Implementing Lean Leadership in a Continuous Process

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INEOS Olefins & Polymers USA

INEOS

THE WORD FOR CHEMICALS

Comprised of 20+ business units

A leading global chemical company

2016 Sales $40 bn

18,600 employees worldwide

119 billion pounds of chemicals capacity

44 billion pounds of refinery products (400,000 bbls/day)

8 million boe per annum of oil & gas

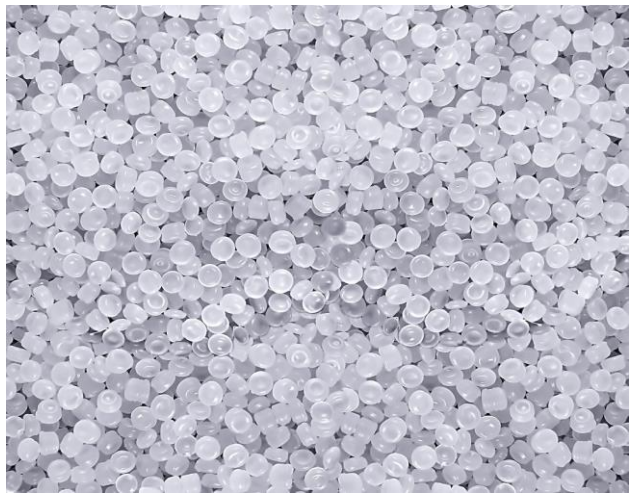
INEOS Olefins & Polymers USA

Chocolate Bayou Facility in Alvin, Tx (South of Houston)

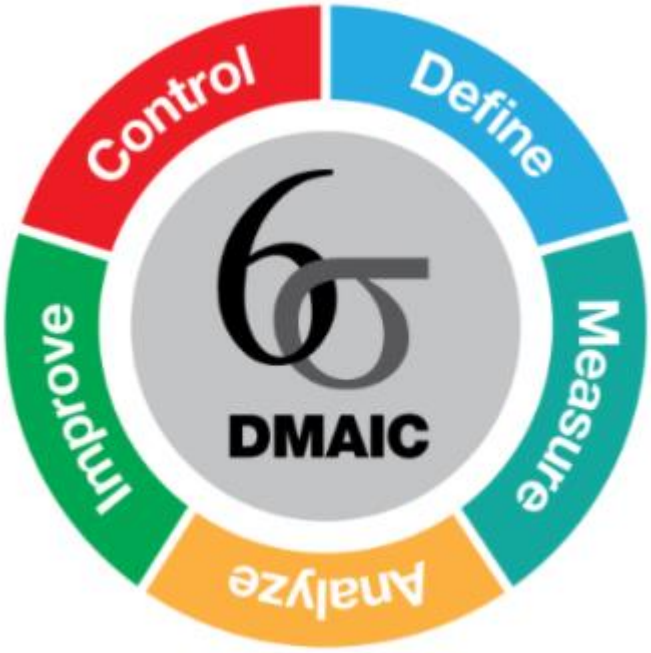
Reactors + Extruders

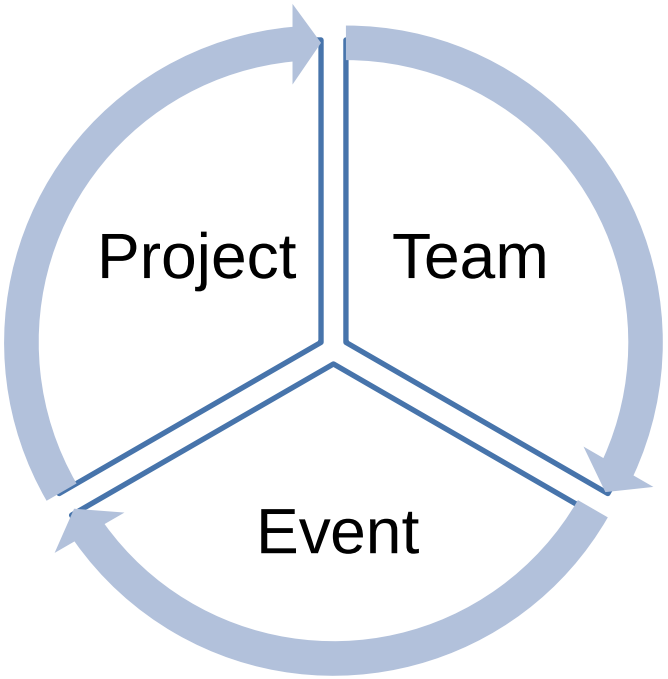
Operators in a control room monitoring the process

24/7 operations with rotating shift schedule



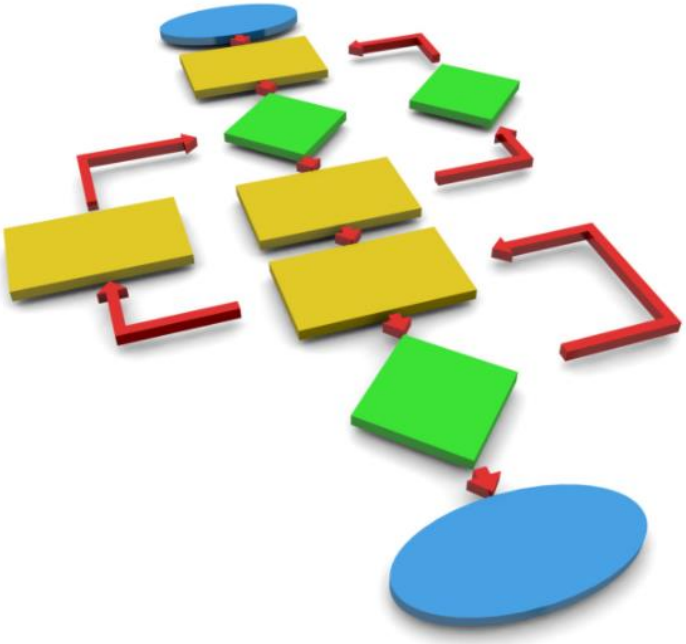
Six Sigma Strong





2007 → 109 projects → $709MM

Need for Lean



Lean???

