24TH LCI CONGRESS
OCTOBER 18-21

Improve safety through Lean

Brian Fitzpatrick, Haley & Aldrich

Sage Bedard, Haley & Aldrich

LEAN GUMBO: THE RIGHT INGREDIENTS FOR PROJECT SUCCESS

October 17, 2022

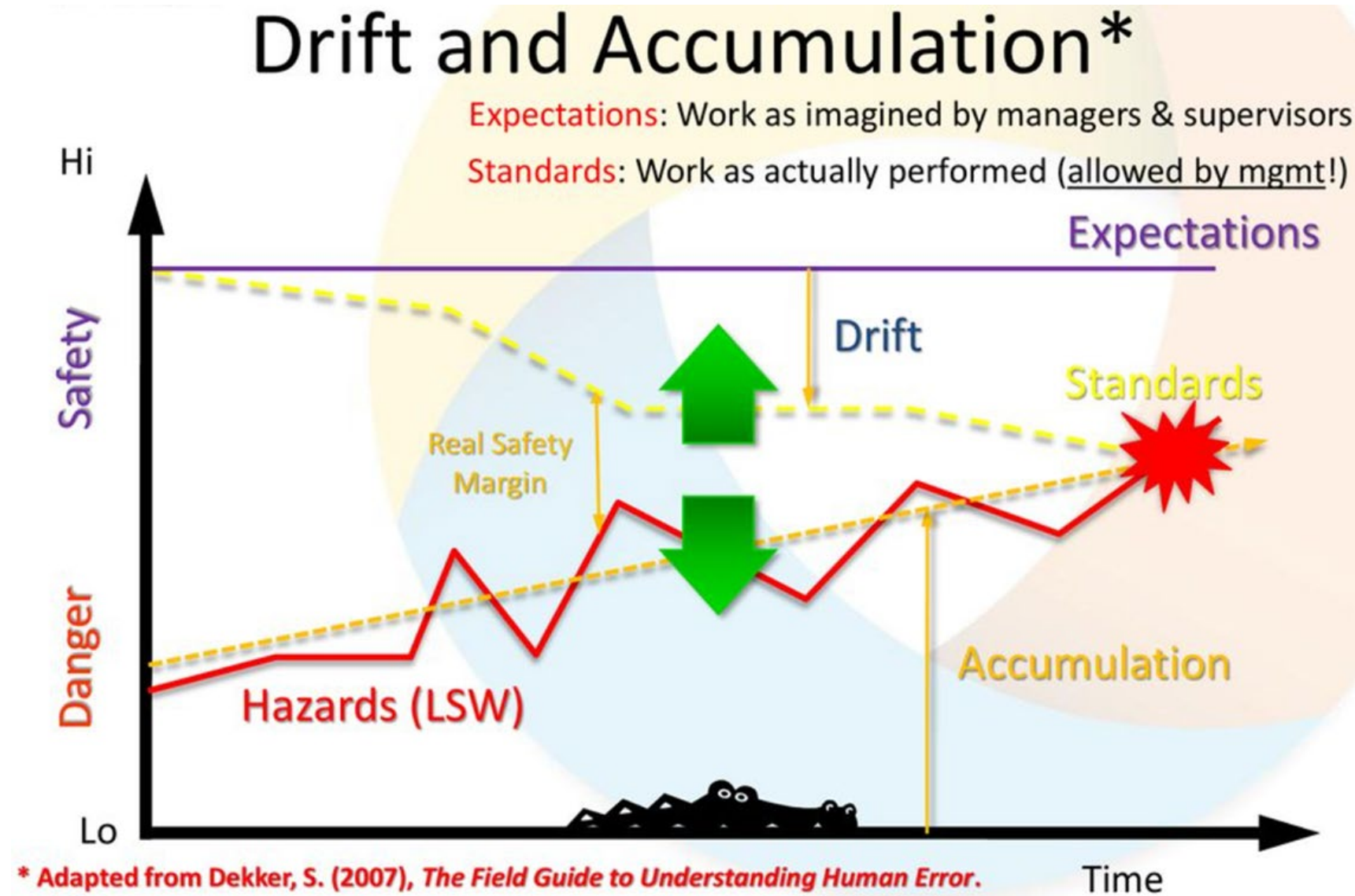# Today's goals

1 Using a keystone habit to integrate Lean into daily work

2 Introduce a Lean Management System

3 Work on a problem using Lean tools

4 Introduce execution strategies

5 Discuss additional Lean tools

Safety, differently

Real-life example

- Problem statement: Our organization is experiencing cuts/lacerations due to the use of fixed blades

- Fixed blades are common tools for our staff on project sites and in offices

- We do not have a good understanding of how often, and what types of blades our staff are using

- As you are thinking about this, consider:

  - What are the unintended consequences?

  - Does the solution address the root of the issue?

  - How do we trust our work force?

Haley & Aldrich fixed-blade-safety timeline

- 2009 Haley & Aldrich experienced 4 recordable lacerations due to the use of fixed blades

- 2010 Haley & Aldrich prohibits the use of fixed blades

- 2011-2022 Haley & Aldrich turns a blind eye to fixed-blade use

  - Staff are not trained after 2010

  - No alternatives

  - Policy not enforceable

  - We did not have a clear understanding of why and when they need to be used

- 2022 Haley & Aldrich experiences recordable laceration

Exercise – 1, 2, 4, all

- 20 minutes
  - Individually (1) – take the sticky notes at your table and write down your: **Ideas for solving this problem**
- Now pair up (2) with a person you don't know, and
  - Introduce yourself
  - Share your ideas, listen to their ideas, and seek agreement on the best 4 ideas
- Now find another pair (4) and
  - Introduce yourselves
  - Share the 4 ideas from each group and seek agreement on the best 4 ideas
- Now 1 person from each group (all) will read off the 4 ideas and place them on the board
- Last, we will determine if there is any affinity in the ideas

Why safety when discussing Lean?

85% of Lean journeys fail

Opportunity

Safety is a great place to start change, or anchor your Lean transformation

Safety as a "keystone habit"

- The story of Paul O'Neill
- Safety is a thread that runs through the entire system, and everyone can agree it is important
- Safety shares principles, tools, and philosophies with Lean
- Safety improvements positively affect all aspects of how organizations function and empower people
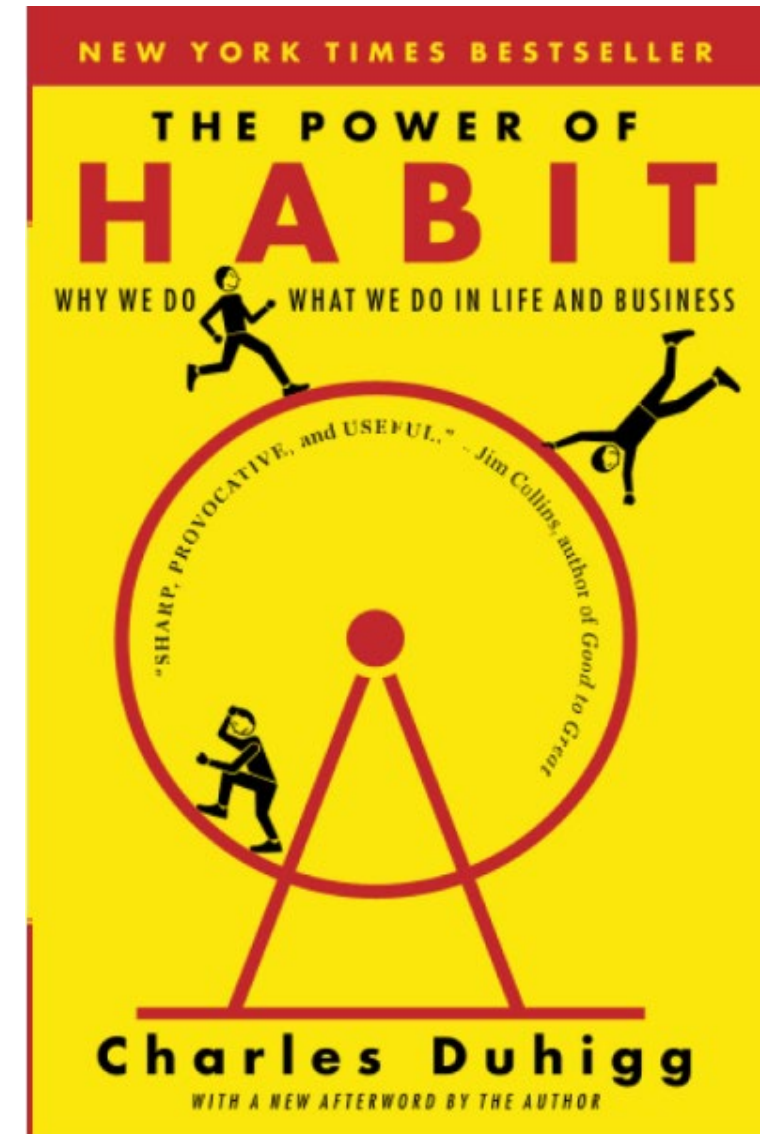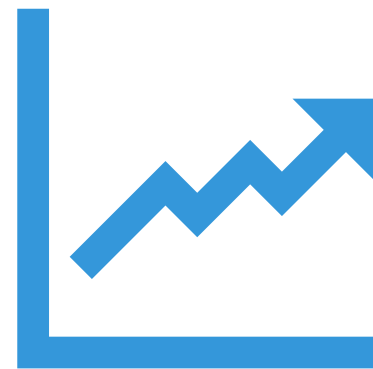
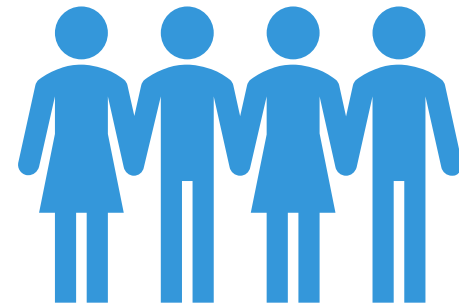# Safety Differently: Human Factors for a New Era
Sidney Dekker

