Airgas®
an Air Liquide company

Driving Sustainable Growth Through Lean Transformation and Empowered Teams at Scale

American Chemical Manufacturing Summit

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Driving Sustainable Growth Empowered Teams at Scale

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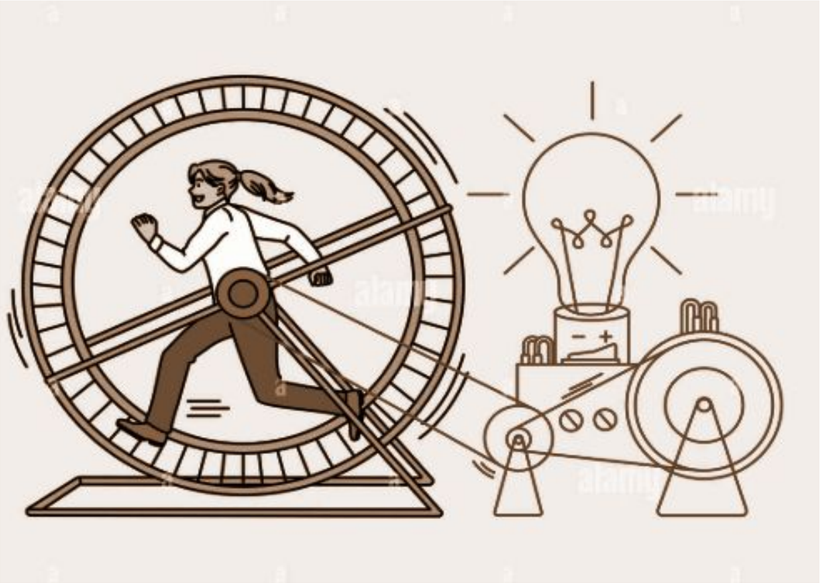
Building a Culture of Continuous Improvement

Understanding Current Organizational Behavior

Most organizations strive to improve, however...

- ➔ most are **not *consistently*** effective
- ➔ resolving problems to eliminate **recurrence** is rare



Organizations that are successful

- ➔ have a thorough problem solving **methodology**
- ➔ encourage **collaboration** amongst members
- ➔ concisely document decisions, plans and results
- ➔ share organizational learning

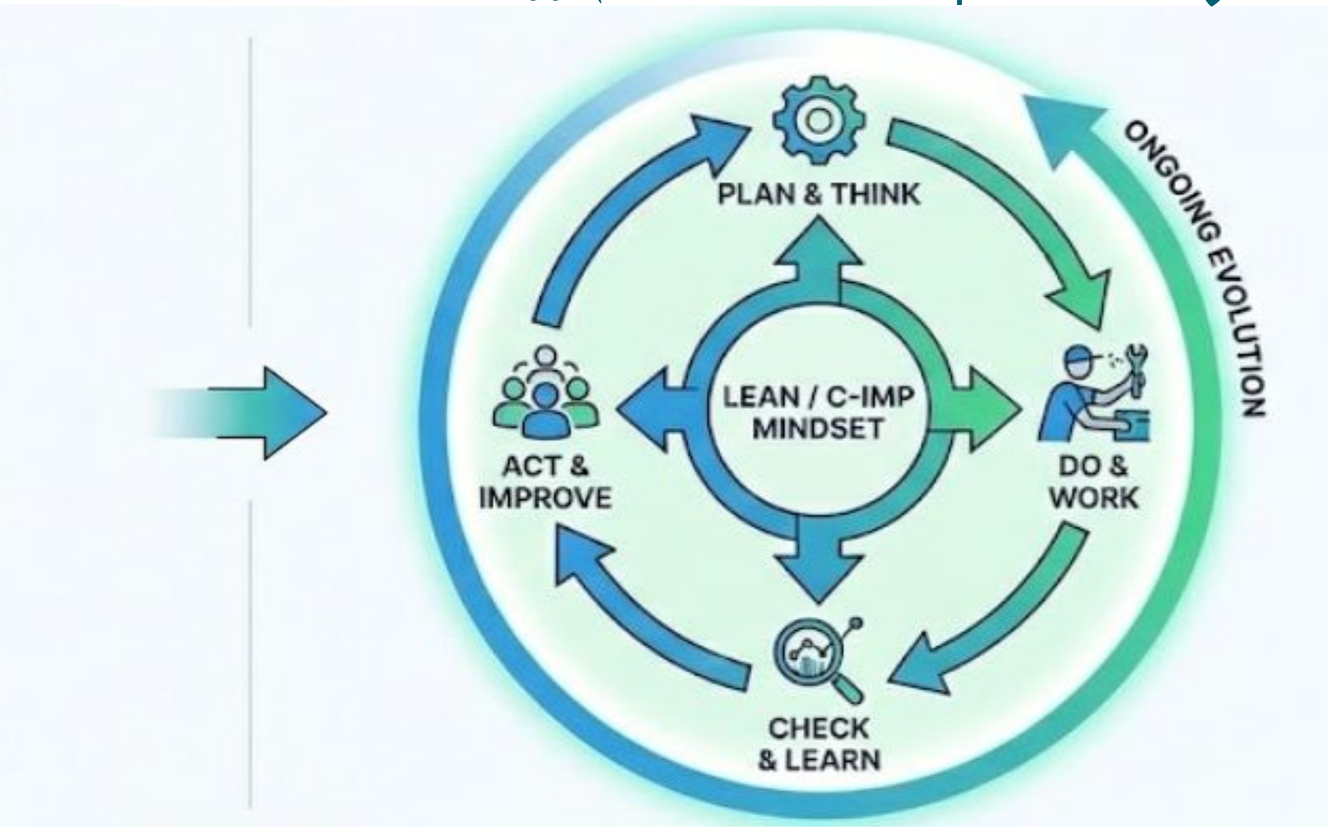
“Without continual growth and progress, such words as improvement, achievement, and success have no meaning."
- Benjamin Franklin

