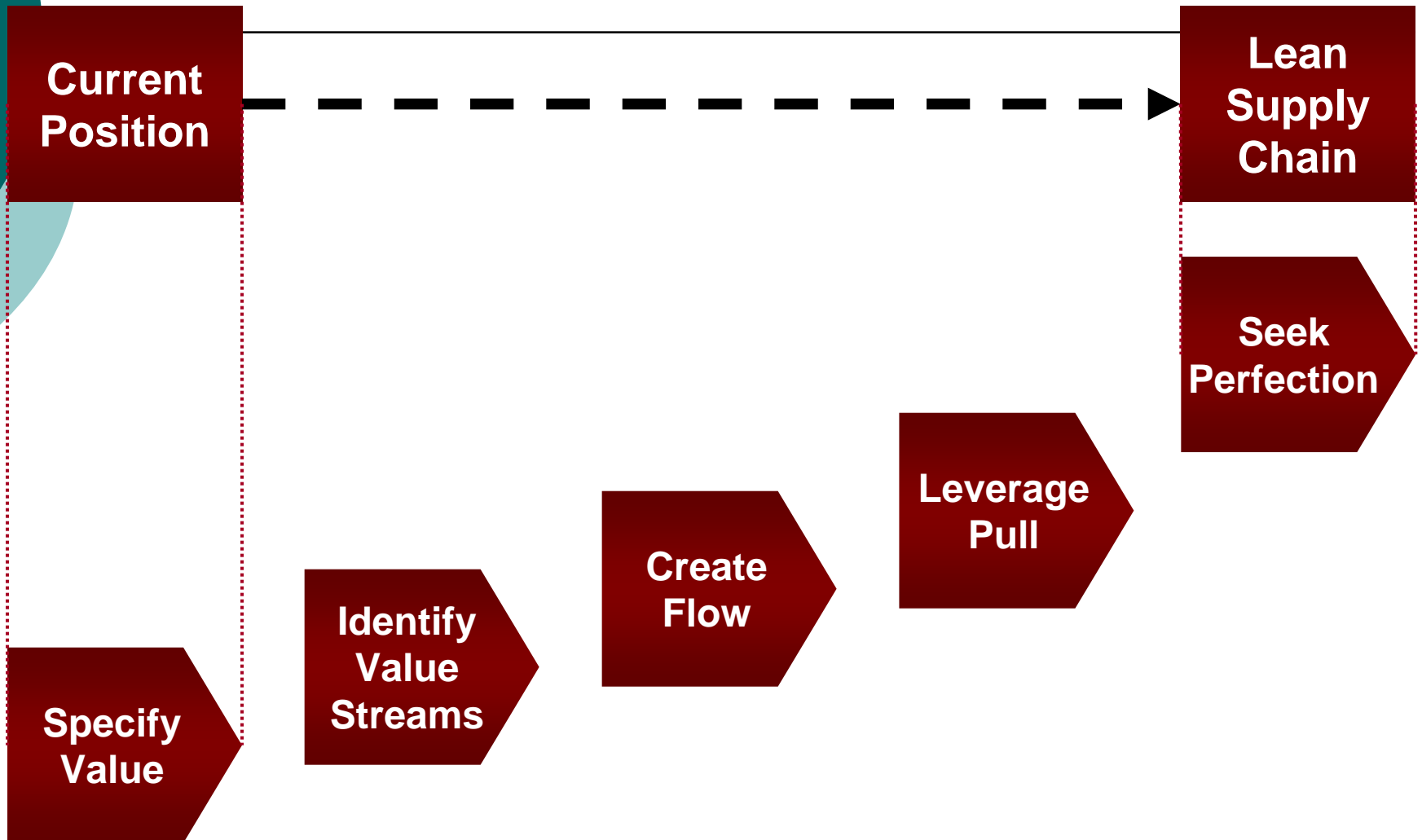
Profit Advantage

75% Higher Profits*



*Supply Chain Management Review, Survey of 110 companies in five sectors

The Lean Journey



1. Specify Value

Value Definition

Waste Elimination

A Difference?

External Customer

Internal Customer

VA, BVA, or NVA?

VA

Value Added

BVA

Business Value Added

NVA

Non-Value Added

Cost Reduction - Two Approaches



Value Added Ratios

| Operational time | | Lead time |
|--------------------|-------------------|------------------------------|
| Shear 10 blanks | = 15 mins | 1.0 day |
| Punch 10 blanks | = 30 mins | 1.0 day |
| De-burr 100 parts | = 10 mins | 0.5 day |
| Form 100 parts | = 40 mins | 1.0 day |
| Hardware 100 parts | = 15 mins | 1.5 day |
| Pack 100 parts | = 10 mins | <u>0.5 day</u> |
| Total | = 120 mins | 5.5 days (7,920 mins) |

120 operation minutes is 1.5% of the total lead time of 7,920 minutes → a ratio of 1 to 66!

What Drives Large Ratios?