Improving work performance is a means to improve safety performance

Increase worker capacity to achieve success as conditions change

People are a solution

Safety is an ethical responsibility to those who do the risky work

What does this have to do with Lean?

Safety is the mindset of continuous improvement through respecting and engaging the people doing the risky work:

- Go to where the work is

- Seek to deeply understand "normal" work

- Collaborate to make positive change – learning teams

- Give workers autonomy to shut down a process or task

- Empower employees to develop improvements

- Be hard on process, not on people

- Root Cause Analysis focused on systems, tools, "normal" work, and not people

SIX TENETS OF LEAN CONSTRUCTION

1 Respect for people

2 Optimize the whole

3 Generate value

4 Eliminate waste

5 Focus on flow

6 Continuous improvement

Reflection/Discussion

Now that we've covered safety as a keystone habit and Safety Differently, does it change your approach to the problem?

The Shingo Model, a Lean Management System

- **Leaders create culture**, which impacts/reinforces the system and is the sum of all ideal behaviors

- **Managers focus on systems** and align systems to culture; good systems make it easier to practice ideal behaviors

- **Staff focus on tools** and the continuous improvement to align tools with systems and culture; good tools also make it easier to practice ideal behaviors
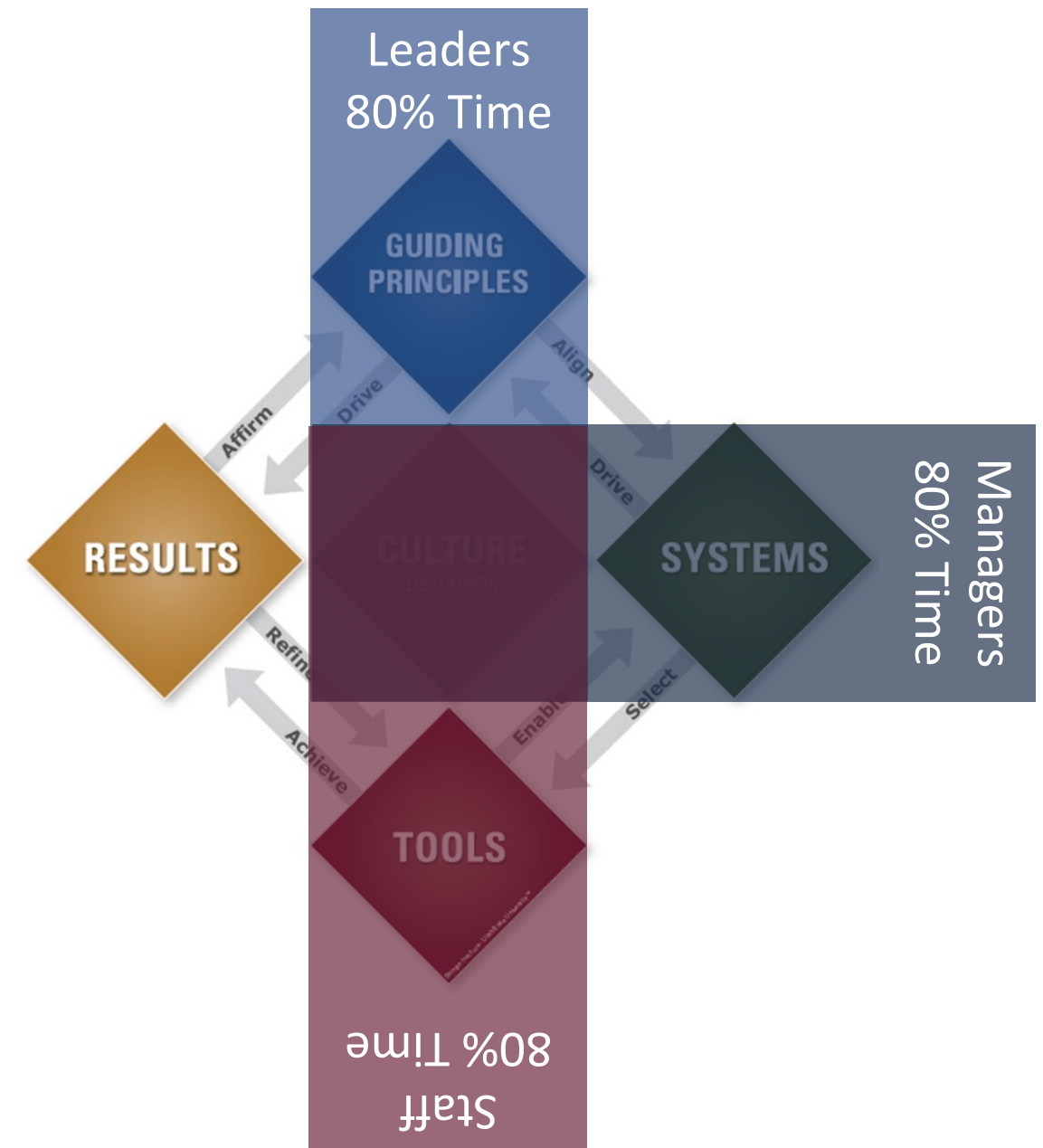
Why is culture so important?

- An enterprise that does not operate on principles operates on an ever-growing set of policies
- The enterprise becomes overwhelmed with an overabundance of unnecessary control systems that police team members rather than empower them

- Principle-based cultural shift encompasses and consumes all systems, tools, and results, whereas a policy-based structure controls systems
- An organization needs a long-term, principle-based culture in order to drive sustainable organizational excellence

CULTURE
BEHAVIOR

Guiding principles

Divided into three dimensions:

- Cultural enablers
- Continuous improvement
- Enterprise alignment
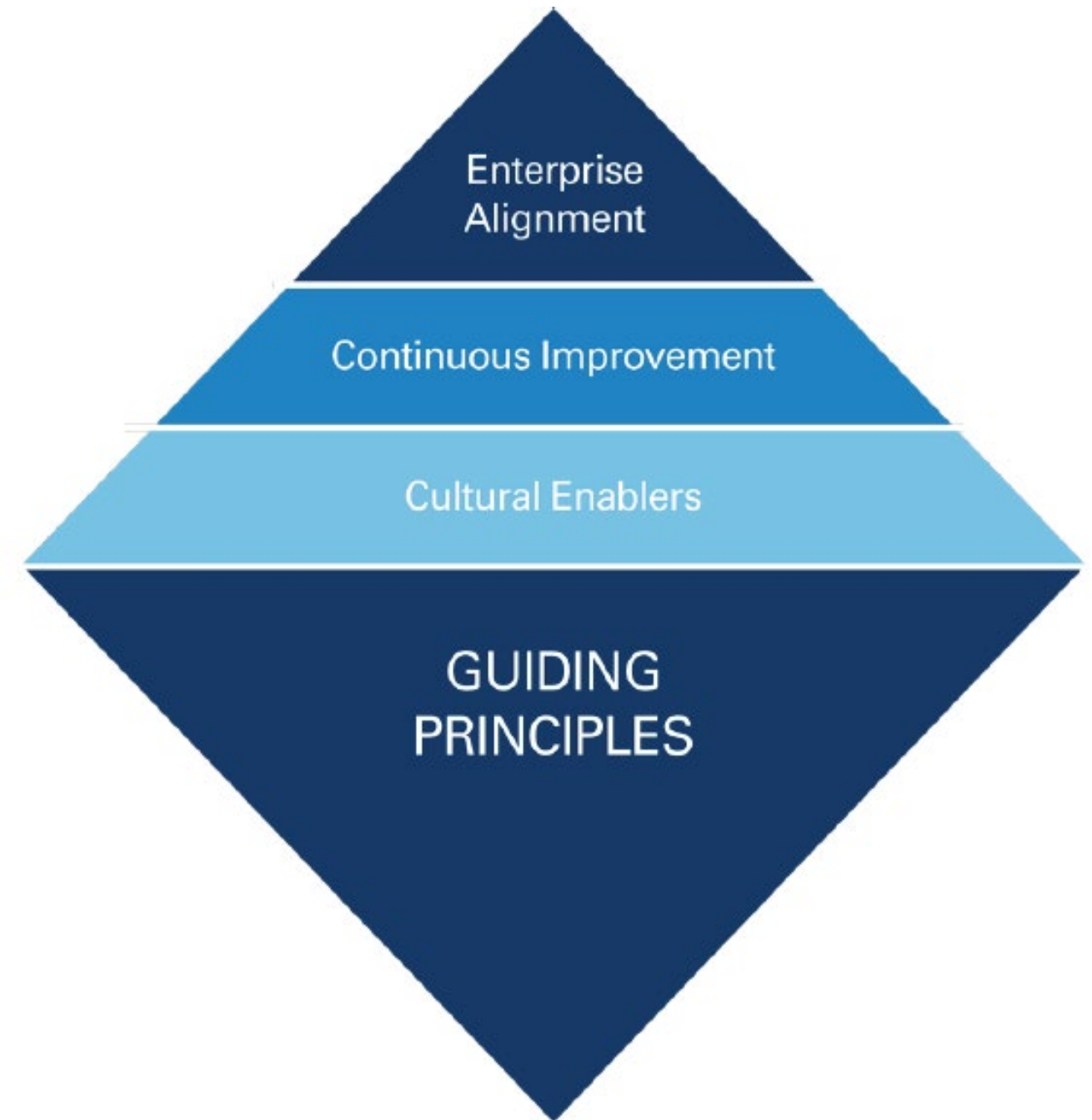
Dimension 1: cultural enablers principles