From Project to Process: A Fundamental Shift

Project (One-Time Event)

Temporary, defined scope, clear endpoint, and focused on completion

Process (Continuous Improvement)



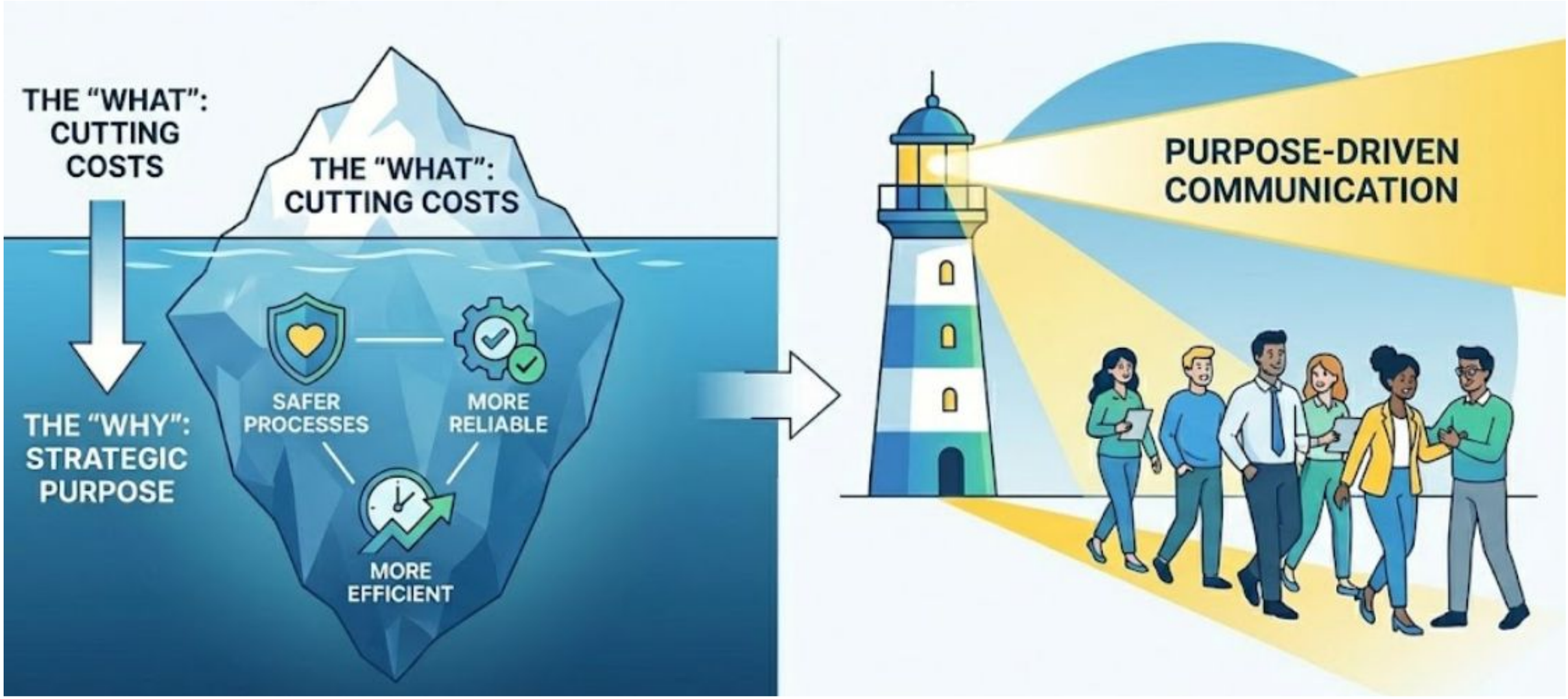
Embedded in culture, never-ending, focus on learning, safer, reliable, efficient

Creating the Common Definition of Continuous Improvement

Continuous Improvement (*C-IMP*) is a company *culture* or mindset that encourages *employees* to look for ways to enhance the business's operations.