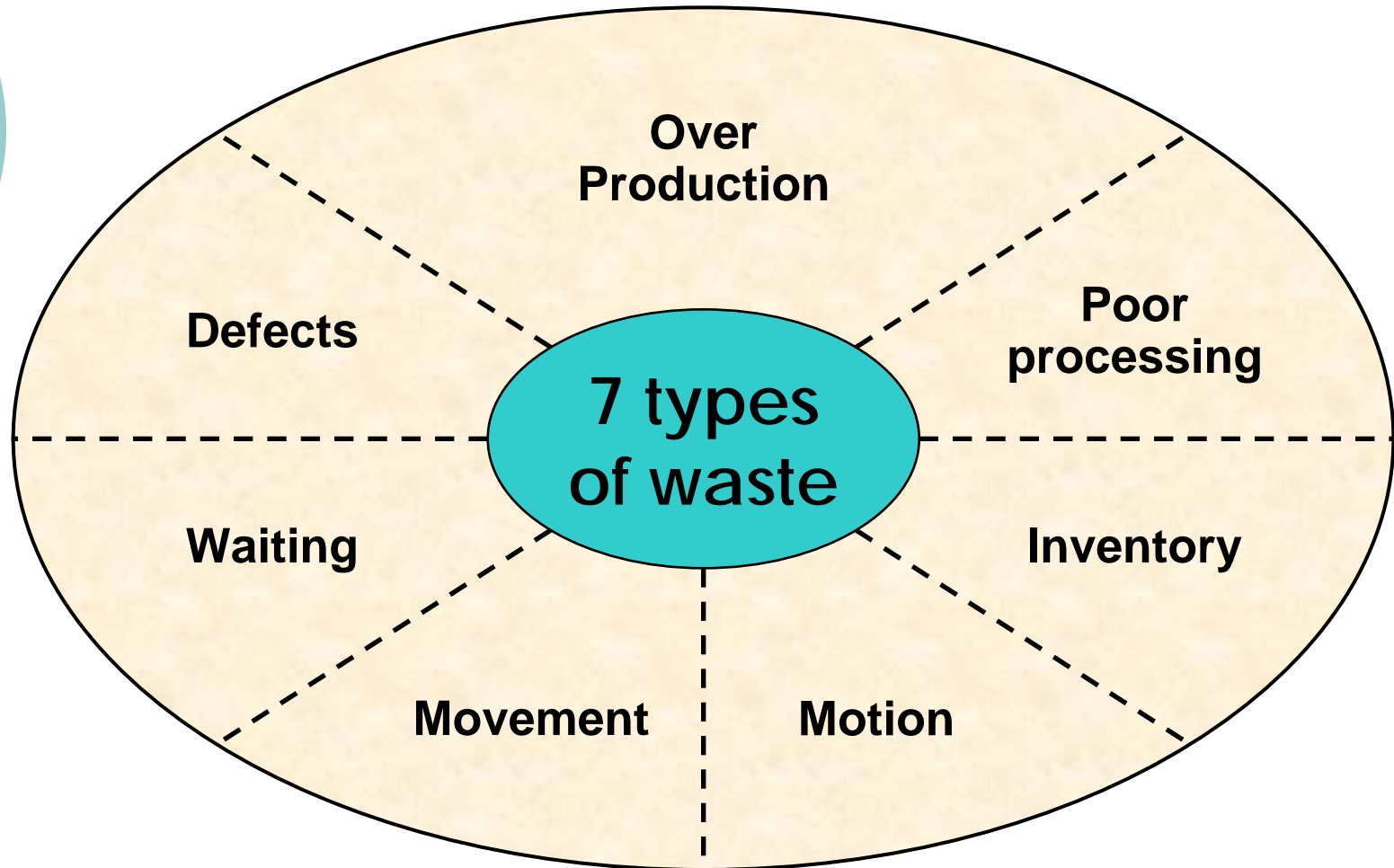
- Batch lot sizing
- Push systems
- Long setup times
- Incapable equipment
- Unreliable processes
- Departmental layout



What to do?

Eliminate Waste

7 types of waste



Total Landed Cost

The sum of all costs associated with making and delivering products and services to the point where they produce revenue – your customer's door.

Total Landed Cost includes...

Unit price + average fully loaded transportation costs + average handling costs + duties, tariffs, and taxes + documentation and broker fees + financial transaction costs + inventory carrying costs + inventory obsolescence costs + rework and damage costs + expediting costs + customer service penalties.

2. Identify Value Streams

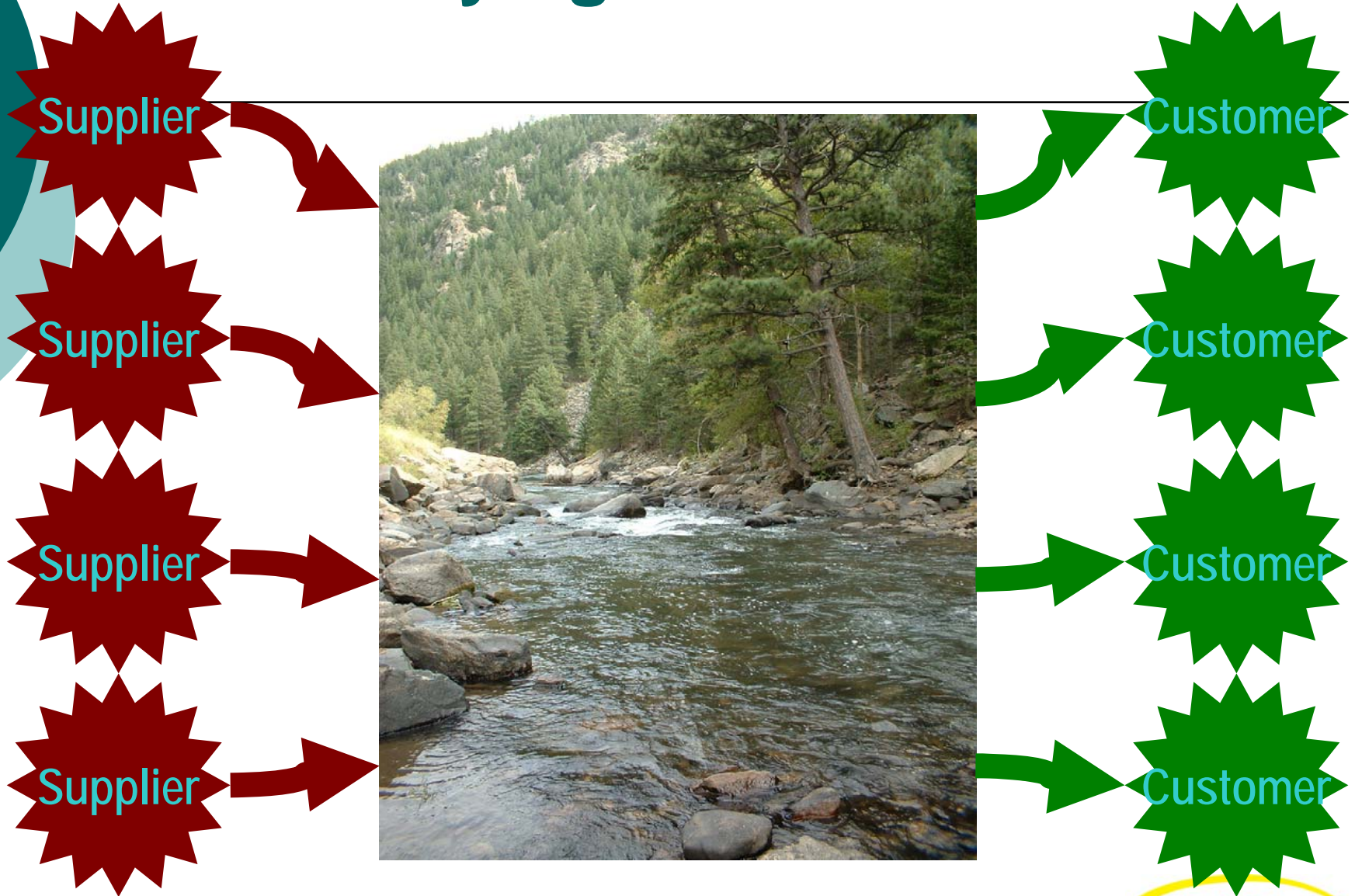
Value Stream Definition
Mapping Streams
7 Steps to Success