Respect every individual

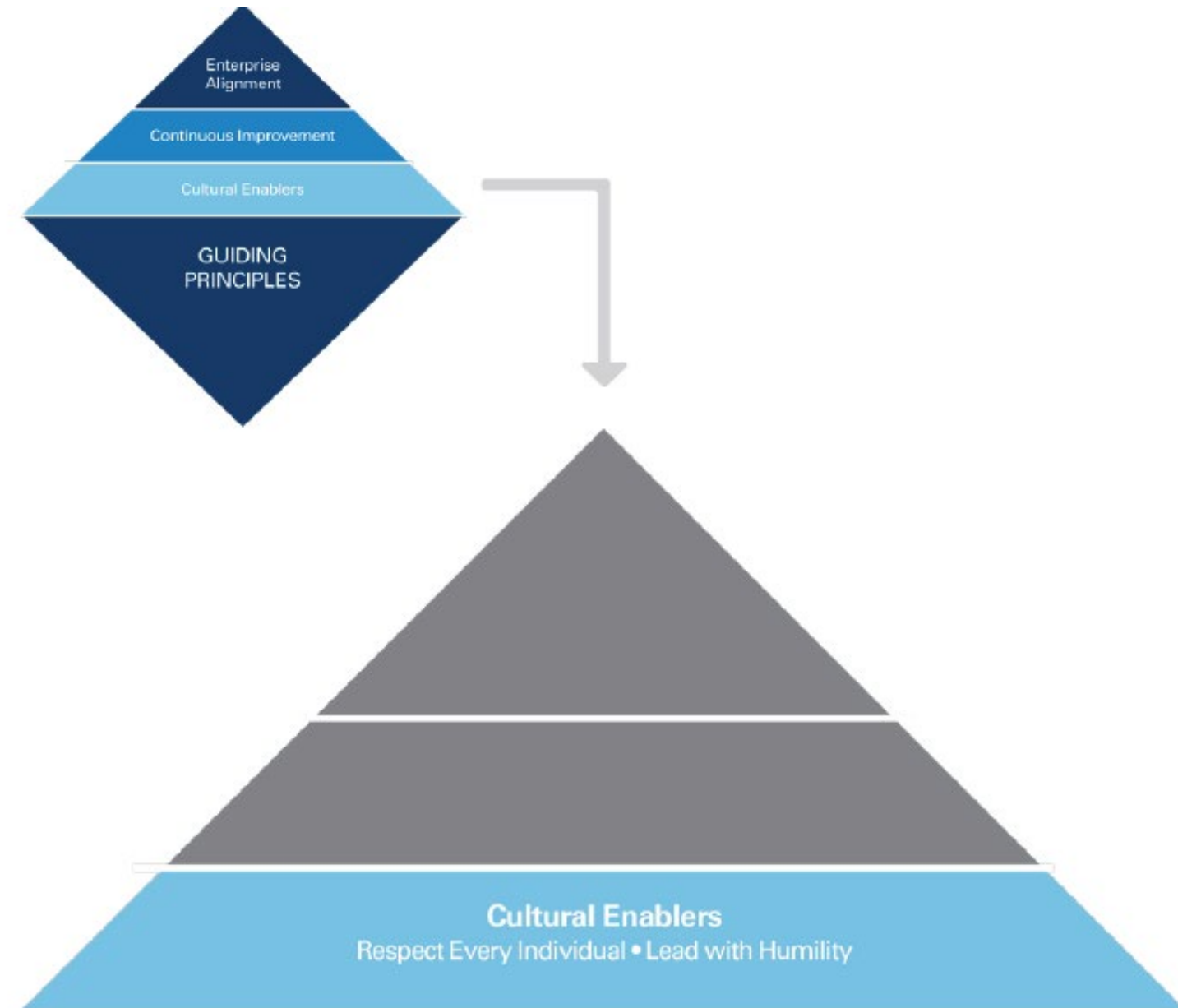- Respect must become something that is deeply felt for and by every person in the organization (employees, customers, suppliers, community).

Lead with humility

- A leader's willingness to seek input, listen carefully and continuously learn creates an environment where associates feel respected and energized and give freely of their creative abilities.

To succeed you must:

- Assure a safe environment
  - There is no greater measure of respect for the individual than creating a work environment that promotes both the health and safety of employees.

- Develop people
  - Through people development, the organization creates "new scientists" who will drive future improvement in classroom and hands-on experiences.

- Empower and involve everyone
  - Fundamental to the Shingo Model is the concept of teaching people the key principles (the "why") behind everything they do.

- Cultivate a "learning" organization
  - Collaborative teams for developing improvements

Force Field Analysis

- 20 minutes

- What are we trying to achieve:

  - For us to work successfully we need to trust our people to use a fixed blade safely

- Instructions:

  1. Write in your **goal, condition, value proposition** as a statement in the yellow box in the middle.

  2. Write down the things that **contribute** to achieving this goal in the green box on the left.

  3. Write down the things that **restrain** or limit you from achieving this goal in the pink box.

  4. If necessary, take pictures of the wall version, and transcribe to a documented version.

10-minute break

Dimension 2: continuous improvement principles

- Seek perfection
  - Continuous improvement
- Embrace scientific thinking
- Focus on process
  - Issues are usually rooted in an imperfect process
- Assure quality at the source
- Respond to real demand and remove barriers
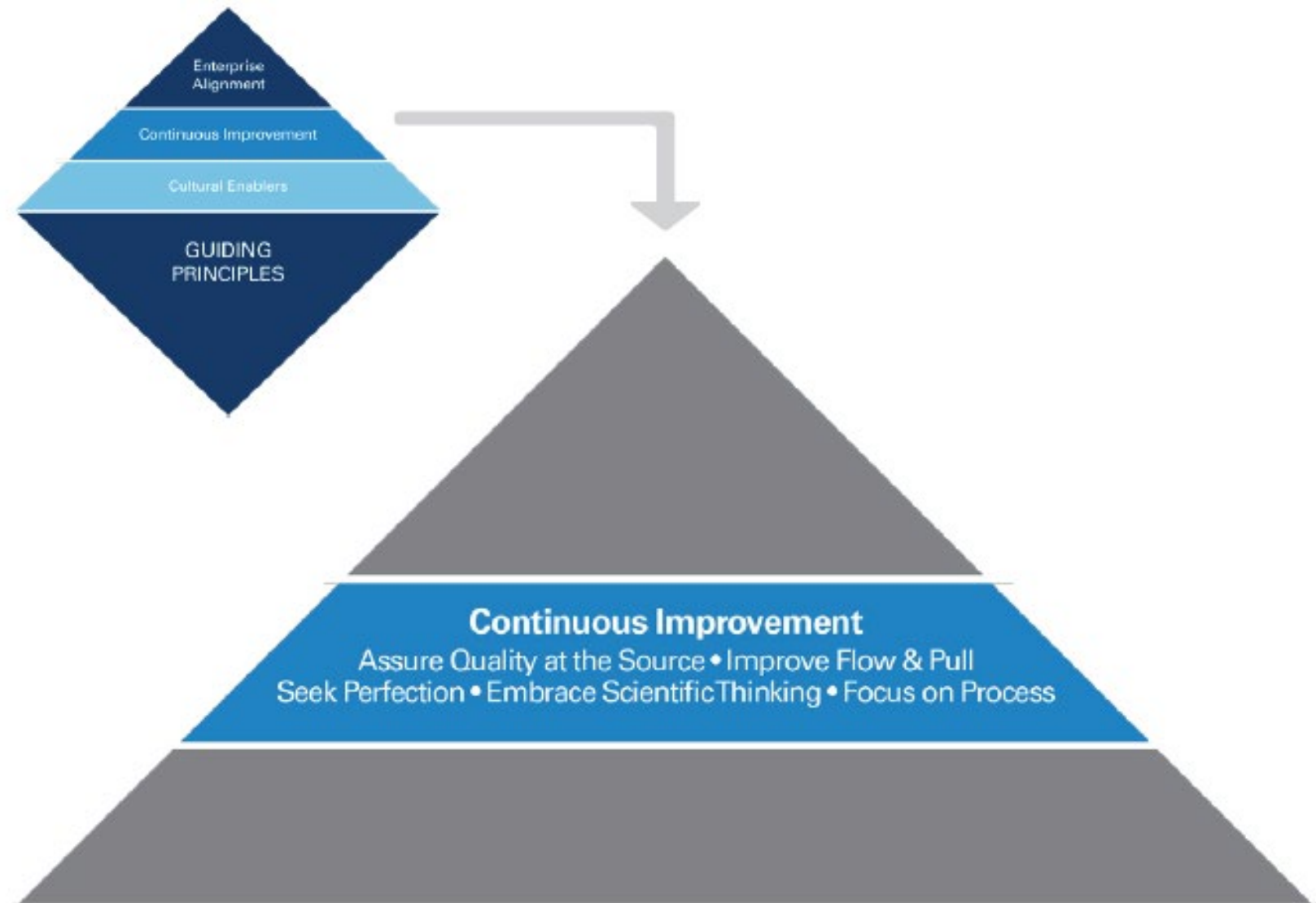
To succeed you must:

- Stabilize processes
  - Create consistency and repeatability

- Standard work
  - When standardization is in place, the work itself serves as the management control mechanism

- Go and observe
  - Rely on direct observation, not perception, past experience, instincts, etc.

- Focus on value stream
  - The collection of the necessary steps required to deliver value to the customer

Continuous improvement done well

- Keep it simple and visual

- Identify and eliminate anything that slows or interrupts the continuous flow of value to customers (waste)

- Everyone owns, is accountable for, and will stop work to fix errors (eliminate defects)

- Integrate improvement with work

  - When you integrate improvement with work, each person accepts responsibility for improvement of the daily work processes

Rely on data and facts
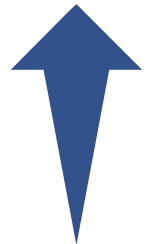
Leading indicators

- Predictive of future results
- Influenceable: You can make a difference... it's within your power
- **Focus on ideal behaviors**

Shigeo Shingo calls these Key Behavior Indicators

Lagging indicators

- Reliable: Tells you if you have achieved a tangible objective
- In the past: result that you measure *after* it has happened

Shigeo Shingo calls these Key Performance Indicators

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National Safety Council Campbell Institute:
Practical guide to leading indicators

- Example Leading Indicators

  - Compliance

  - Corrective Actions

  - Training

  - Hazard identification, risk assessment, and communication

  - Safety Perception Surveys

  - Recognition – rewards for displaying desired behavior

  - Leadership engagement

  - Observations and incident reporting

Metrics discussion

- What do people use for leading & lagging indicators within their organization?

- Brainstorm leading & lagging indicators to measure success with fixed-blade-use program
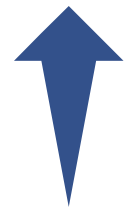
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Dimension 3: enterprise alignment - principles

- ## Think systemically
  - Understanding the relationships and interconnectedness of a system

- ## Create constancy of purpose
  - Purpose at the highest level, why does this organization exist, a unifying vision

- ## Create value for the customer
  - Ultimately, value must be defined through the lens of what a customer wants and is willing to pay for
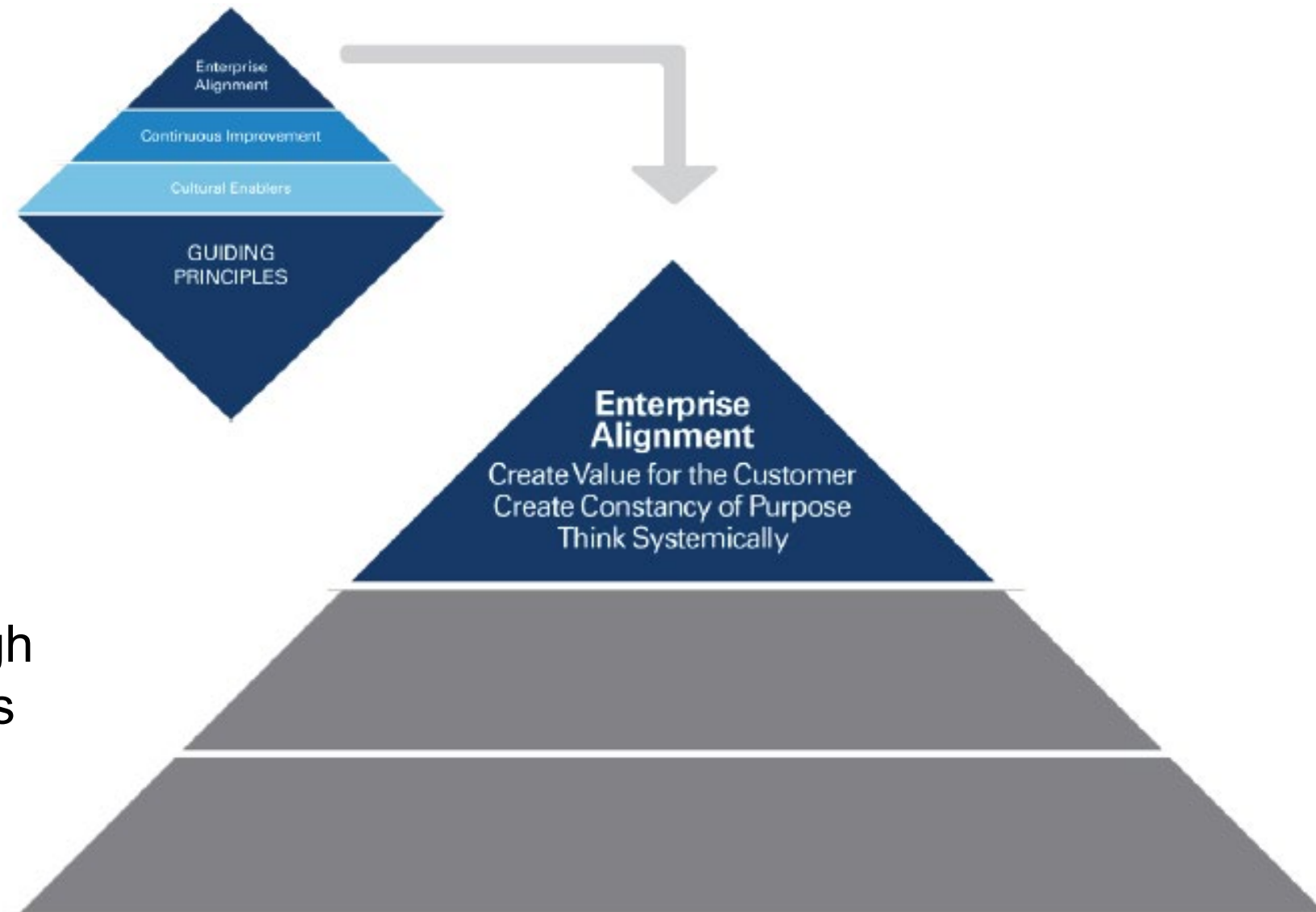
To succeed you must:

- See reality
  - See through our blind spots and through organizational barriers, an honest picture of reality (beginner's mind)

- Focus on long term
  - Long-term focus is more likely to ensure decisions pursue safety, quality, delivery, and cost rather than monthly or quarterly financial targets

- Align systems
  - Full potential is realized only when principles, systems, and tools share a common platform of operational excellence, while it is expected that there are some unique elements of local culture

To succeed you must:

- Align behaviors with performance

  - Ideal behaviors drive long-term results, align systems and strategy with principles of operational excellence and help each person anchor their personal values with these same principles

- Policy deployment – "Clarity is critical"

  - Policy deployment provides leadership with the necessary principles, systems, and tools to carefully align key objectives and execution strategies. This empowers the organization, through cascading levels of detail, to achieve those objectives

- Standardized daily management

  - The concept of having some level of detailed work description for how to do daily work applies at all levels of an organization

Star Model™: a helpful framework for organizational design

PEOPLE
Consider our PEOPLE – you have to figure out: what skills do they need? How do we develop people? Do we have the right people doing the right work?