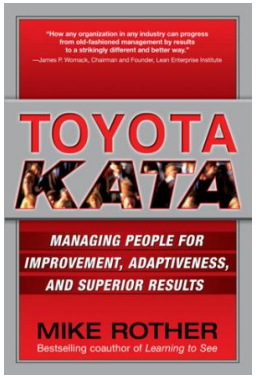
2009

176 People Trained

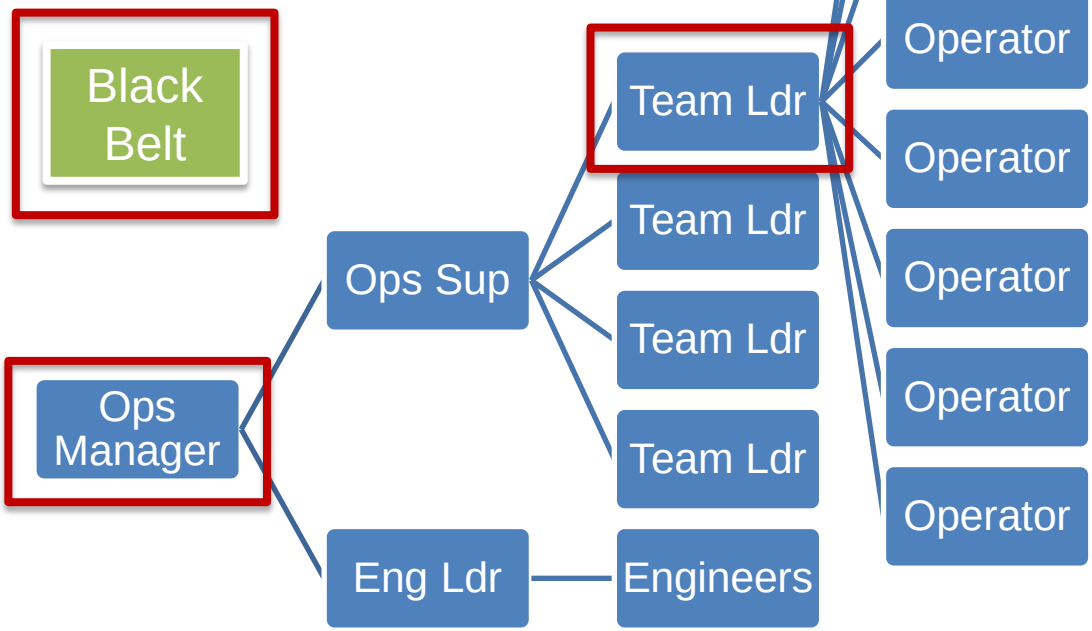
$ Saved?
Kaizens Conducted <5
Areas 5S'd <5

The Kimberly-Clark Story

Brittany – Lean Office Attendee and Intern at Kimberly-Clark



Connected Checks
Leader Standard Work



Learned About:

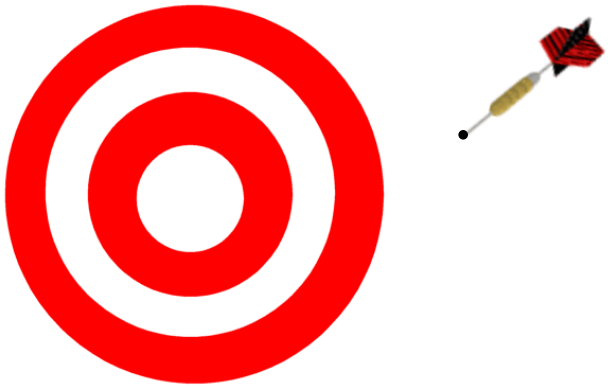
- People-Centric Leadership
- Visual Management
- Daily Accountability
- Leader Standard Work
- Kata
- Management by walking around

The Stars Align!

How We Would Do It

Debottleneck!

- Review past projects and proposals
- Capital Projects group
- Full engineering study
- 1.5 years begin capital execution
- $$$$



Six Sigma Project!

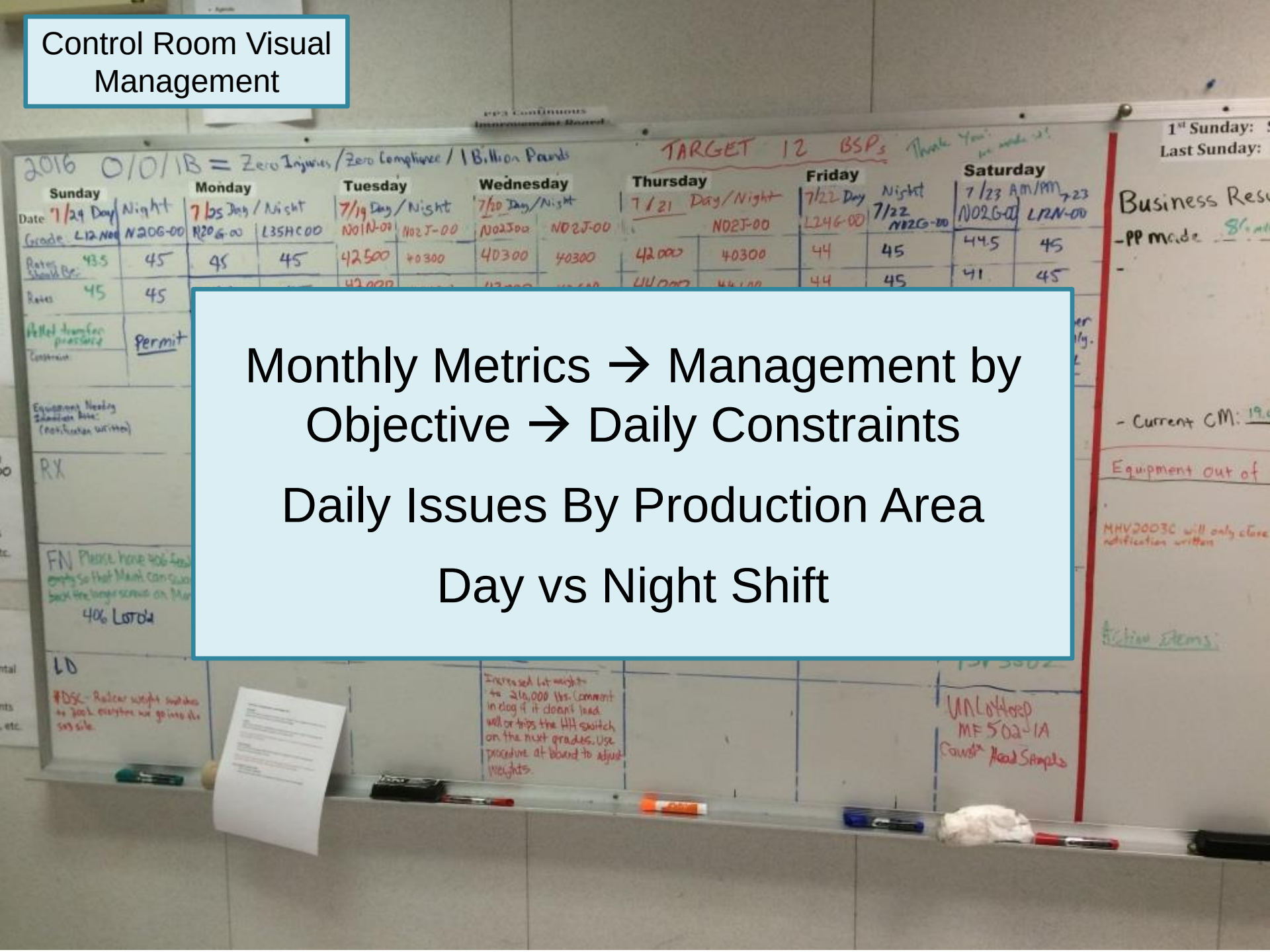
- DMAIC
- Project Team
- Meetings and Data Analysis
- Schedule Formal DOEs
- 9 months have an idea for some improvement