Value Stream Definition

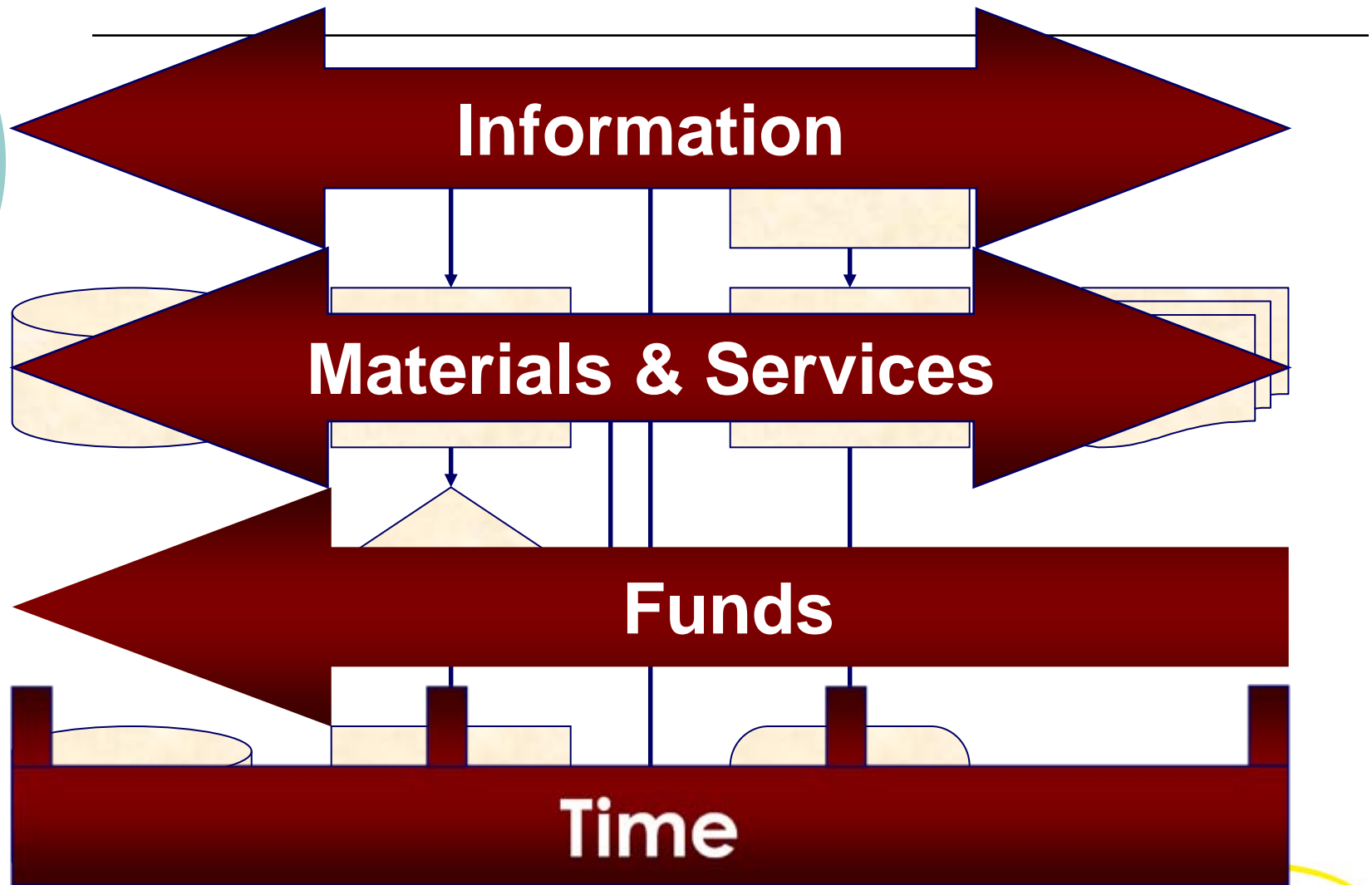
All activities – value added, non-value added and business value added – required to bring:

1. A product from materials to the point of use by the customer
2. A service from supplies to solving the need of a customer
3. An idea from concept to implementation