WORK PROCESSES
Examine our work processes, which influence the flow of information to make decisions.

ORGANIZATIONAL EFFECTIVENESS

PERFORMANCE OUTCOME
(need better work)
- Insert generic outcomes for organization (achieve goals, staff satisfaction, etc.)
- Or Insert specific outcomes client is working towards

STRUCTURE
Determines the location of decision-making power.

Before adjusting your structure, you must know what work you need to do in the other areas of the star.

Strategy

STRATEGY
Strategy determines direction. You input your strategy into your systems – for better or worse – and out comes your performance.

REWARDS
Rewards systems, which influence the motivation of people to perform and address organizational goals.

MANAGEMENT PROCESSES
Examine our management processes to see how our strategy meets our operations decisions.

" One of the most significant failures of modern management is its focus on strategy and planning without considering execution."

Shigeo Shingo

10-minute break

Brilliance Audio   **UNABRIDGED**

ACHIEVING YOUR WILDLY
IMPORTANT GOALS

#1
Business
Bestseller
*The Wall Street
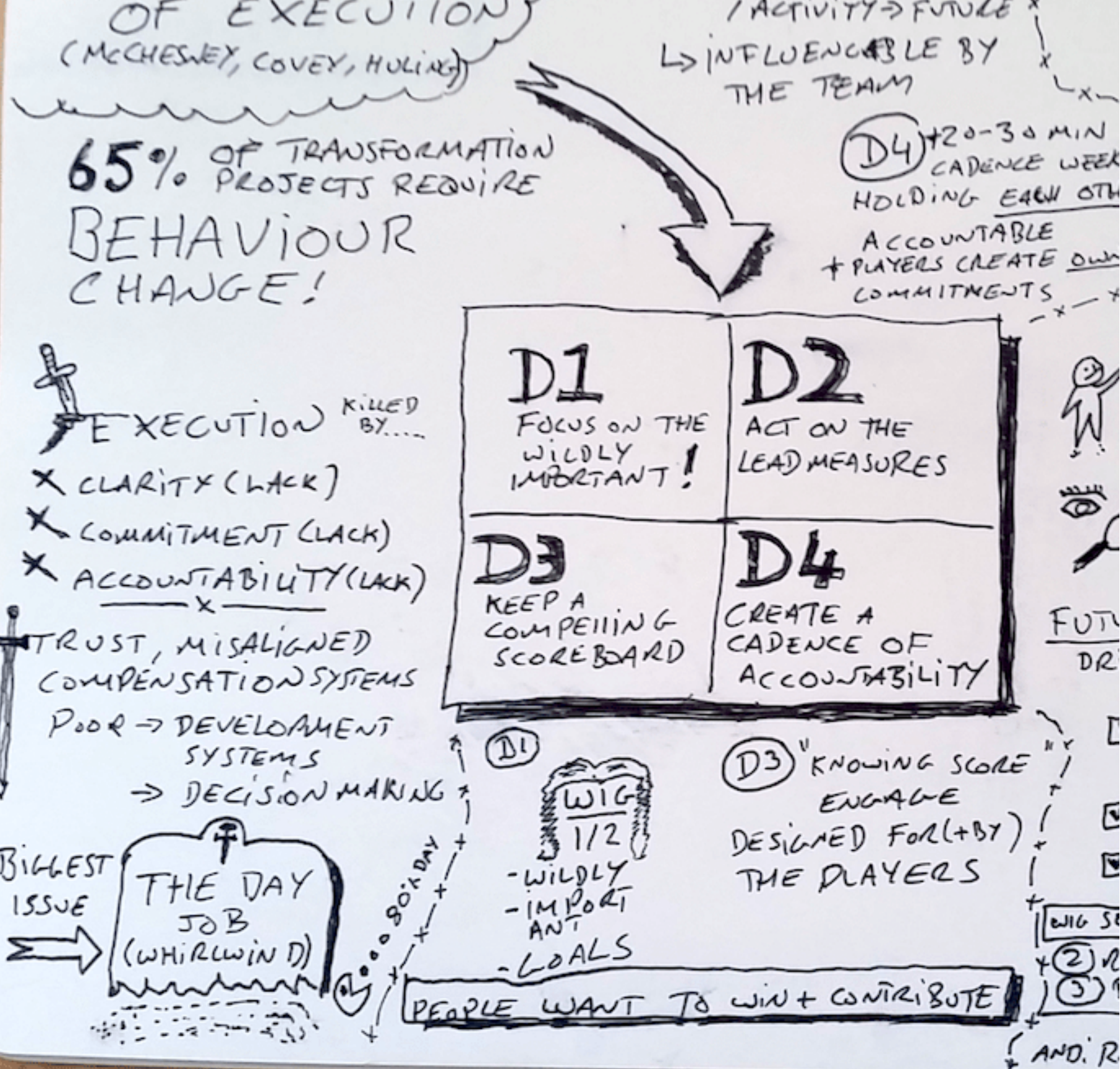Journal*

The
4 Disciplines
of
Execution

4DXX

CHRIS McCHESNEY

SEAN COVEY
THE *NEW YORK TIMES* BESTSELLING AUTHOR

JIM HULING

OF EXECUTION
(McCHESNEY, COVEY, HULING)

/ ACTIVITY → FUTURE
↳ INFLUENCABLE BY
THE TEAM

65% OF TRANSFORMATION
PROJECTS REQUIRE
BEHAVIOUR
CHANGE!

D4 +20-30 MIN
CADENCE WEEK
HOLDING EACH OTHER
ACCOUNTABLE
+ PLAYERS CREATE OWN
COMMITMENTS

EXECUTION KILLED BY....

✗ CLARITY (LACK)
✗ COMMITMENT (LACK)
✗ ACCOUNTABILITY (LACK)
✗

TRUST, MISALIGNED
COMPENSATION SYSTEMS
POOR → DEVELOPMENT
SYSTEMS
→ DECISION MAKING

| D1 FOCUS ON THE WILDLY IMPORTANT! | D2 ACT ON THE LEAD MEASURES |
| D3 KEEP A COMPELLING SCOREBOARD | D4 CREATE A CADENCE OF ACCOUNTABILITY |

FUTU
DR

BIGGEST
ISSUE →

THE DAY
JOB
(WHIRLWIND)

80% DAY

D1

WIG
1/2
- WILDLY
- IMPORT
ANT
- GOALS

D3 "KNOWING SCORE
ENGAGE
DESIGNED FOR (+BY)
THE PLAYERS

WIG S
2
3

PEOPLE WANT TO WIN + CONTRIBUTE

AND, P

4 DX – it doesn't make Lean; it makes Lean better

- 4 DX is an actionable set of tools to identify, create, and execute strategic goals - it doesn't create new things, it makes existing things better

- 4 DX principles will help us successfully build and execute our A3

  - Identify the right goals that will move the needle (Box 1 and 4)

  - Identify powerful lagging and leading metrics

  - Separate the strategic goals work from our daily work

  - Improve our accountability for completing the strategic goals – improving our check meetings

- This is a powerful, tactical, how-to for getting things done

Why do we fail in executing a goal?

- Clarity of the objective – Execution breakdowns occur when people simply don't understand what the goal is

- Lack of commitment – Those responsible for executing weren't committed and/or passionate about the goal

- Lack of accountability – People are not regularly held accountable for progress on the goals

- Our day jobs are the real enemy of achieving strategic goals. This whirlwind robs from the focus required to move forward

An A3 can help with all of these

What is A3 thinking?

- A highly effective way of storytelling

- Creates visible thinking

- Makes personal assumptions visible – allowing the group to better understand each other's assumptions and address them

- It is a process that is supported by a form – not governed by the form

- It is not a linear process – as you learn, you should go back and modify/improve on your earlier thinking

- **It is collaborative**

From "A3 Problem Solving: Applying Lean Thinking"; Jamie Flinchbaugh

A3 thinking

- Is a method to structure, capture, communicate, and coach
- Is a way a team can rally around a common way of thinking and talking
- Is a way of standardizing and simplifying the process of capturing the group's thinking
- Four main areas:
  - Background & problem statement
  - Current condition
  - Target condition
  - Steps, targets, measurements

Tips

- Make the A3 easily changed – best if done on paper with pencil, on a dry erase board, etc.

- Track revisions – this makes the journey visible

- Ensure it is a living document – continuously changing

- Do not get hung up on the form – function over form

**Do not solve the problem and
use the A3 to gain buy in – must be collaborative**

Develop your problem statement

- Develop our fixed-blade-knife problem statement

Problem Statement

- Determines the focus of the group
- Must be a current observable condition
- Is not perceived solutions
- Has a huge impact on the trajectory of the solution
- Problem statement is a living changing entity – keep rewriting it as you learn
- Develop problem statement collaboratively

Joe is a Jerk

vs.