Current State Analysis

Few oper ior leadership
engage les: “Don’t do
improver ything unless I
effort l you to do it”

ious
nent?
ean
firefighting?”

Control Room Visual Management



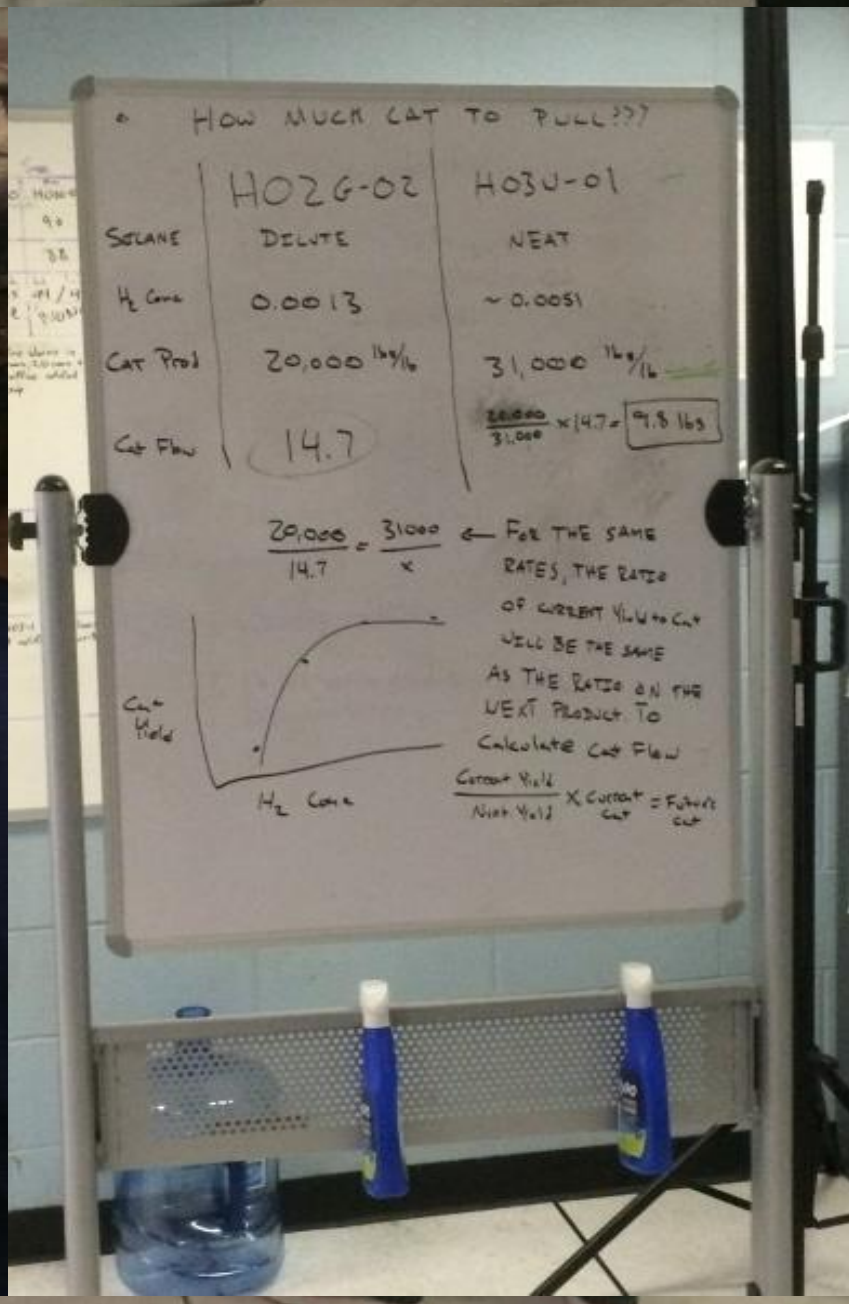
Monthly Metrics → Management by Objective → Daily Constraints

Daily Issues By Production Area

Day vs Night Shift

Daily

Gemba and PDCA



Name AI in Progress Completed - To be discussed for

Polymers Improvement Card

INEOS

Name: Date:

1. Describe the Problem/Current Condition:

Type: HSE Quality Production Impact: H L

2. What's the Target Condition:

Engagement and PDCA

**Idea selected will be circled, or PDCA will follow with notes on back

3. Five possible improvement measures	Effort
1	H L
2	H L
3	H L
4	H L
5	H L

Has each shift reviewed and added ideas and comments above?

A ☐ B ☐ C ☐ D ☐

Turn Over

Production Records

- Before Lean: hit new monthly production record every couple of years
- After Lean:
  - 4 r
  - Co
  - 2 c

Yearly Production Record!

+ 80 MMLbs

Pro… Variable	…Condition	…Condition	…tual
Maximum Annual Production (MMlbs)	**933** (2014)	**970**	**1,012**

Recipe for Success

Put Up a Whiteboard

Tell Everyone to Stop Firefighting

Make Everyone Have LSW

Ask People to Do More Because We Could Make More $$

Bake at 375 ºF = Easy ?!?

How did it really go?