Identifying Value Streams

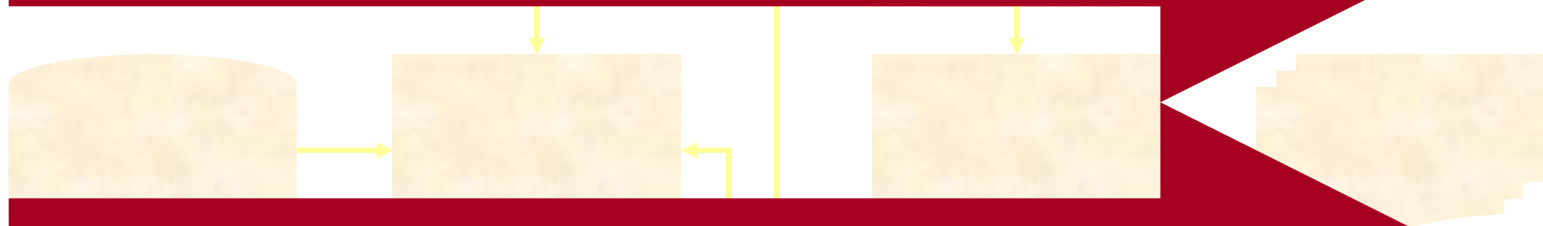


Mapping Streams



Three Common Value Streams

Materials to Finished Goods

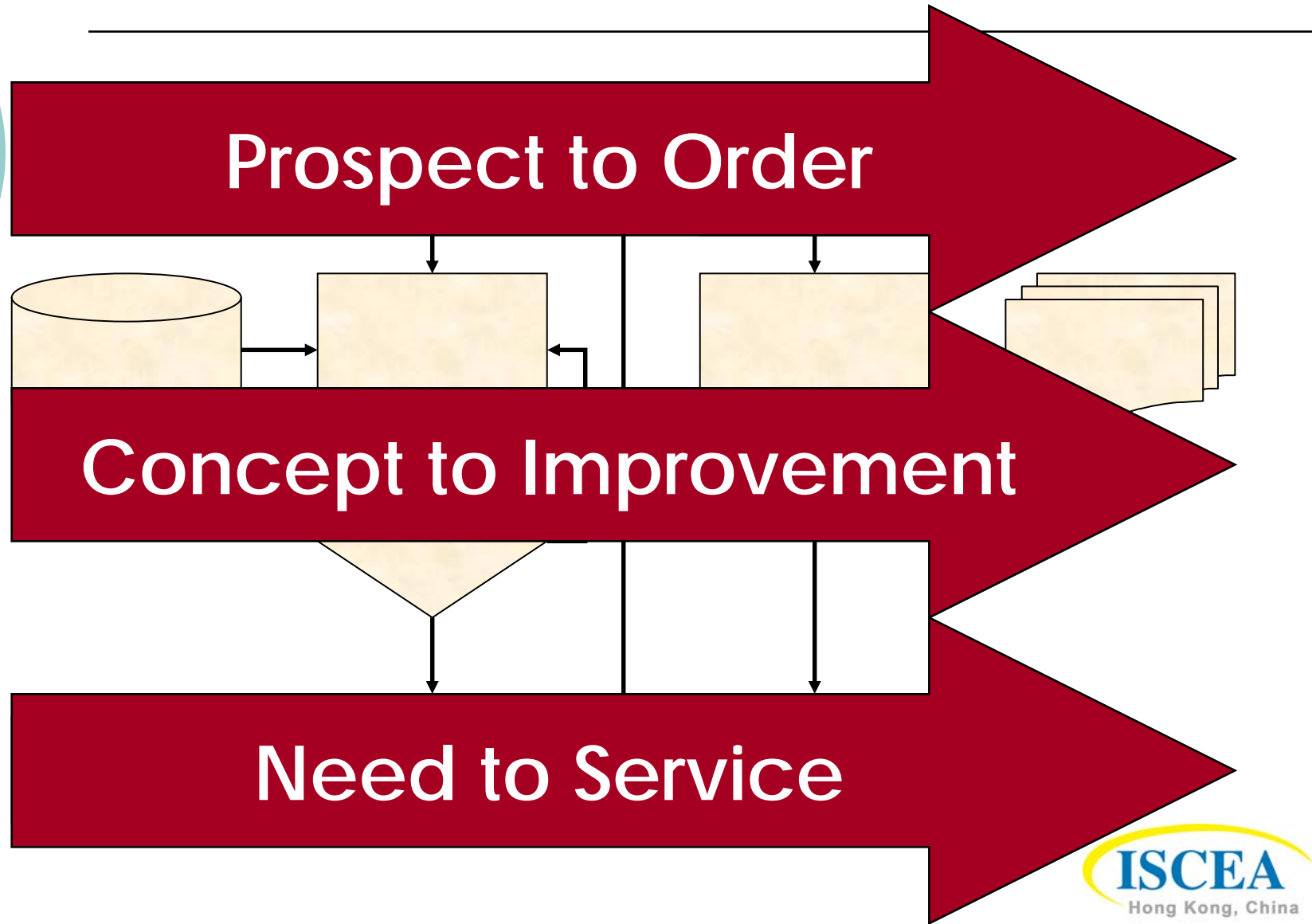


Customer Order to Delivery

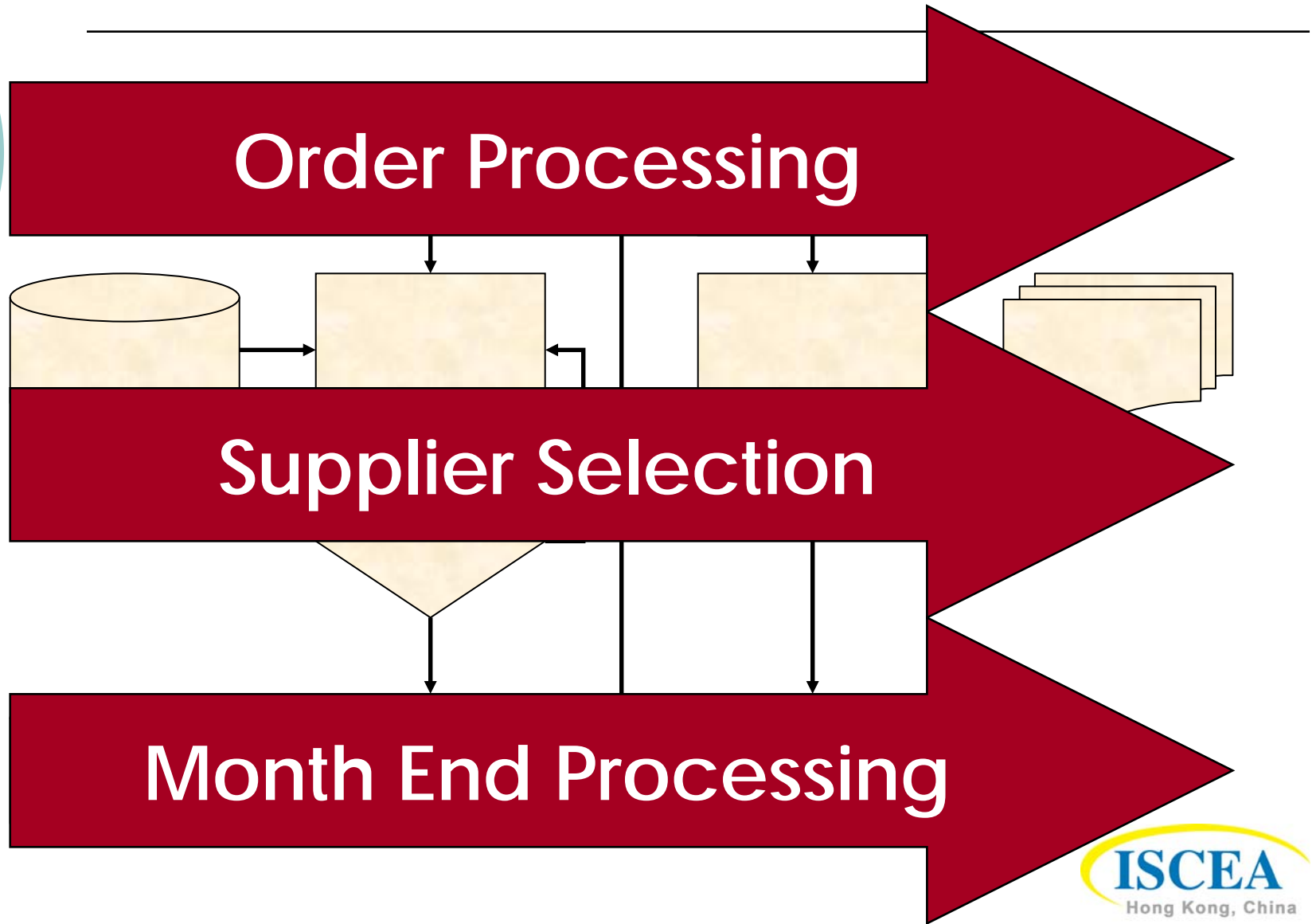


Concept to Product Launch

Other Value Streams



Feeder Streams



Seven Steps To Success

1. Select the value stream
2. Document the current state
3. Map the **current state** *'as is'*
4. Identify and **prioritize changes**
5. Craft the **future state** *'to be'*
6. Time phased implementation
7. Continuous process improvement

3. Create Flow

5S System

Kaizen Teams

Changeover Reduction

Cross Training

Visual Controls

1. Sort

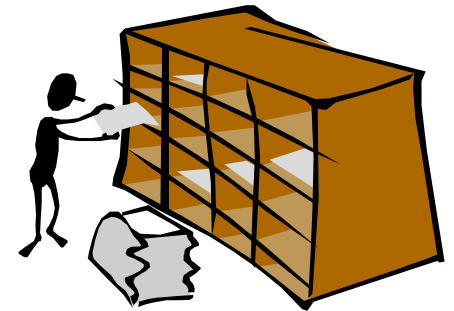


5. Sustain



2. Stabilize

5S



4. Standardize



3. Shine



Kaizen Blitz

改善 blitz



Kaizen Teams

Keep an open mind

Maintain a positive attitude

Never leave in silent disagreement

Create a safe environment

Practice mutual respect

Treat others as you'd like to be treated

One person, one voice – no position or rank

There is no such thing as a dumb question

Understand the process

Just do it!