How do I work with Joe

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Develop your current conditions

Use 5 Whys to deeply understand current reality

- If not, we will repeat mistakes
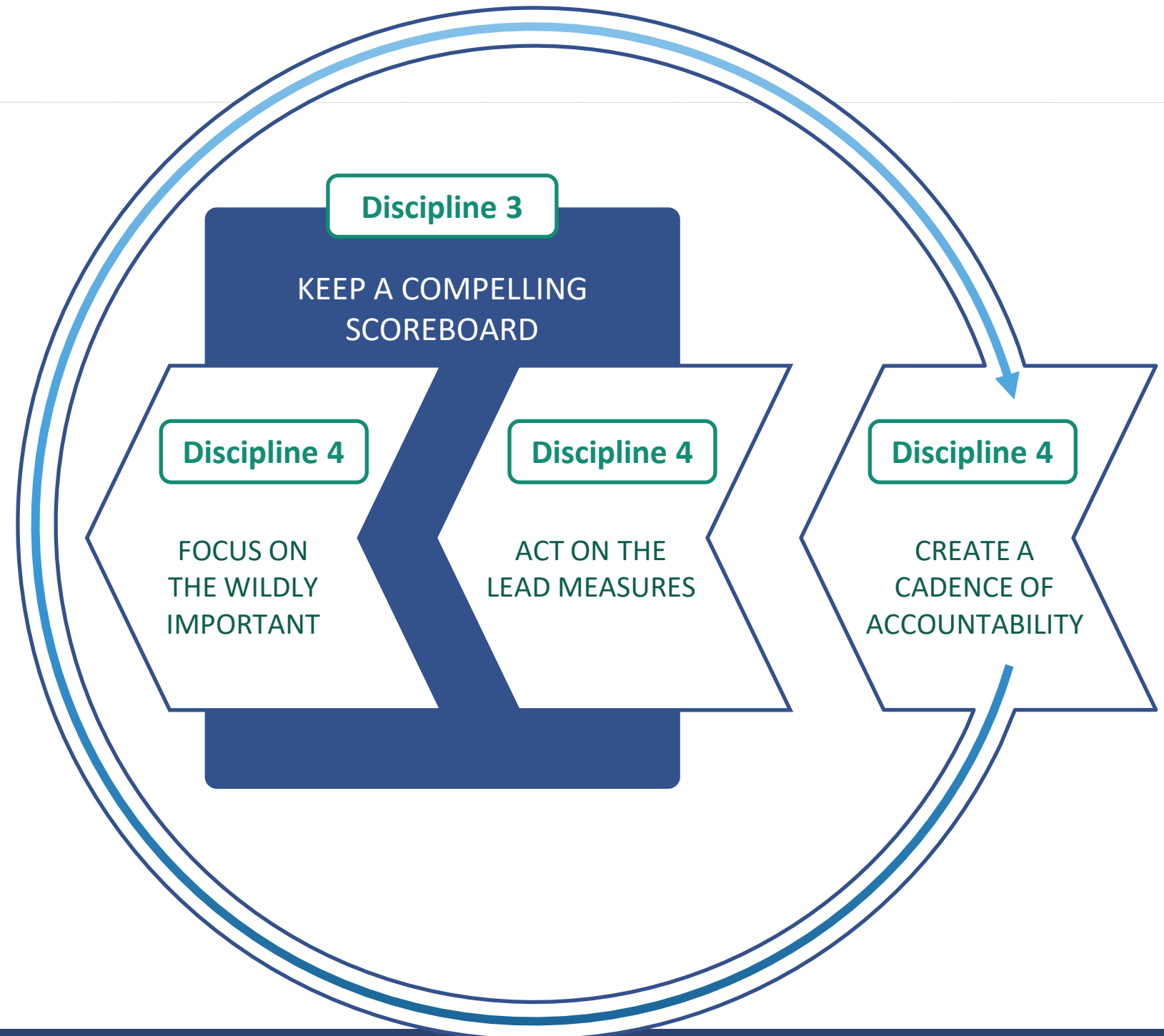- If not, we may discard current actions which are good

Ask yourself:

- What do I need to learn about?
- How will I go about learning?

Include customers and stakeholders

4 disciplines of execution

1. **Focus on the wildly important**

2. **Act on lead measures**

3. **Keep a compelling scoreboard**

4. **Create a cadence of accountability**

Discipline 1 – Focus on the Wildly Important

- Nobody can achieve more than 2 goals with excellence

- Narrow the focus on strategic goals to 1 or 2 "Wildly Important Goals":

  - Ask: If everything else remained the same, what one thing we change would have the greatest impact?

- 4 rules of focus

  - No team focuses on more than 2 WIGs

  - The battles you choose must win the war

  - Senior leaders can veto, not dictate

  - WIGs have a finish line = From X to Y by when

Installing discipline 1

- Brainstorm WIGs
  - WIG aligned to the overall WIG (will this battle move us closer to winning the war?)
  - It is measurable and we own the results
  - The team owns the process (not the leader)
- Define the WIG as clear and measurable as possible
  - Begin with a verb, a simple verb (e.g. **grow** revenue, **cut** cost)
  - Define the lag measure in terms of X to Y by when (e.g. increase monthly attendance from 72% to 90% by December 2020)
  - Keep it simple and focus on what not how (from X to Y by when, no mention of how)
  - Make sure the WIG is achievable
- Test Wig against sub-bullets in bullet 1 above

Discipline 2 – Act on lead measures

- Measure the activities most connected to achieving the goal, using both lead and lag measures

- Lead measures – behavioral

  - Define the daily or weekly measures – if you achieve them, you will achieve the goal – predictive of achieving the goal

  - Identify the most important actions that will drive the lead measures

  - Influenceable – team can influence without significant dependence on others

- Lag metrics – tracking measurements of the goal – usually the ones you spend the most time praying over being good…

- Record these on your A3

Weight loss example: scale = Lagging daily calories, daily exercise = Leading

Installing discipline 2

- Act on a few lead measures that provide the most impact, such as:
  - Small outcomes focused on behavior
  - Define if focus is on achieving a weekly or daily result
  - Track team or individual performance you want throughout the week/day
  - Is it a quantitative standard or a qualitative standard? How much, how often vs. how well we perform
  - Is it simple and starts with a verb?

- Brainstorm lead measures
- Test top ideas
  - Is it predictive?
  - Is it influenceable?
  - Is it an ongoing process
  - Is it a team process?
  - Can it be measured?
  - Is it worth measuring?
- Develop lagging measure

Discipline 3 – Keep a compelling scoreboard

- People play differently when they are keeping score

- Engage staff to build a scoreboard, designed solely to engage them to win – must be compelling to those doing the work, not the leader

- If done well, the scoreboard is:

  - Simple, visible, and clearly shows lead and lag measures

  - 5-second rule: You should be able to find, read, and tell if you're winning in less than 5 seconds

  - Owned by one person who has the responsibility to update it

  - Posted and updated as agreed upon by the team

Examples of scoreboards

- Trendlines – communicate X to Y by when (target conditions)

- Speedometer – shows the status instantly, ideal for time measures – could also be a thermometer, ruler, or scale

- Bar chart

- Andon – shows if process is on track, in danger, or off track – green, yellow, red; smiley face, serious face, frowny face

BEAT THE GOAT

WIG: Book 428 Exhibitors for Outdoor Convention by Oct. 30

LEAD MEASURES

2000 Sales Calls to Dealers - June

ACTUAL: 2169

TARGET: 2000

VARIANCE: + 169

%VARIANCE: + 8.45%

COURTESY & HELPFULNESS

Target: 9

Actual: 9

YTD Avg: 8.7

Discipline 4 – Create a cadence of accountability

- Recurring cycle of accountability for past performance and future planning

- Great teams operate with a high level of accountability

- Accountability is:

  - Making personal commitments to the entire team to move the score forward

  - Following through on those personal commitments

  - Shared – team makes commitments to boss, and more importantly to each other

- Meet at least weekly for no more than 30 minutes to drive accountability

Weekly meeting or WIG session

Ground rules:

- Held on the same day and at the same time every week

- Day jobs are not allowed

1. Account: I committed to… I did… I learned…

2. Review the scoreboard: Learn from successes and failures

3. Plan: Clear the path and make new commitments; 1 or 2 most important things I can do this week to impact the lead measures

Keys to WIG session

- Hold each other accountable for taking the actions that will move the lead measures, resulting in the achievement of the WIG

- Religiously work to hold the meeting to 20 to 30 minutes max

- Prepare – every team member comes to the meeting prepared to report out past week, and discuss what they will do in the coming week

- Team leader should ask "What can I do this week to clear the path for you?"

- Commitments from session should represent a specific deliverable that influences the lead measure

Other Lean tools

Lean Construction Institute
Transforming Design and Construction

Gemba

- It means - go see for yourself, ask why, and show respect. Instead of assuming what's going on, get out to the work area and ask questions to help understand what is actually happening in a process from the perspective of people doing the work. It's going to **"the place where work is done"**.