The way of working with **C-IMP** includes suggesting ideas to improve *efficiencies* by evaluating current processes, to reduce and eliminate (**LEAN**) unproductive work (*waste*), and create value for the *customer!*

Sharing the “Why”: Communicating Strategic Purpose



Simple Tactics for Multi-Site Operations

Overcoming the challenges:

Silo Effect

Consistency Gap

1. Organizational Alignment
2. Common Language
3. Visual Management
4. Gemba Walks
5. Local Empowerment
6. Breaking Down Silos

Organizational Alignment

Top down buy-in to facilitate support and vernacular.

Common Language & KPIs

C-IMP language and standardized KPIs across sites

Visual Management

Real time dashboards, SQDCP, team huddles

Gemba Walks

Leaders must go to “Gemba” (the real place where work happens), ask why

Local Empowerment

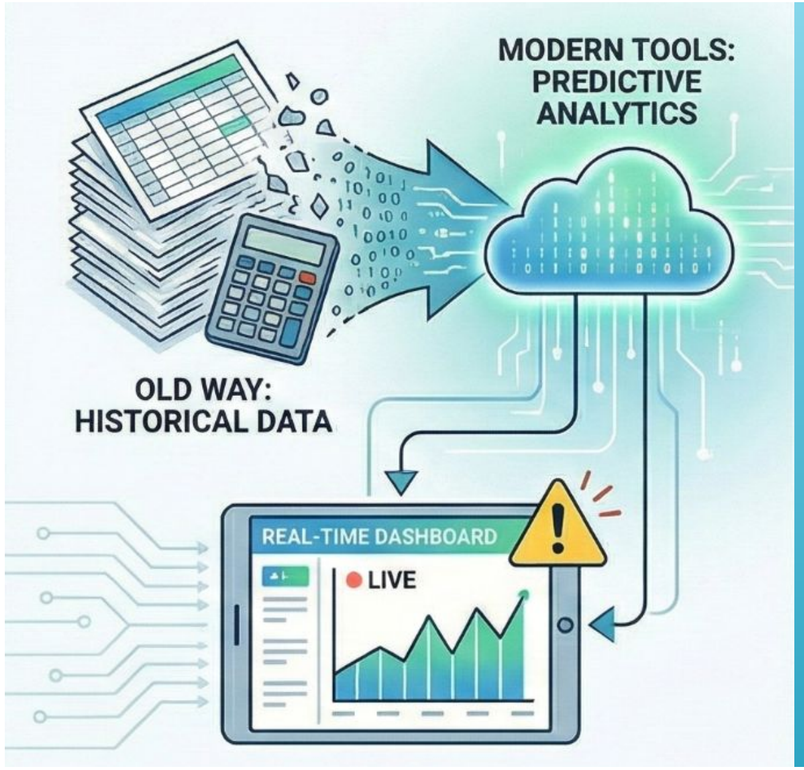
Idea boards, fix what bugs you, ownership, small wins

Breaking Down Silos

Working together cross collaboratively, sharing best practices, reward replication

Leveraging Data to Eliminate Waste

Leveraging Data to Eliminate Waste



From static and often backward looking spreadsheets to

TAKING IT **A STEP FURTHER**

- Modern tools to utilize **predictive analytics** to provide real-time data
- Real time access to data makes waste instantly visible
- Allowing for immediate corrective action rather than retroactive analysis

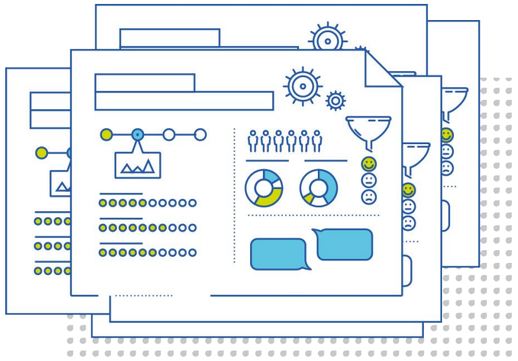
Leveraging Data to Eliminate Waste

Using Data to Pinpoint Areas of Inefficiency:

- Real time dashboards to identify inefficiencies that affect quality and create waste
- Improve maintenance schedules based on real time data
- Reduce costs and downtime due to unplanned downtime
- Predictive analytics act as a continuous radar for operations
- Empower operators to make real time decisions on the fly

Aligning Process Improvement with Customer Expectations

Aligning Process Improvements with Customer Expectations



Improved Internal Processes (process metrics)

Faster Lead Times

Better On-Time Delivery

Consistent Quality

Customer Value (VoC & customer centric metrics)