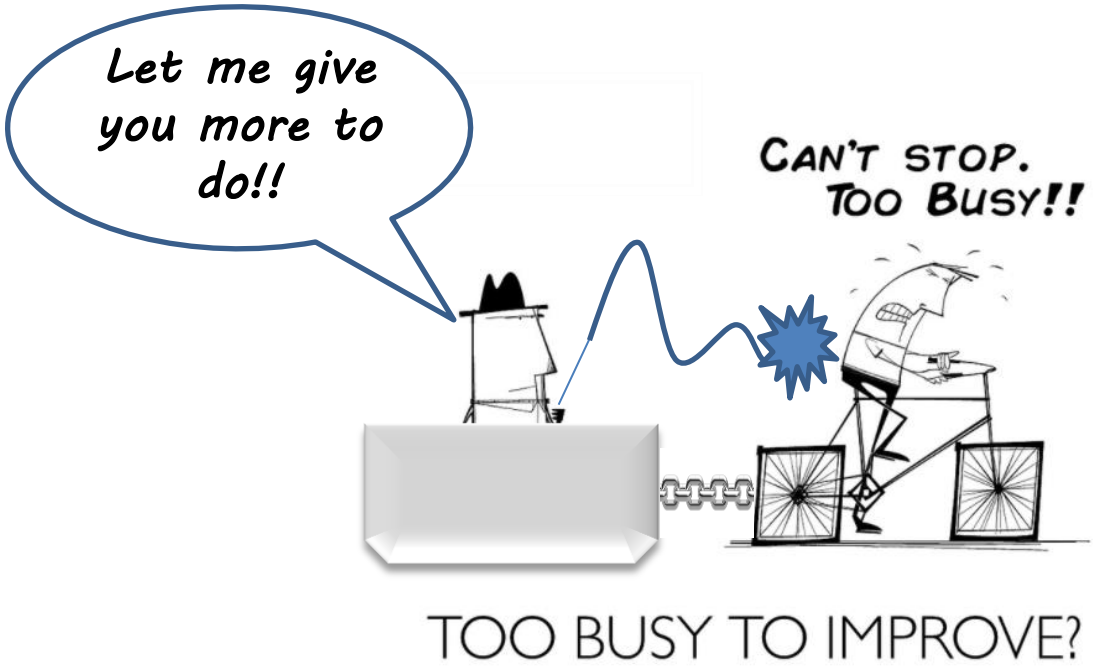
KEY LESSONS LEARNED

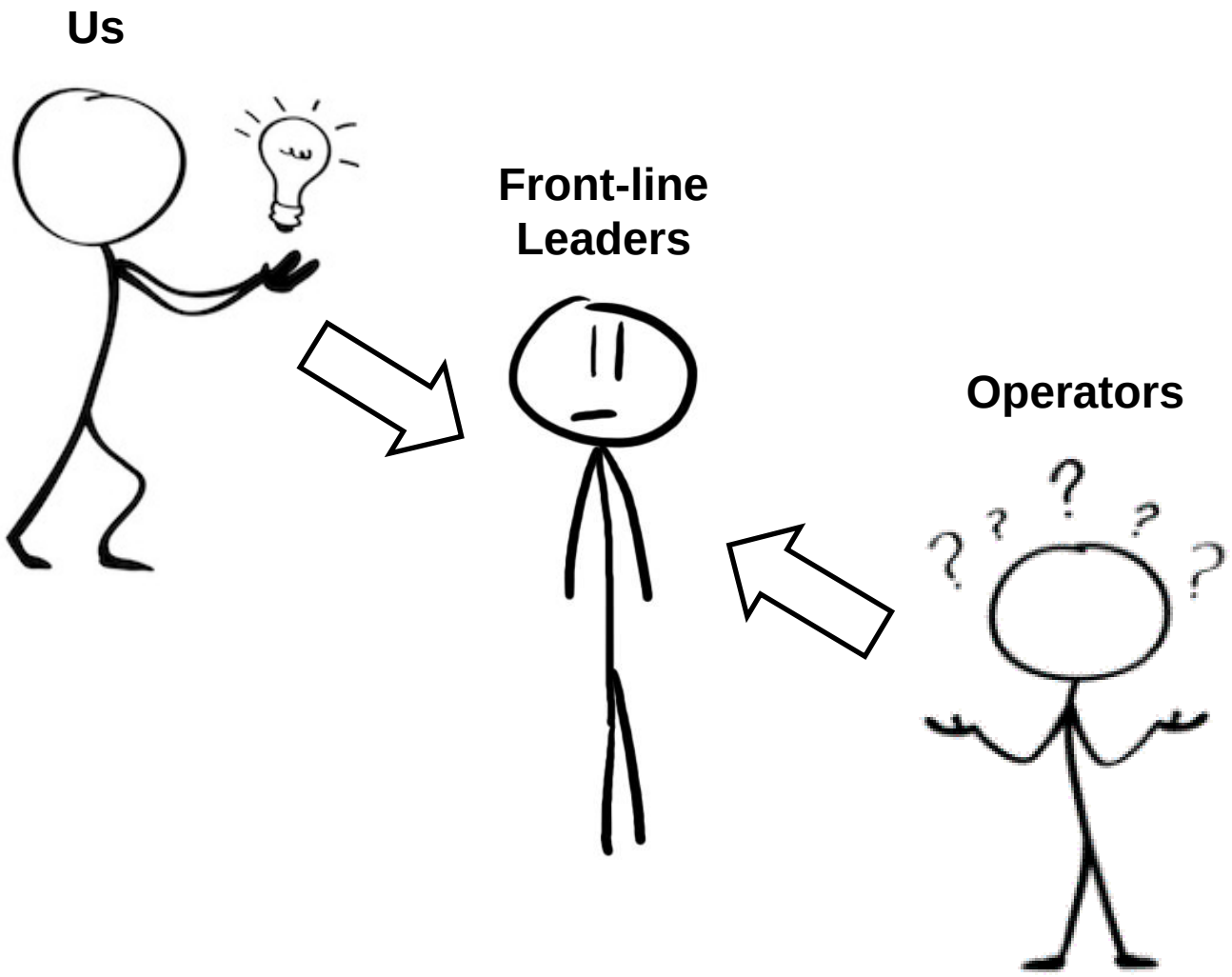
Lesson 1: You Need a Vision and You Need to Share It

- **Grassroots (work force engagement) ≠ Letting the workforce figure out what they need to improve on their own**
- **Have a vison**
  - We want production: 1 billion pounds this year
- **Have a why to the vision**
  - Sure, times are good now – but what about when demand drops?
- **Go on a Road Show to Share the Vision**