Always:
- Use ideal behaviors
- Listen 2x as much as you speak
- Show empathy, respect, and humility
- Remember that you do NOT know how to do their job better than they do in that moment
- You are serving them, learning from the staff doing the work, NOT the other way around.

Never:
- Start complaining or chime in to staff complaints
- Mix up or confuse Gemba with skills assessment, a peer review or safety audit, or an office visit where you're making a presentation
- Surprise people or play "gothca"
- Say "I'll fix that for you" or start trying to fix it on the spot
- Inject your own point of view
- Come with an agenda
- Tell them what to do, how to do their job, give them tons of suggestions for how to improve their work. JUST DON"T

Work as imagined vs. Work as done

Taiichi Ohno (architect of TPS)	**Albert Einstein**	**Shingo** (a student of Ohno):	**Fujio Cho** (former Toyota Chairman)	**Sidney Dekker** (Safety expert)
Called for a revolution of awareness	"Problems cannot be solved at the same level of awareness that created them."	"The greatest waste is the waste we do not see."	"Go see, ask why, show respect"	"Don't ask questions about safety, ask questions about their work. Teach me how this is done. What concerns you about this?"

How does your policy hold up?

Work as imagined

Work as done

The power of Gemba

- Empower people

- Build trust and trustworthiness

- Be a servant leader – learn how to clear the path for the people at the sharp end of the stick

- If nothing else, ask 2 questions (from Sidney Dekker):

  - What is the workaround you had to do today to get your job done?

  - What frustrates you when you are trying to get your job done?

- Seek to understand the hardships they endure and make sure tools and systems serve to make the ideal behaviors easier

DO NOT AUDIT

Visual management

The placement in plain view of all tools, parts, production activities, and indicators of a production system's performance so the status of the system can be understood by everyone involved.

Visual management

Visual	+	Management	=	Visual Management

- ✓ Easy to understand
- ✓ See at a glance

- ✓ Planning
- ✓ Check & control
- ✓ Adjustment

The individual comprehends and changes behaviors

Center of visual excellence (C.O.V.E.)

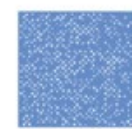- Using the Elements of Art, what do you see in this photo?

Elements of Art

| Color | Lines | Shapes | Space | Texture |

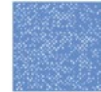# C.O.V.E.

Elements of Art

Color Lines Shapes Space Texture

5S: What is it?

Relentless workplace organization that rewards the user with Safety, Inventory Control, and radically improved Workflow
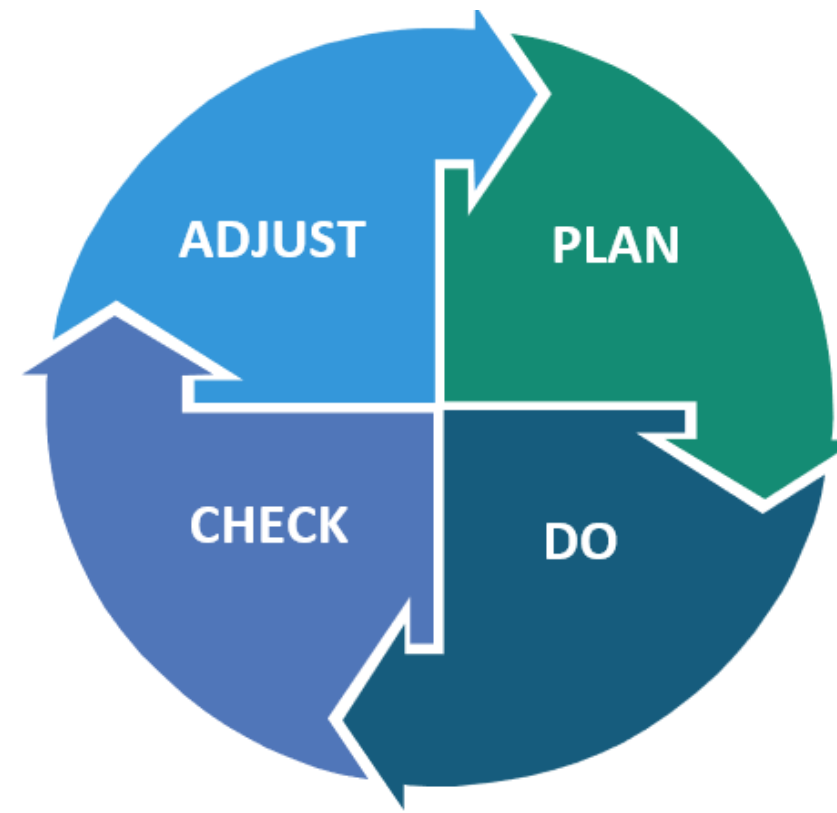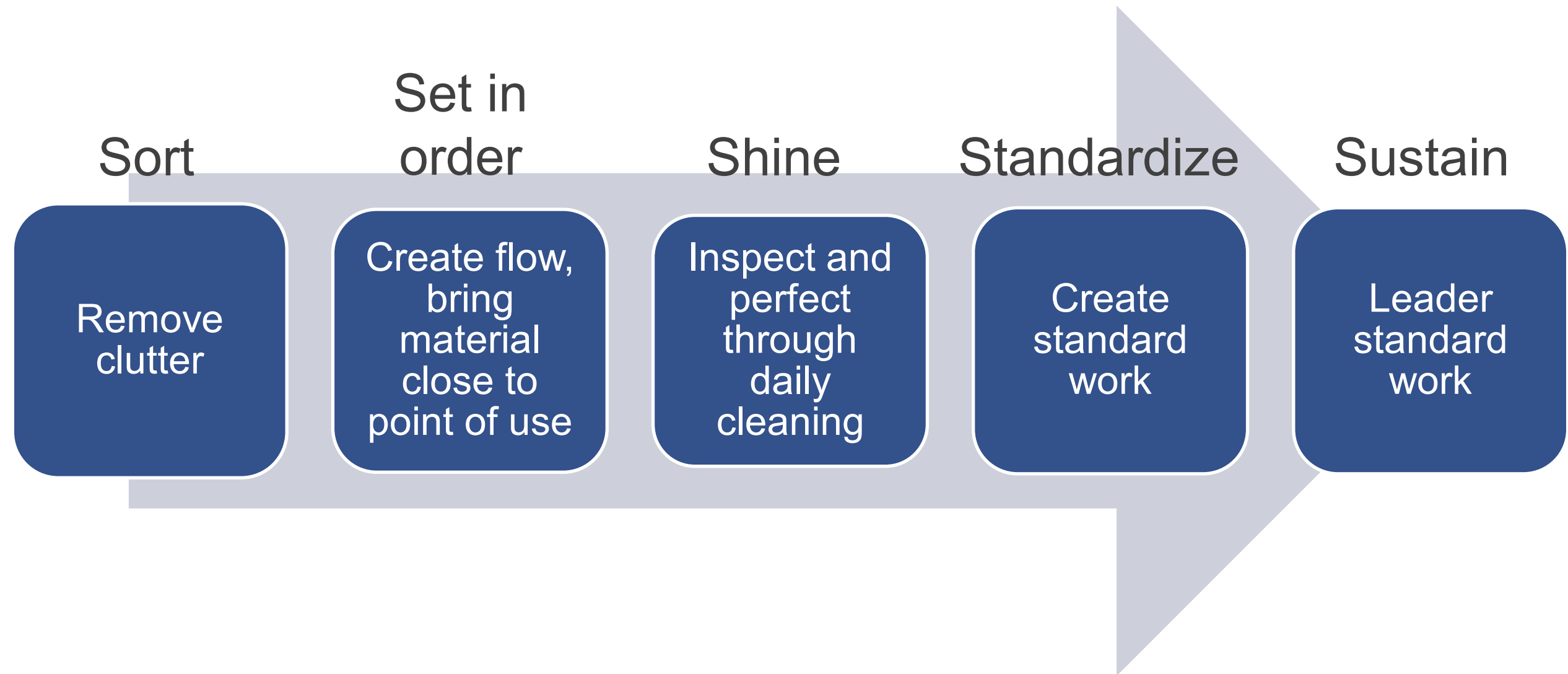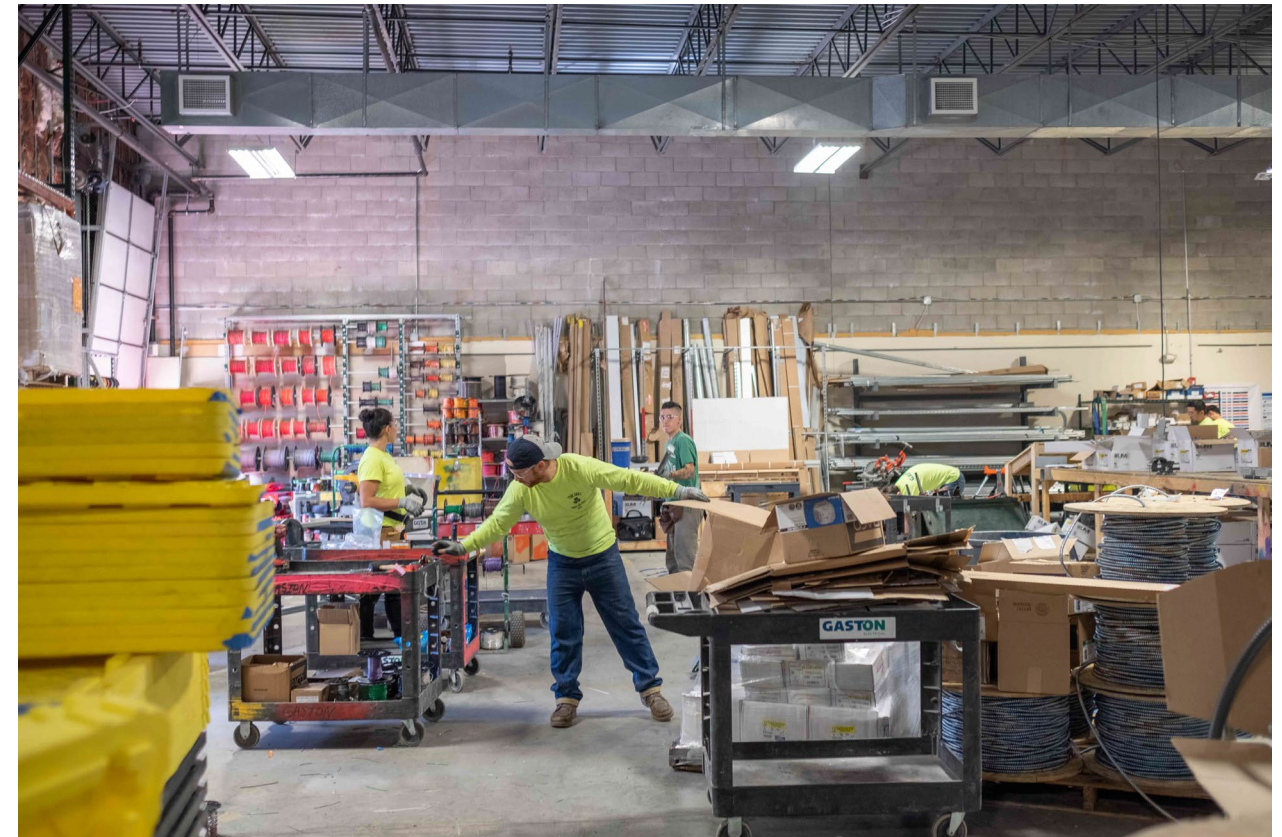
Sort