Definition of changeover time

The time required for a specific machine, resource, work center, process, or line to convert from the production of the last good piece of item A to the first good piece of item B.

APICS Dictionary, 11th edition

The S.M.E.D. Approach

1. Observe (videotape) a changeover
2. Define internal and external elements
3. Separate external elements from period when equipment is not running
4. Shift as many internal elements to external as possible
5. Streamline the internal elements
6. Streamline the external elements

Cross Training

| Name | Skill 1 | Skill 2 | Skill 3 | Skill 4 | Skill 5 | Skill 6 | Skill 7 |
|------|---------|---------|---------|---------|---------|---------|---------|
| Pete | Green | Yellow | | | | | |
| Jose | | | Green | Yellow | Green | | |
| Mary | Green | | Green | | | | Yellow |
| Jane | | | Green | | Green | Green | Green |
| Bill | | Green | | | | | Green |
| Tom | Green | Green | | Green | | Yellow | |
| Juan | | | | Green | | | |

Measurement: Team Work
Goal: 95% or more are ready to help
Responsibility: Mitch and Adam

Definition

The percentage of employees with more than one year of experience who have been trained to work in at least three departments and have worked at least 40 hours during the last year in other departments from their normal assignment.

Purpose

Cross trained employees will help improve communication between departments and be more effective in helping to solve cross functional issues impacting overall foundry operations. In addition, routine assignments to other departments will improve flexibility and improve foundry performance.

Measurement Calculation

The number of employees with more than one year of experience who have been trained to work in at least three departments and have worked at least 40 hours in other departments / The total number of employees with more than one year of experience.

Timing

Reported weekly; summarized monthly.

Example

At the end of the week of October 10th: 41 employees have more than one year of experience. 29 employees meet the definition of "Team Work". The calculation is $29 / 41 = 71\%$.

www.artcastings.com

Visual Controls

Self-explaining

Self-regulating

Self-controlling

Visual Controls

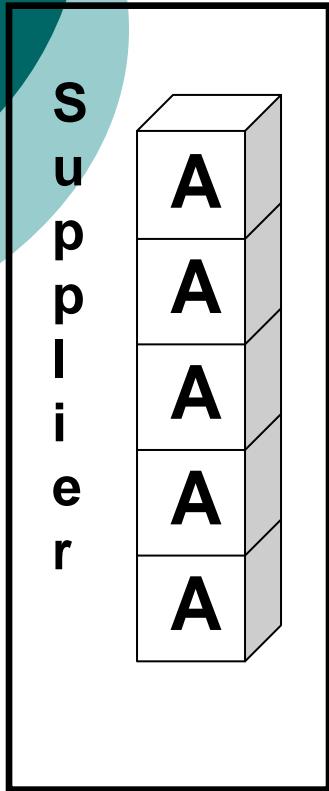
| | | |
|--|---|--|
| <p>On-time</p> <div></div> <div></div> <p>Throughput</p> <div></div> <div></div> | <p>Kanban Action Plan</p> <div></div> <div></div> <p>5S Action Plan</p> <div></div> <div></div> | <p>Employee Suggestions</p> <div></div> |
| <p>Quality</p> <div></div> <div></div> | <p>Cross Training Matrix</p> <div></div> | <p>Other Projects</p> <div></div> |

4. Leverage Pull

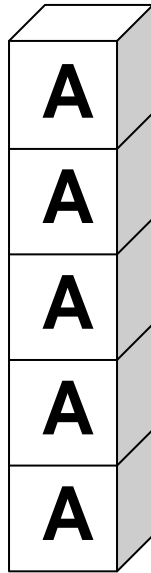
**Kanban
Collaboration
Customer Configuration**



Kanban

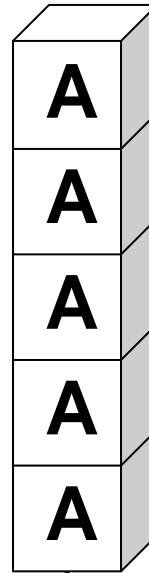
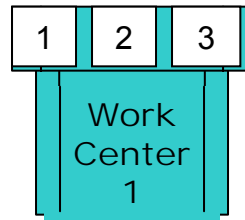


Inbound stocking



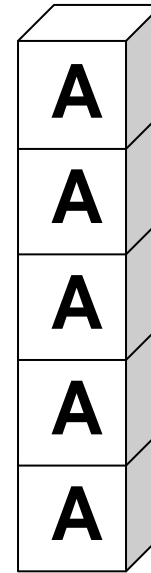
Move card attached to each bin

Outbound stocking



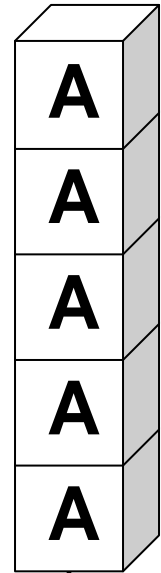
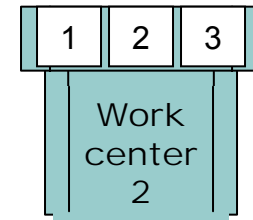
Production card attached to each bin