Initial Implementation

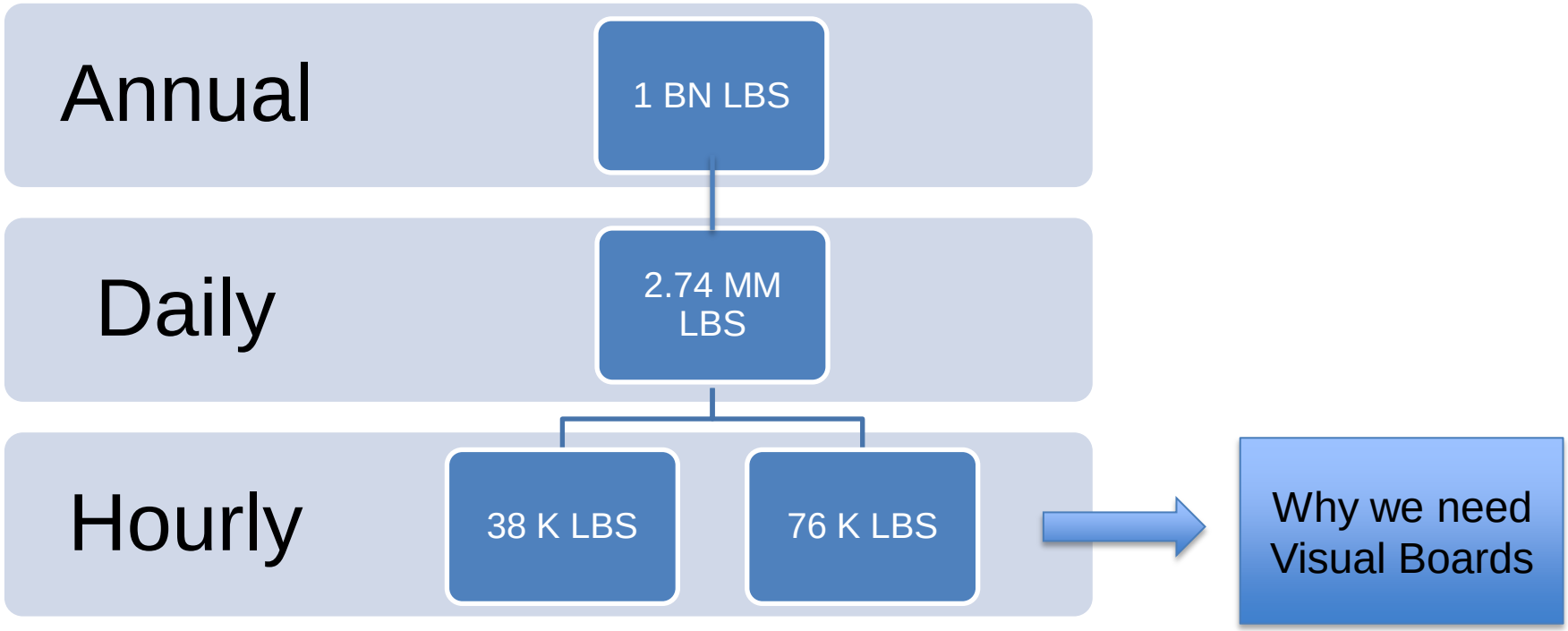
What the work force is hearing




Us
Front-line Leaders
Operators

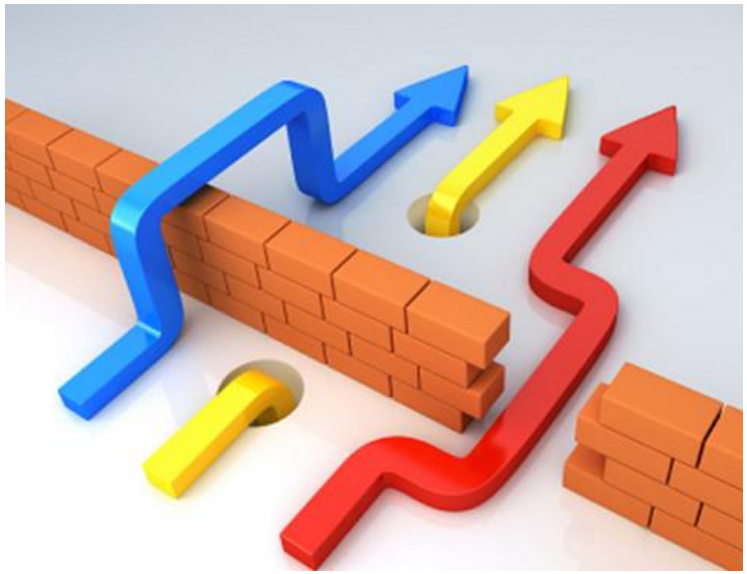
Sharing the Vision

- At the control room
- Break down the vision



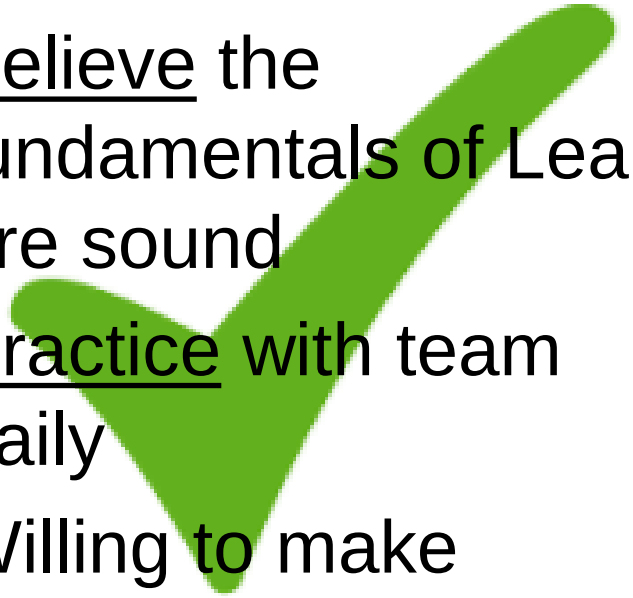
Lesson 2: First Area and Manager Are Critical

- AREA
  - ONE (not many)
  - Small
  - Need for Improvement
  - Management Support

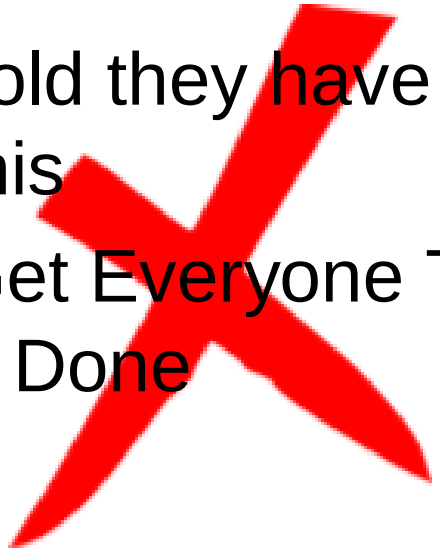


"Management Support"

- Willing to get dirty and try
- Believe the fundamentals of Lean are sound
- Practice with team daily
- Willing to make personal changes



- Approve, Sit Back, and Watch
- Told they have to do this
- Get Everyone Trained = Done