Translating Lean to a Value Proposition

Lean Principles

- Waste Reduction
- Continuous Improvement
- Flow Optimization

Value Proposition

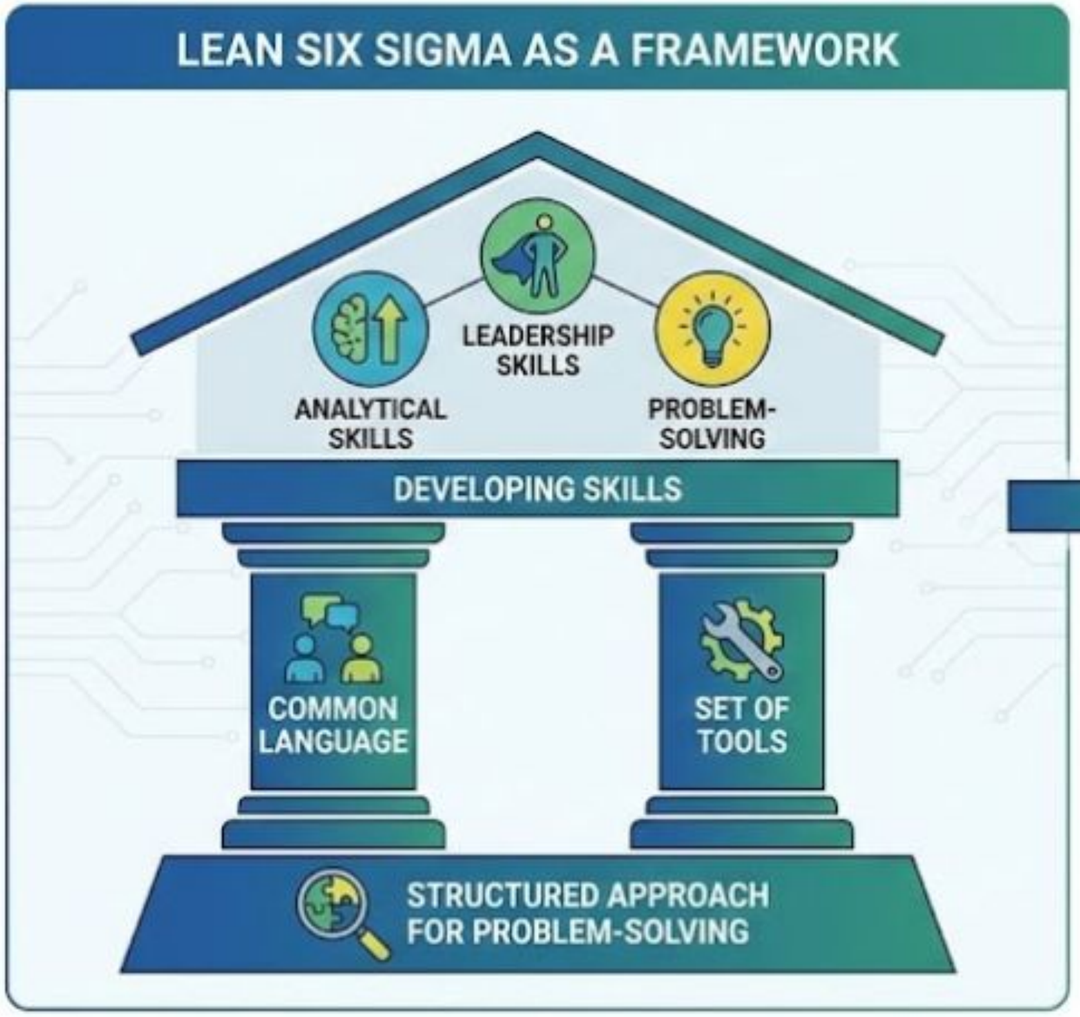
- Increased Agility
- Improved Service
- Better Decision Making