Inbound stocking



Move card attached to each bin

Outbound stocking



Production card attached to each bin

Simulations



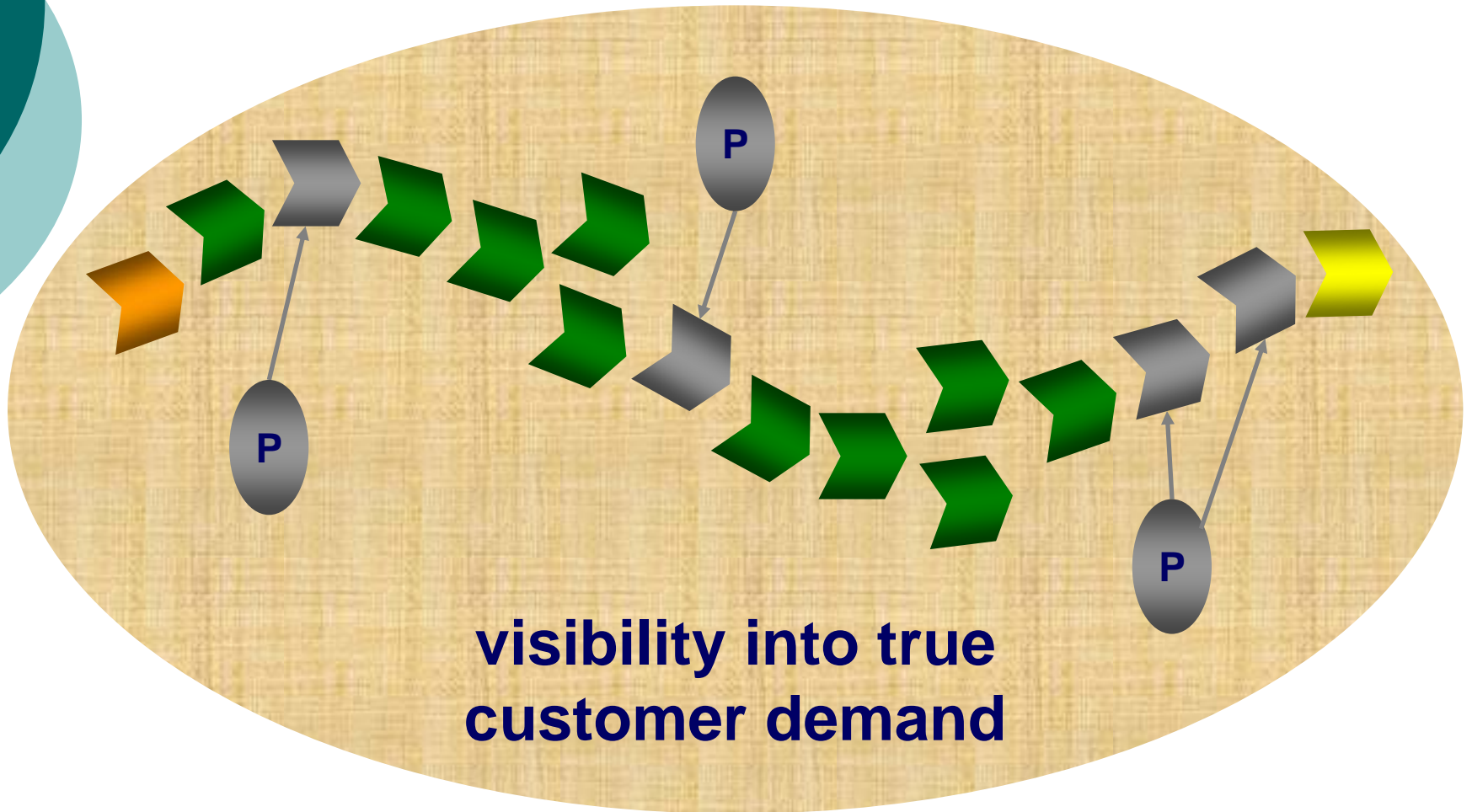
Simulations are...

- ✓ **Participative in nature and generally last 1-8 hours**
- ✓ **Designed to teach the basics of lean enterprises and change management**
- ✓ **A means for participants to try the concepts and tools in a non-threatening environment**
- ✓ **Excellent for awakening participants to the possibilities for improvement**
- ✓ **Open forums for the exchange of ideas and issues**
- ✓ **For everyone within an organization, from the Janitor to the CEO**

Simulations aren't...

- ≠ Forums for dictating or imposing one's own thoughts on others
- ≠ Intended to make experts out of participants
- ≠ To take the place of thorough in-depth training
- ≠ Capable of exactly matching your own process
- ≠ Capable of simulating every possibility nor should they
- ≠ Just for senior staff members or production staff

Collaboration



Collaboration Techniques

Quick Response

Vendor Managed Inventory

Continuous Replenishment

Collaborative Planning Forecasting & Replenishment

Customer Configuration

Mass Customization

Postponement

Quick Response

Mass Customization

Adjustable



Dimensional

Modular

Postponement

- ✓ Delay the final configuration until the last possible moment
- ✓ Restructure/change location of final assembly
- ✓ Reconfigure the product to leverage common platforms & components
- ✓ Apply self-service concepts



Quick Response aka High Flexibility Scheduling

- ✓ **Ability to deliver product to the customer before they can change their mind**
- ✓ **Ability to respond quickly to changes in product volume or mix**

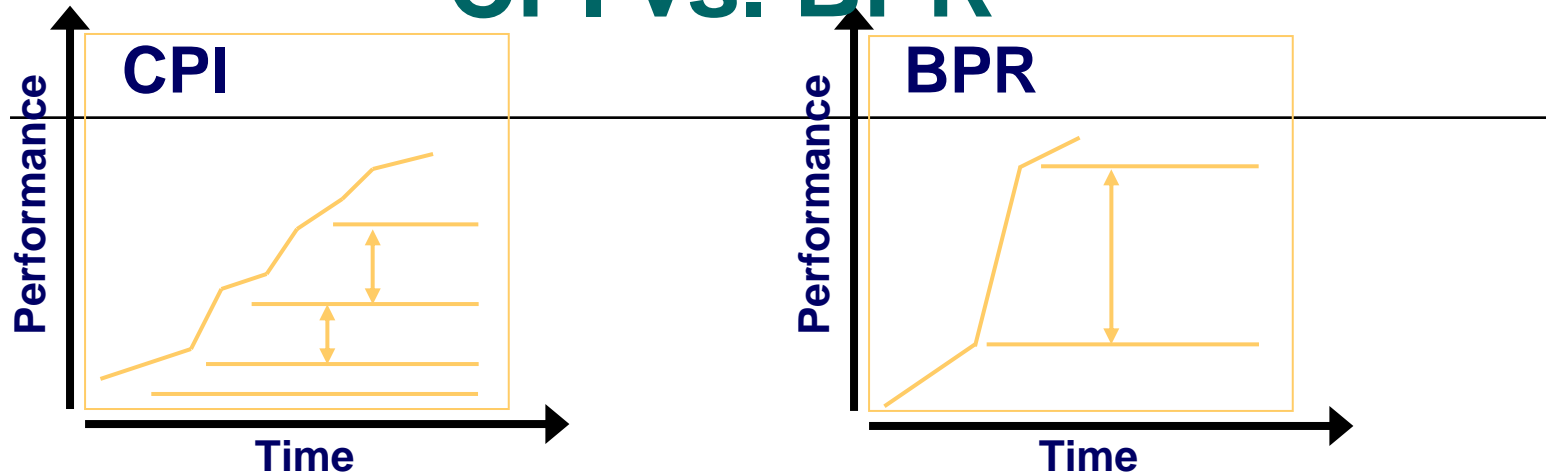
Benefits of Pull Production

- ✓ **Manufacturing cycle time reduced from 3-4 weeks to 3 days**
- ✓ **No MOs required for active products (400 MOs eliminated)**
- ✓ **Visual inventory management**
- ✓ **Flexible manufacturing – lot size of one.**
- ✓ **Customer “pulls” trigger production.**