Set in Order

Shine

Standardize

Sustain

5S: What is it?

Sort

Set in order

Shine

Standardize

Sustain

| Remove clutter | Create flow, bring material close to point of use | Inspect and perfect through daily cleaning | Create standard work | Leader standard work |

Safety in fab shop

Setting in order and sustaining 5S: shadow boards

5S results

Deadly waste removed	Impact to safety	Impact to production
Motion	Less walking in aisle ways, safety tools are accessible	25% more wrench time
Transportation	Reduced strain	Operator stays on task
Human engagement	Vastly improved sightlines	Defects are easy to see
Inventory	Less motion, strain, trips	56% more floorspace for production
Human engagement	"Chief Improvement Officer"	From 2 ideas per worker to 25 ideas per worker

Root cause analysis (RCA)
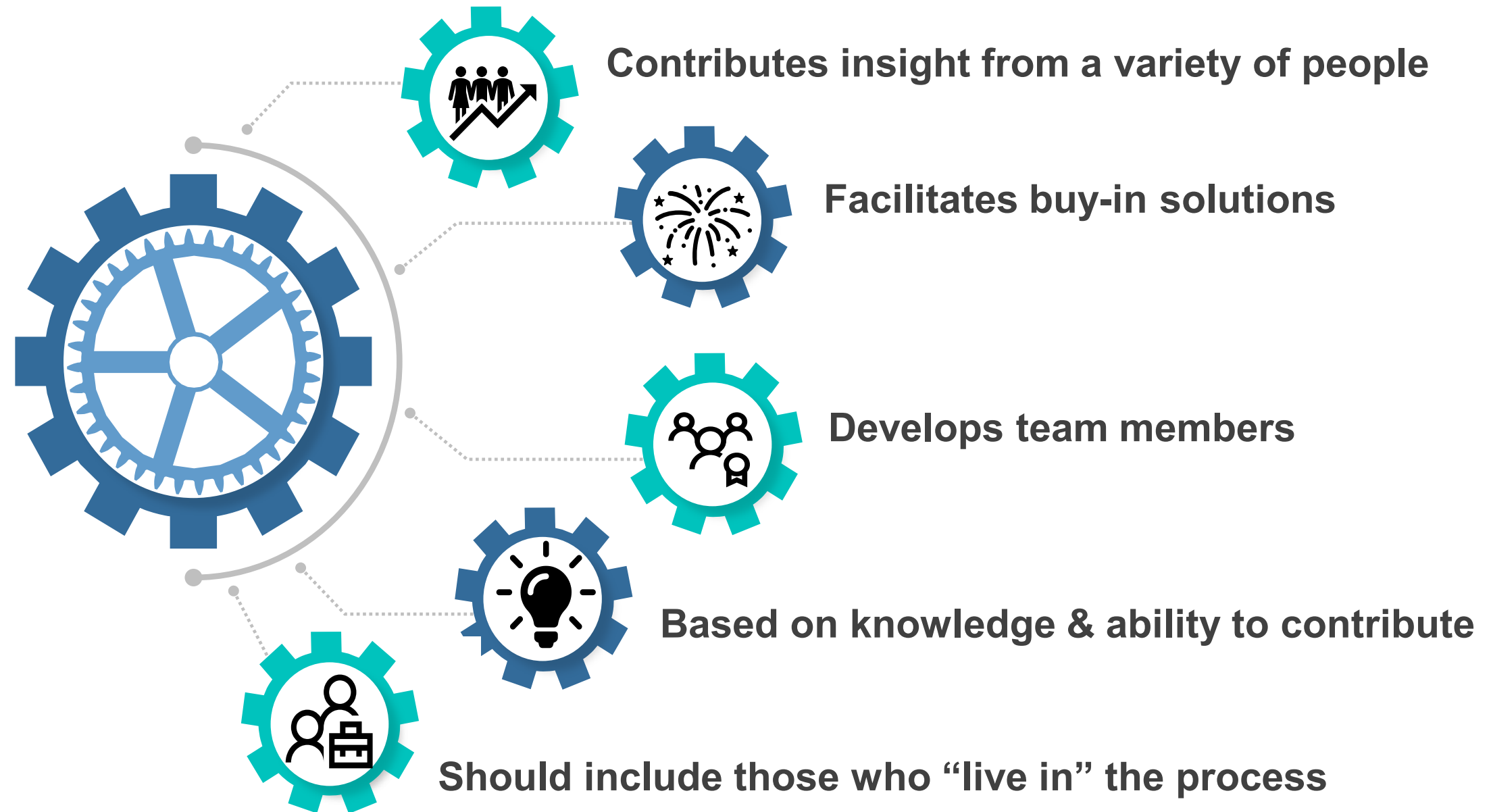
Pre-mortem vs. post-mortem

A few (Lean) tools for analyzing root causes

- **Failure mode effects analysis**: Systematic method for finding potential weaknesses in a system, understanding their effects, and prioritizing and identifying control measures.

- **Value stream mapping**: makes visible the relationship of a set of processes, people, outcomes, and problems

- **5 whys**: method of inquiry that deepens understanding

- **Fishbone** (Ishikawa): helps a team identify and **explore groups of causes in increasing detail**

Who does the RCA?

The best application is through a cross-functional team

Contributes insight from a variety of people

Facilitates buy-in solutions

Develops team members

Based on knowledge & ability to contribute

Should include those who "live in" the process

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How can you apply this tomorrow?

24TH LCI CONGRESS
OCTOBER 18-21

In the spirit of continuous improvement, we would like to remind you to complete this session's survey! We look forward to receiving your feedback.

Contact Us

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References

- Paul O'Neill Chapter, The Power of Habit by Charles Duhigg - https://safestart.app.box.com/s/xdnx028sblinqnbn4oou

- Do Safety Differently by Dekker and Conklin

- www.safetydifferently.com

- National Safety Council Practical Guide to Leading Indicators

- 4 Disciplines of Execution by McChesney, Covey, and Huling

- Discover Excellence by Gerhard Plenert

- Other Books I recommend:

  - Managing the Unexpected by Weick and Sutcliffe

  - Turn the Ship Around by Marquet and Covey

Thank you for attending this presentation. Enjoy the rest of the 24th Annual LCI Congress!