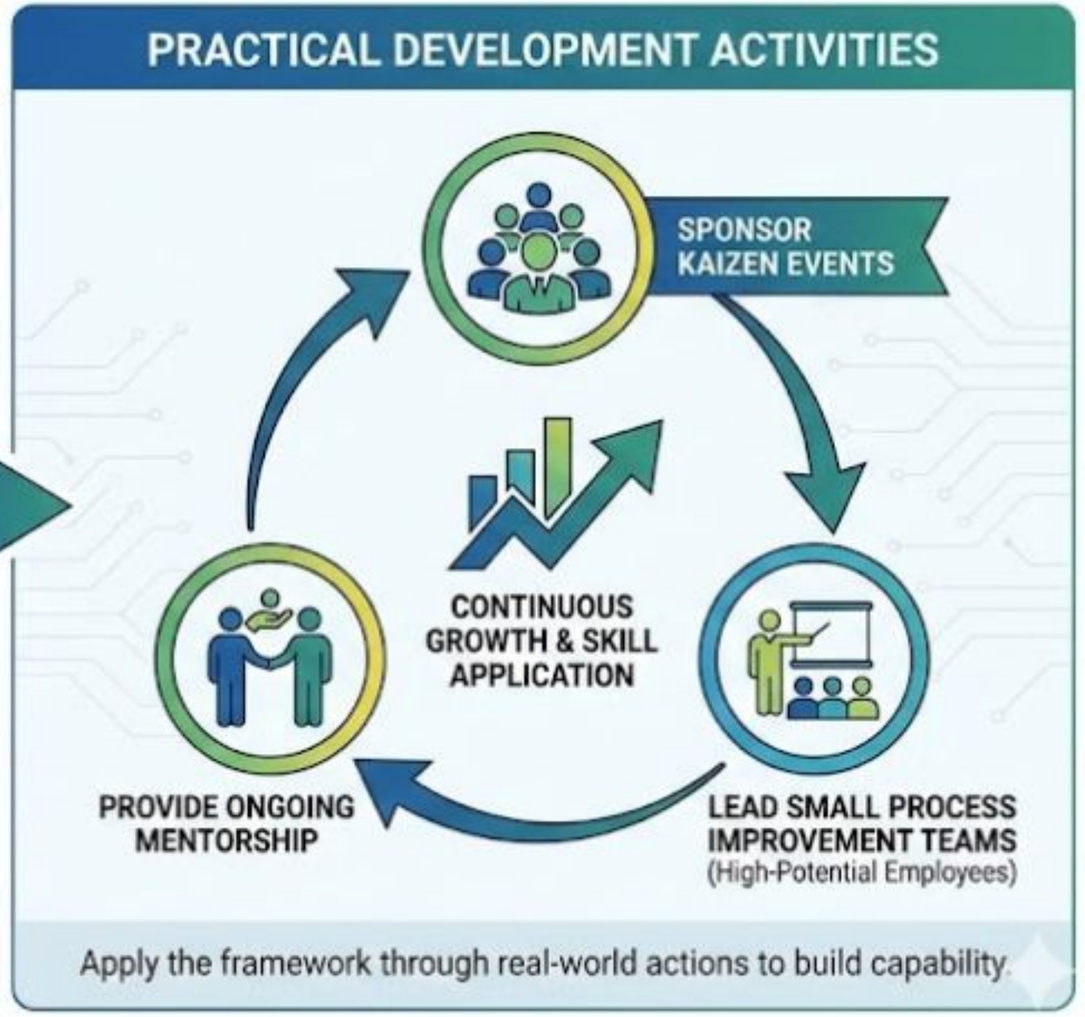
S&OP

- Demand Planning
- Supply Planning
- Integrated Business Planning

Developing High-Impact Leaders

Lean Six Sigma Developing High Impact Leaders

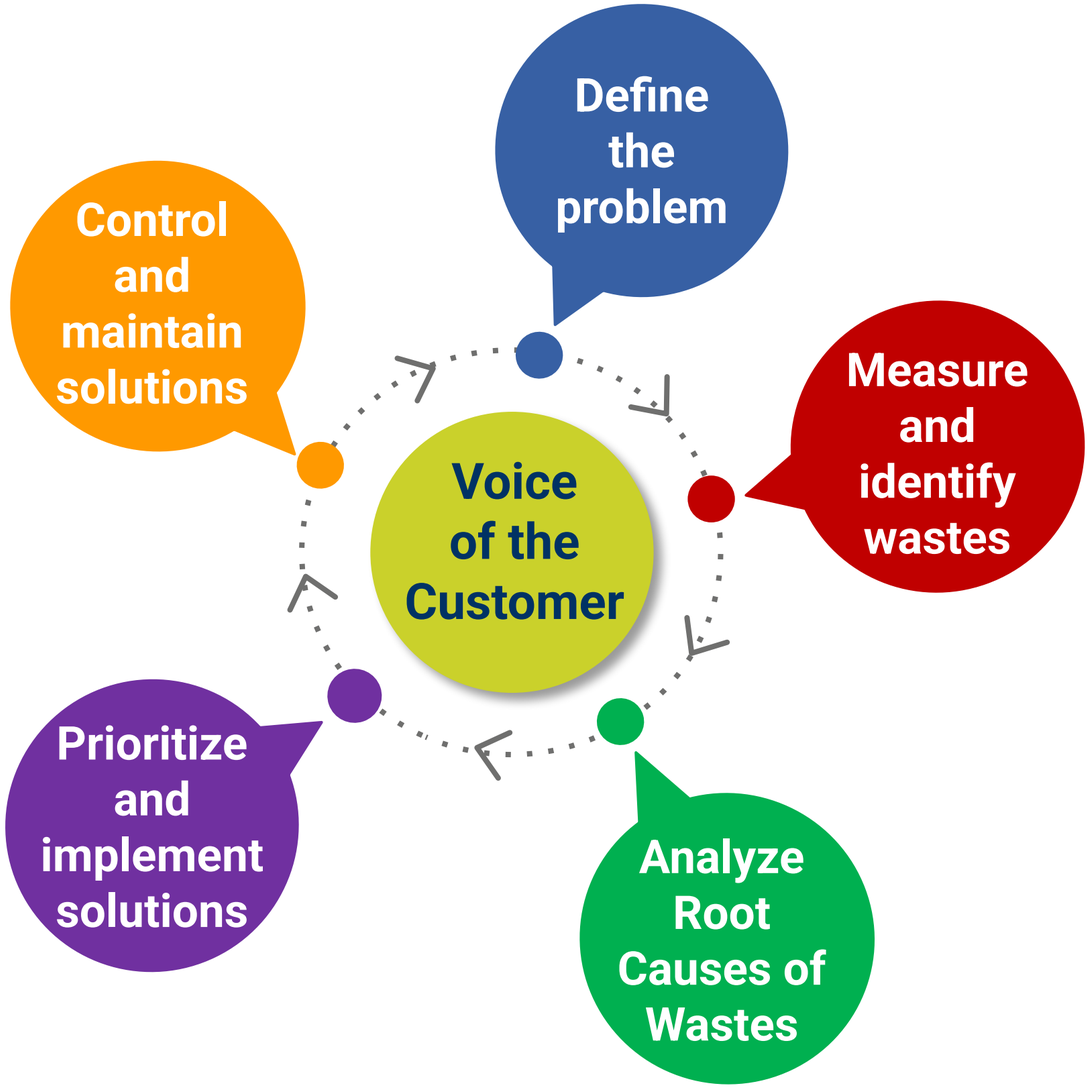




Lean Six Sigma and Tools for Problem Solving

DMAIC

- We use a standardized 5 Step methodology to convert a problem into an activity that delivers a sustained solution
- Ensures the customer is at the center of everything we do
- Utilizes Continuous Improvement Tools to solve problems
- Logical and proven approach to **deliver real benefits**



Implementing Lean within ADI

P0: Alignment → P1: Core Leaders → P2: Managers → P3: Front Line

Implementing Lean

Alignment with with ADI leadership is a critical first step before building a deployment plan. There is a logical sequence to C-IMP training in order to drive daily interaction and accountability across the organization.