5. Seek Perfection

**Continuous Improvement
Change Management
Education Planning
Lean Tool Kit**

CPI vs. BPR



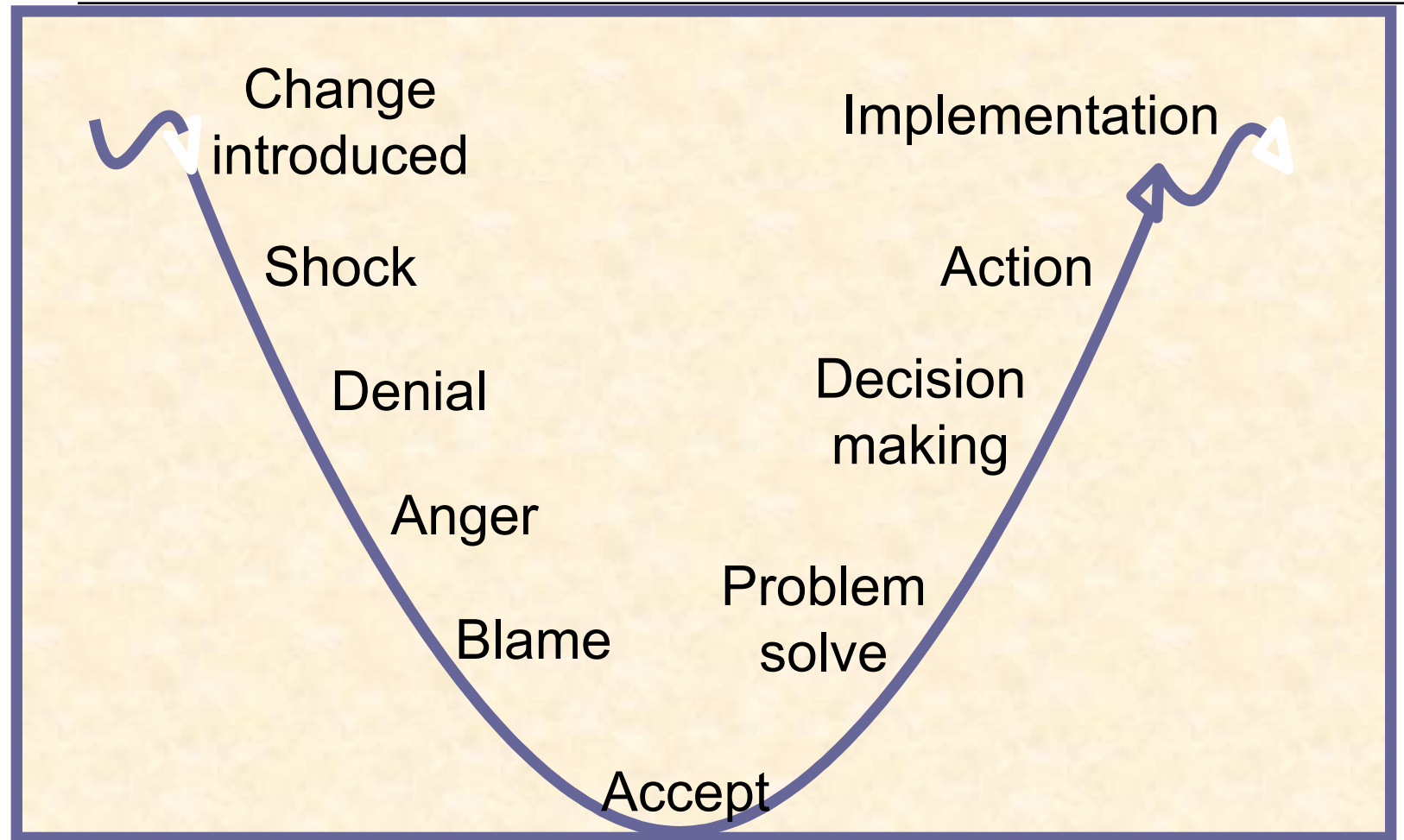
| | | |
|-------------------------------|--------------------------------|----------------------------------|
| | Continuous Process Improvement | Business Process Reengineering |
| Improvement | Incremental → Step-by-Step | Quantum Jump |
| Process map | “As-is” vs. “To-be” | “As-is” vs. “Could be” |
| Duration | Long term on-going effort | Short term high intensity effort |
| Estimated success rate | 60 – 70% | 30 - 40% |
| Key concepts | Root cause analysis | Radical clean sheet approach |
| Key question | How can we improve what we do? | Why do we do what we do? |

The 20/60/20 Rule



1. 20% will buy-in soon after you demonstrate a commitment to lean.
2. 60% will take a wait and see approach looking to the informal leaders.
3. 20% will never get on board and may even sabotage efforts.