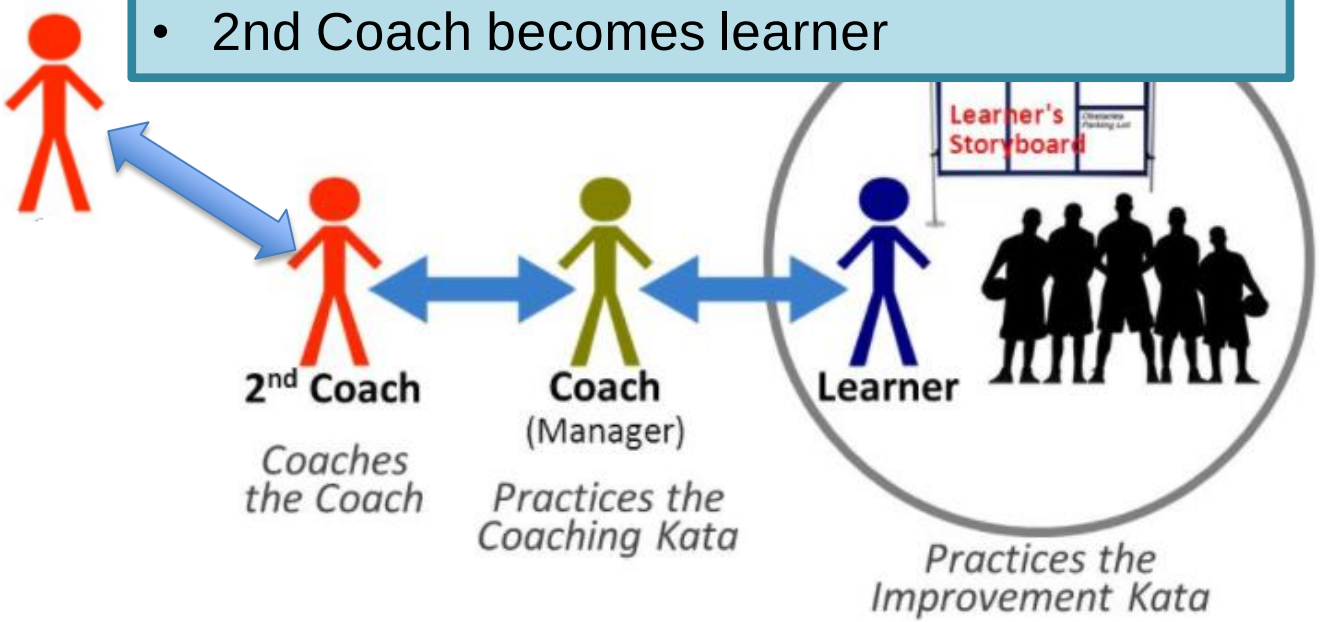


Lesson 3: External Facilitators Required

- Facilitators' job – look at overall process and keep it on track as best as possible
- "If we follow the process, the results will follow"
- Create the learning experience after the fire is out
- Doesn't happen without outside help

Lesson 3: External Facilitators Required

- Bounce off ideas
- "This is bad – why is it so bad"
- "If I were in their shoes, why would I…."
- PDCA on the 2nd Coach approach
- 2nd Coach becomes learner