Three Levels

- **Top level management** - focused and aligned on strategic plan
- **Middle Management** - integrates initiatives across departments
- **Front Line** - conduct daily activities and drive bottom up efforts for improvement

Success derives from a team effort and cross functional collaboration

- Committed to daily activities and his/her role to work smarter, not harder
- Open minded to new ideas and bring new ideas to the table
- Understand the WHY

Navigating Resistance and Sustaining Gains

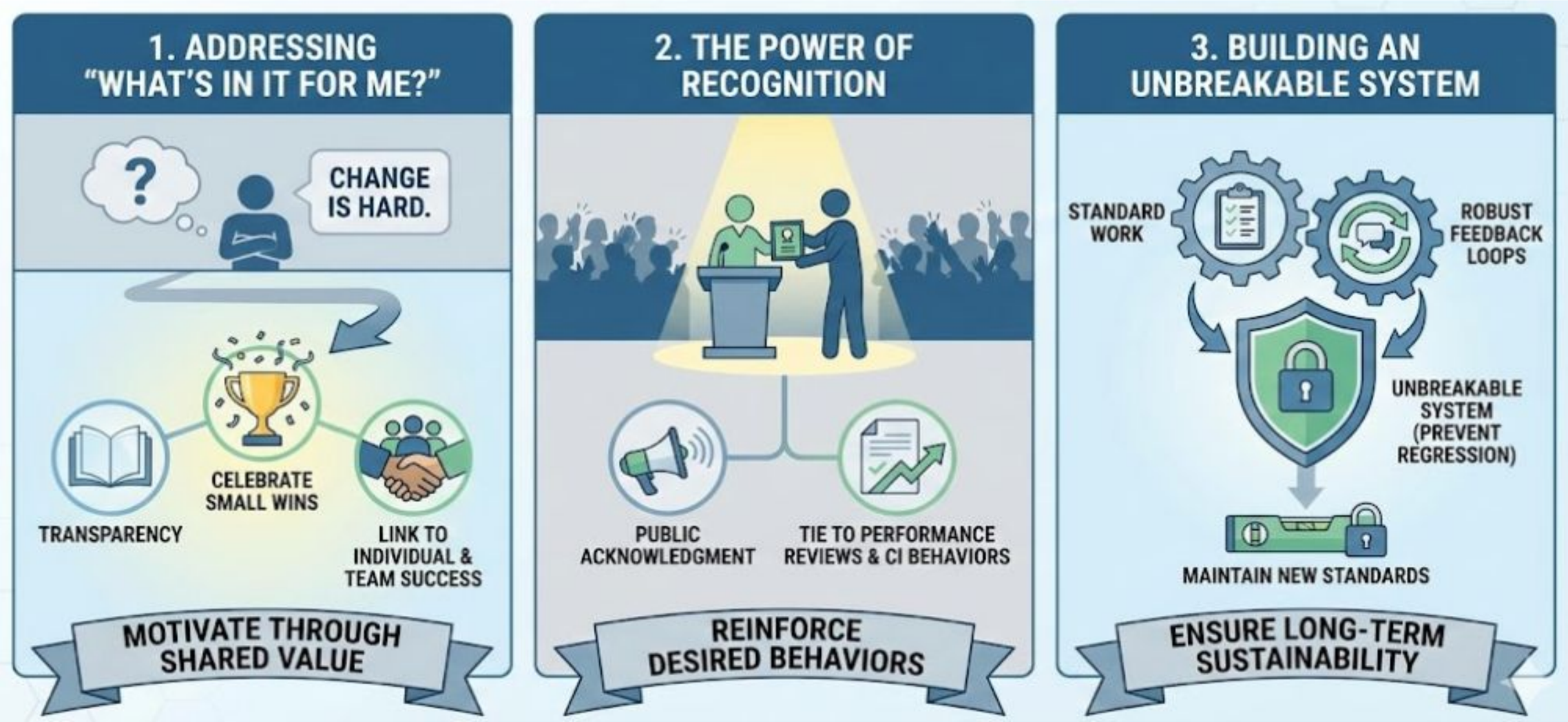
Navigating Resistance

It is critical to start any change initiative with a **clear** and **aligned** definition of success. This ensures that **everyone** is working towards the **same** finish line for the initiative.