The Change Curve



Education Planning

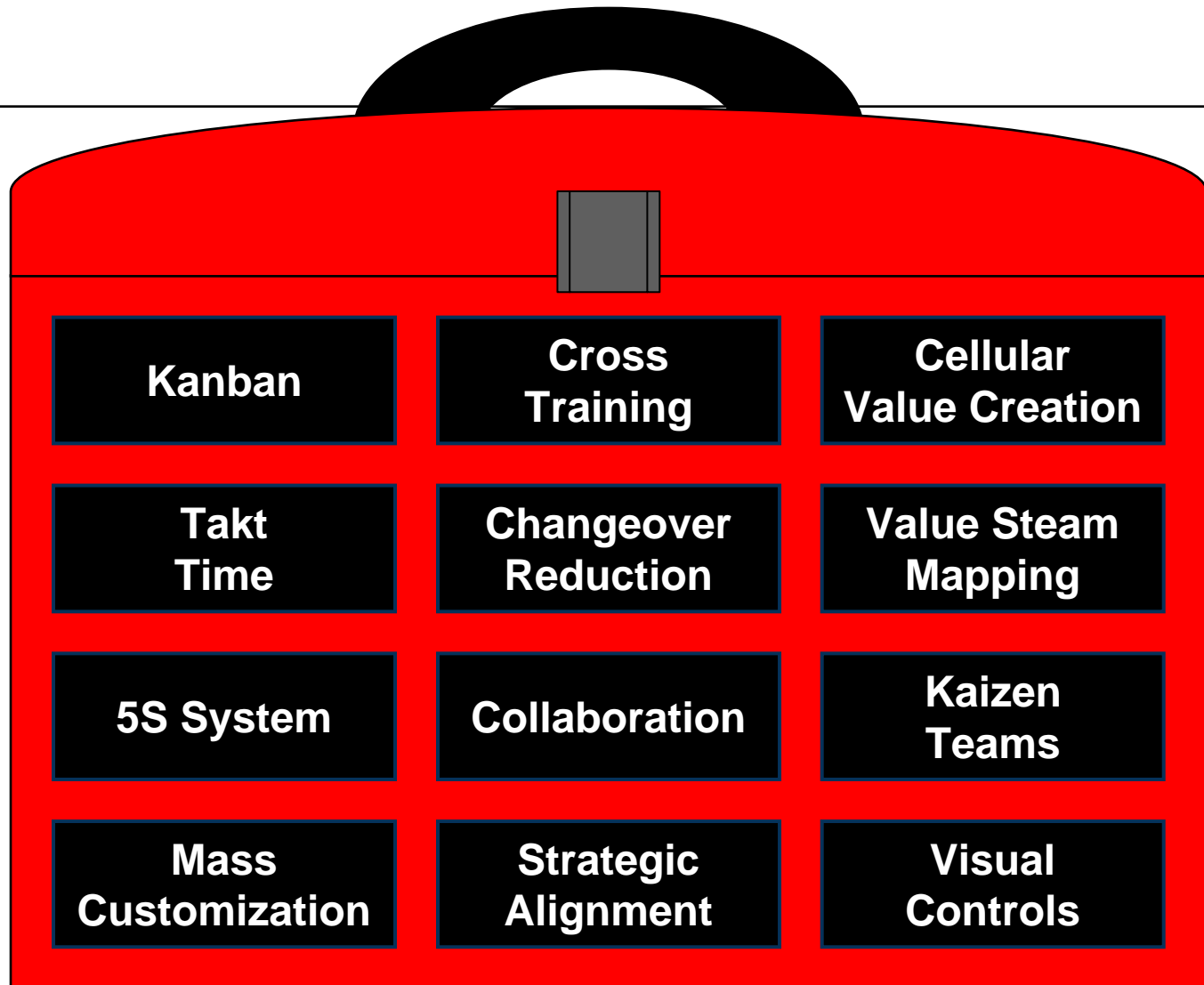
1. Awareness

2. Problem Solving Tools

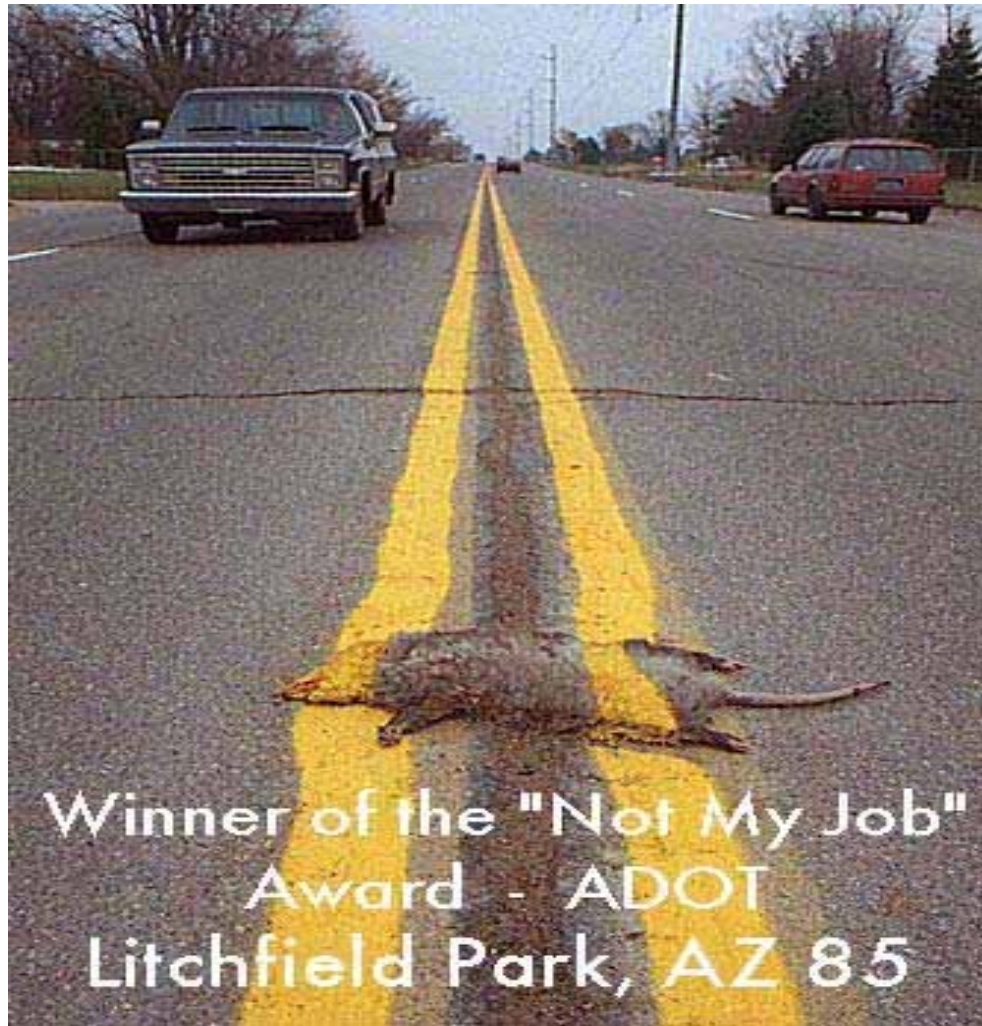
3. Soft Skills



4. Advanced

The Lean Toolkit



Who is Responsible?





Certified Lean Master (CLM) Program

The Certified Lean Master Program

- ✓ A multi-session program with a complete package of education and coaching on the creation of lean supply chains.
- ✓ 3 educational sessions of 3 days each with a 4 week break between sessions for participants to apply the knowledge to their own lean initiative.
- ✓ Participants improve one value stream at their organization, create quantifiable improvements, and begin seeing immediate results.
- ✓ A certification exam and the opportunity to earn personal recognition as a Certified Lean Master.

Three Sections

- A. Crafting a lean initiative and value stream mapping**
- B. Creating flow and leveraging pull**
- c. Lean supply chains and the CLM exam**

Focus on Results

- ✓ **Creating lean supply chains for manufacturing, retail, distribution, service, and virtual organizations**
- ✓ **Developing leadership skills through education, application, and coaching**

Certified Lean Masters

Certified Lean Masters are change agents that deliver results in meeting business objectives and contribute significant improvement to an organization's bottom line. They stimulate thinking by challenging conventional wisdom and providing options for the successful application of lean concepts across the supply chain from suppliers to customers and beyond.

Certified Lean Master

**This program is
ideal for a team
seeking to drive
Improvement.**

Who is Responsible?





**International Supply Chain Education Alliance
(www.iscea.hk)**

**国际供应链教育联盟
香港及中国区域营运总监**

**DataDevelop Consulting Ltd. as
Authorized Knowledge Provider (AKP)**

Contact : Mr. Henry Soo

Email: henrysoo@iscea.hk

Tel: 852.2600.9311, Fax: 852.2600.9316



Q & A Session