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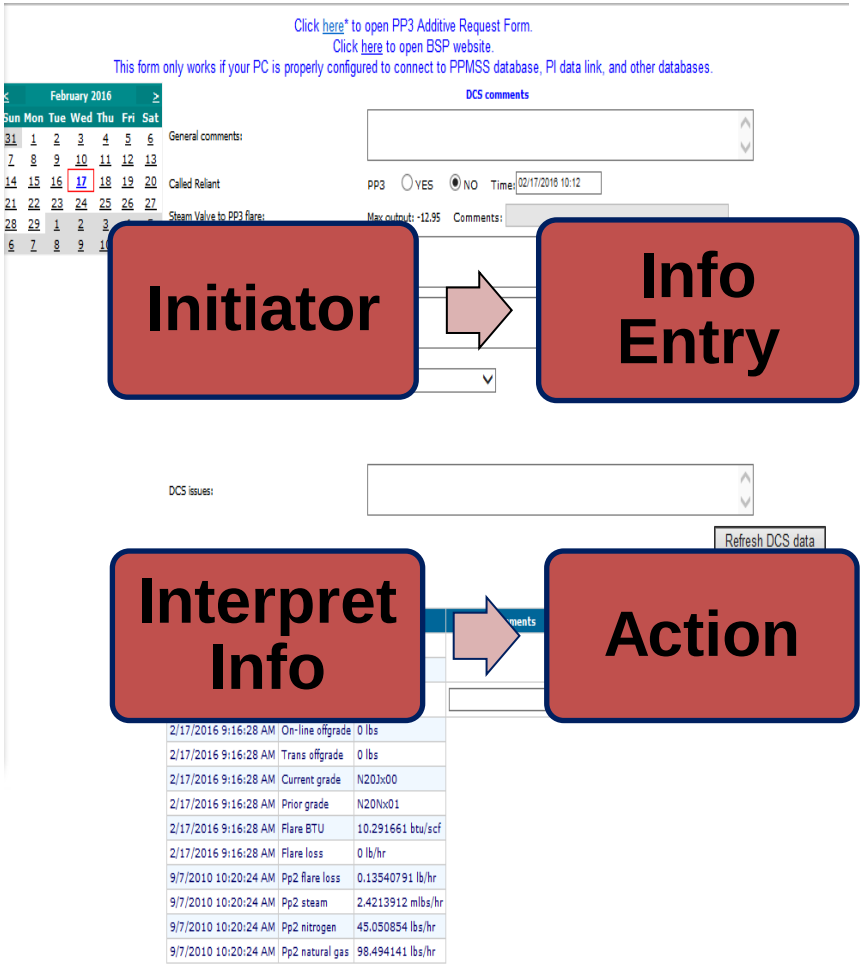
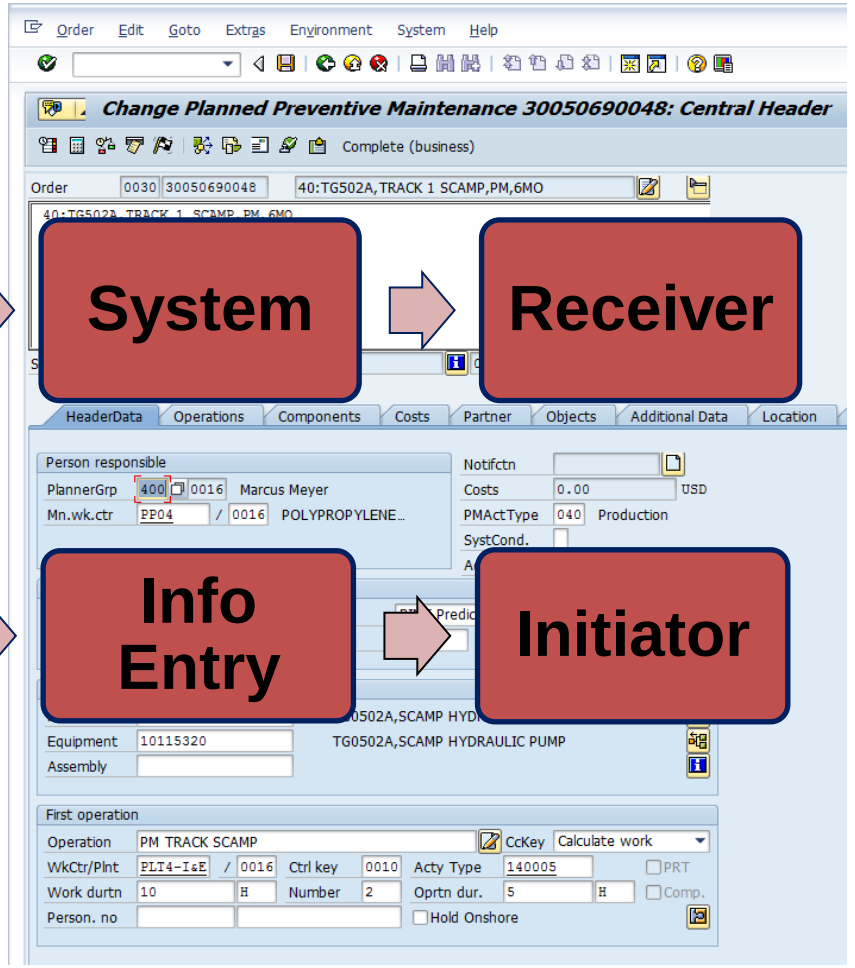
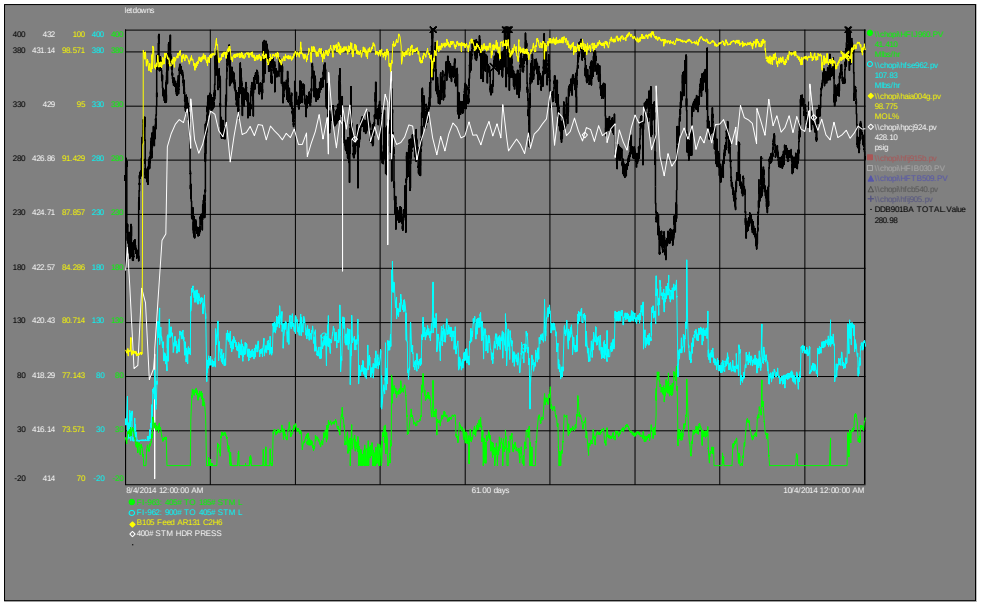
Lesson 4: Digital Tools ≠ Better Communication





Lesson 5: Digital Tools ≠ Better Problem Solving



- Easy to rely on digital tools, alarms
- These tools lead us to making assumptions
- Sometimes prevents us from getting true current state
- **The power of going to the gemba**

Lesson 6: Everything is PDCA and PDCA is Everything

- PDCA (kata) is the key “tool”
- Solving problems in the unit = PDCA
- People using individual tools = PDCA
- Implementing the whole process = PDCA
- There is no 18 step check it off
- “It’s okay if it didn’t work out – we just learned something!”