Leadership must be clear about **core values** guiding the change and imperative to have a **top down approach** and reach all levels of the organization

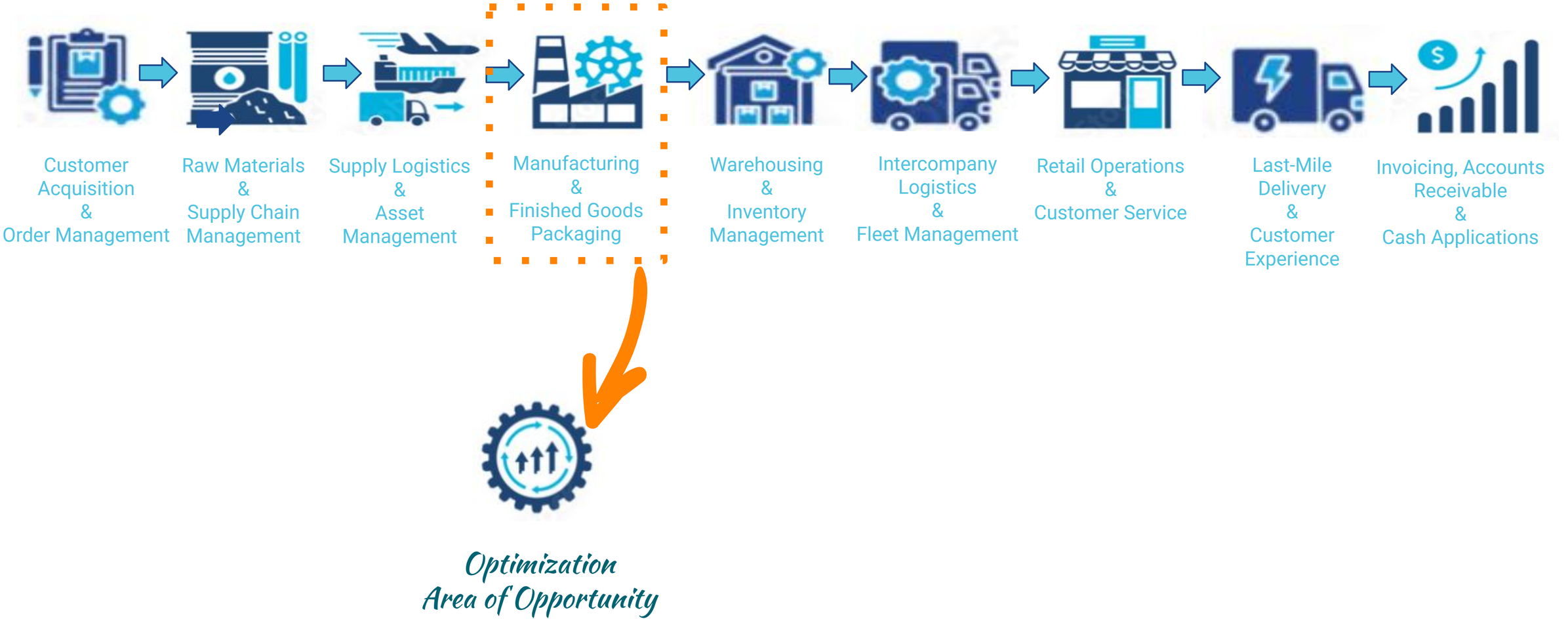
Change management leaders are responsible for **envisioning** change, **driving** it forward, **motivating** employees, and **removing barriers** to execute.

Sustaining Gains



Airgas Dry Ice Transformation

Airgas Dry Ice Value Chain



Airgas Dry Ice Value Chain

Spotlight:

Manufacturing
&
Finished Goods
Packaging

Raw Material Efficiency & Manufacturing Yield

Packaging Automation & Production Line Efficiency

Material Handling & Order Processing

Inventory Rotation & Just-In-Time Scheduling

Quality Control & Quality Assurance

Network Optimization & Energy Management

CO2 Footprint

Scope 1 Emissions Reductions

Workplace Quality & Cultural Engagement

Spotlight: Manufacturing & Finished Goods Optimization

Raw Material Efficiency & Manufacturing Yield

Modern equipment replaces 100 year-old technology to reduce raw material waste while reducing stored potential energy hazards in the workplace

Digital controls and PLCs replace analog and manual processes to reduce down time and mid-cycle waste

Packaging Automation & Production Line Safety

New ecosystem of integrated equipment connects upstream and downstream processes replacing manual controls and reducing labor input

Sealed processes, shortened lines and automated movements reduce pinch points improving safety and increasing cycle times

Material Handling & Order Processing

EV forklifts with anti-collision technology systems reduce potential for accidents while reducing our carbon footprint

Improved digital scanning systems improve inventory and accuracy while providing data that support our KPIs

Inventory Rotation & Just-In-Time Scheduling

Programming upgrades to production planning systems that integrate with our distribution platform to eliminate excessive handling and product movements

Airgas Dry Ice Manufacturing Transformation

Quality Control & Quality Assurance

New equipment yields reproducible consistency with tighter specifications and tolerances to provide a better quality product to our customers

Improved materials of construction reduce risks for foreign material contamination and out of spec product

Network Optimization & Energy Management

Improved geographic alignment of the products sold to those made in the local manufacturing plants drives distribution costs down

New energy-efficient equipment reduces power consumption costs

CO2 Footprint

Scope 1 Emissions Reductions

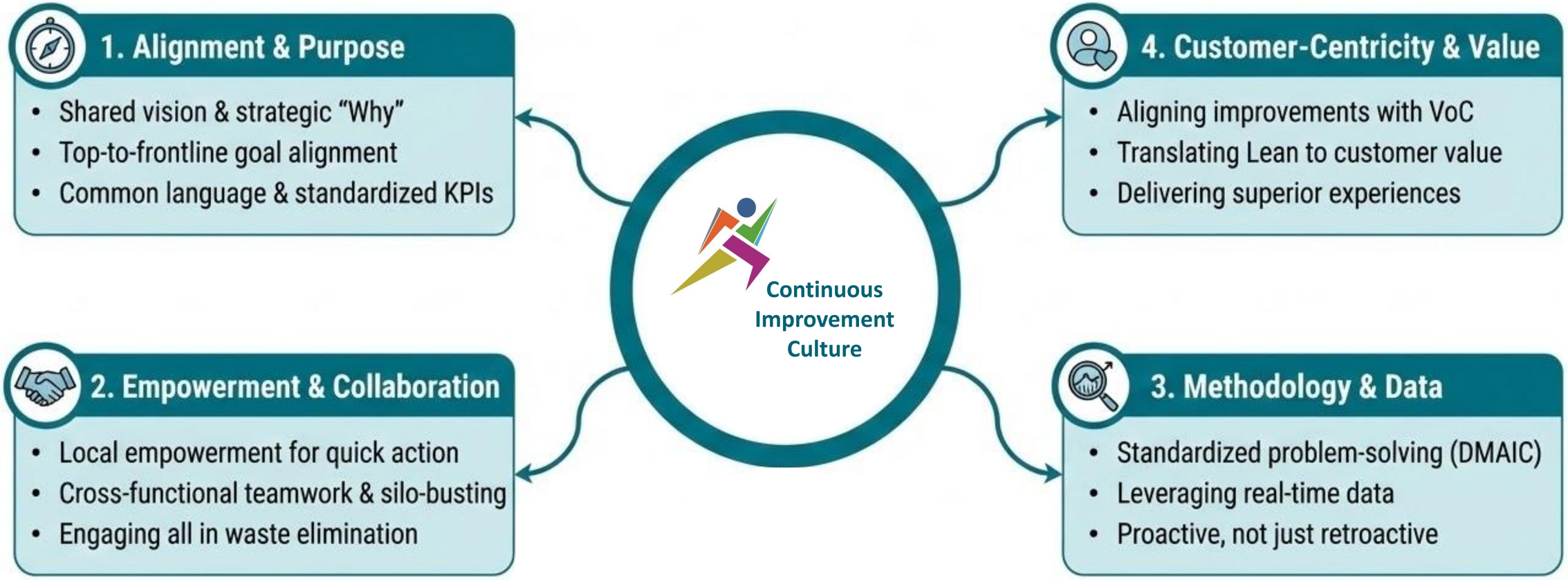
EV Forklifts, New Manufacturing Equipment and Technology reduced distribution complexity

All of these are just small components of an overall strategy that is reducing our annual Scope 1 CO2 emissions by tens of thousands of tons every year

Workplace Quality & Cultural Engagement

Implementing safer, modern, and sustainable technologies directly improves the work environment, demonstrating a commitment employee well-being

Summary


1. Alignment & Purpose
• Shared vision & strategic "Why"
• Top-to-frontline goal alignment
• Common language & standardized KPIs
4. Customer-Centricity & Value
• Aligning improvements with VoC
• Translating Lean to customer value
• Delivering superior experiences
Continuous Improvement Culture
2. Empowerment & Collaboration
• Local empowerment for quick action
• Cross-functional teamwork & silo-busting
• Engaging all in waste elimination
3. Methodology & Data
• Standardized problem-solving (DMAIC)
• Leveraging real-time data
• Proactive, not just retroactive

Thank you

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