Just saying we need to do better is not a method of improvement

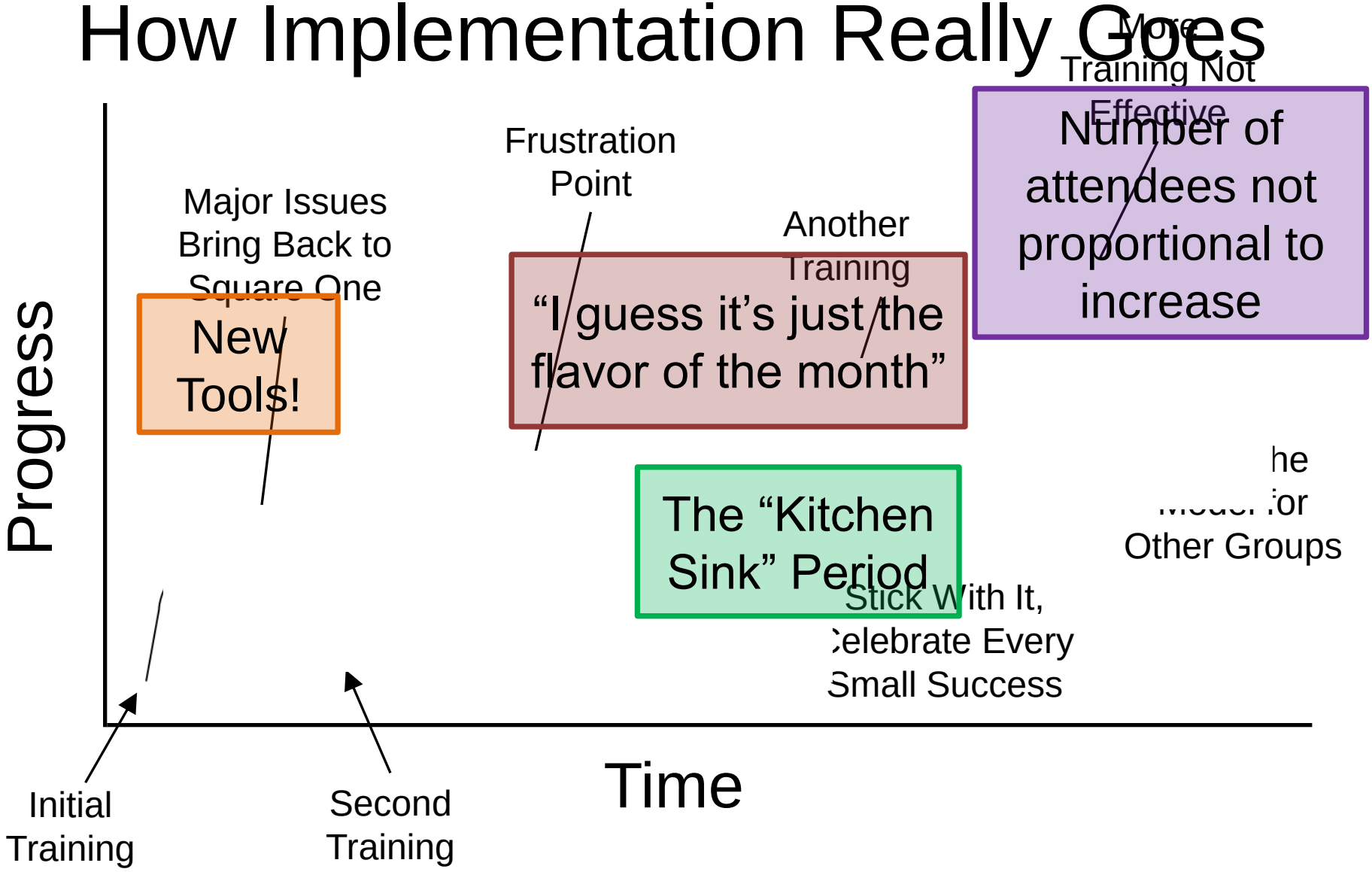
Lesson 7: The Power of Self-Discovery

As CI folks – we sometimes like to think we know best!

Plant the seed of an idea – but don't push it

Later…

How Implementation Really Goes

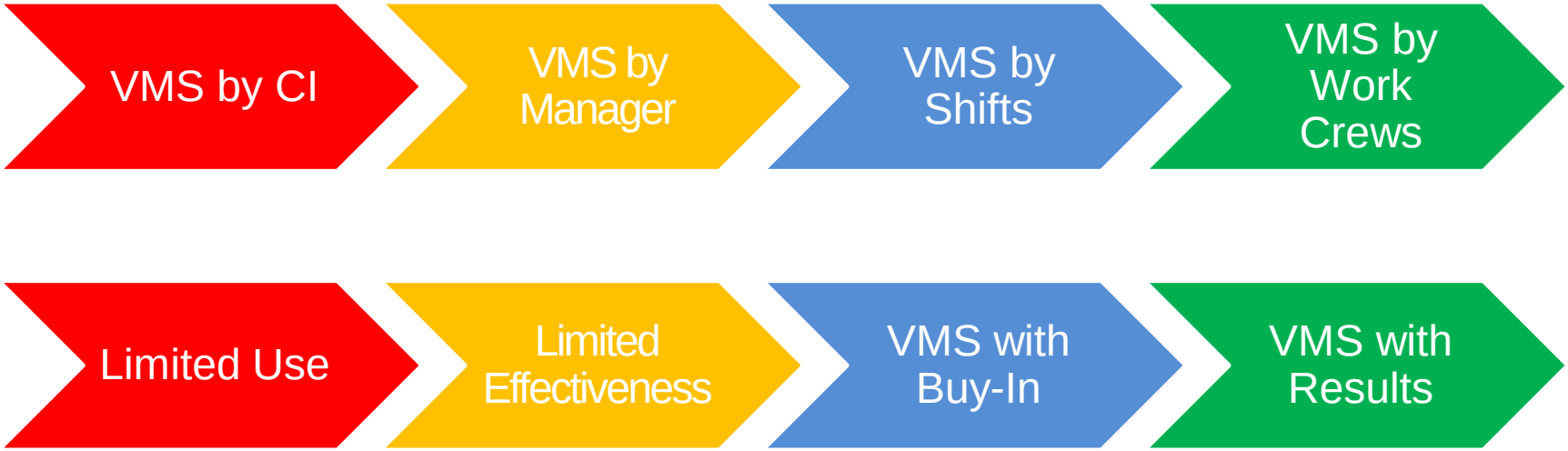


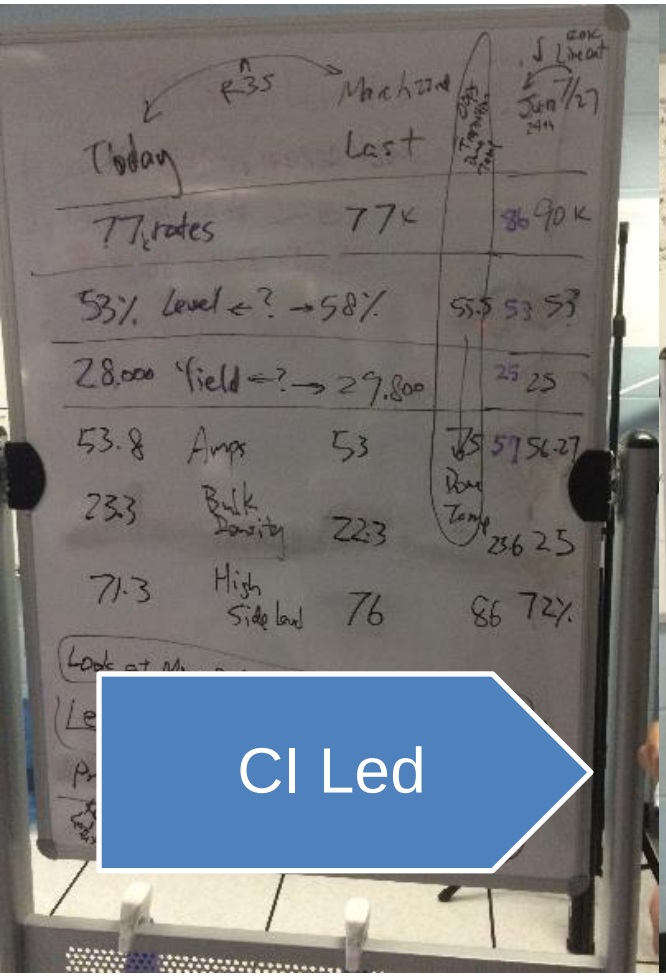
The Polymers' Effect on Utilities

- Second group to implement
  - Initial adoption takes a lot less time
  - Lots of ideas from first group to springboard off of
- Initial group
  - Gets praise from other groups
  - Helps them to maintain and keep improving

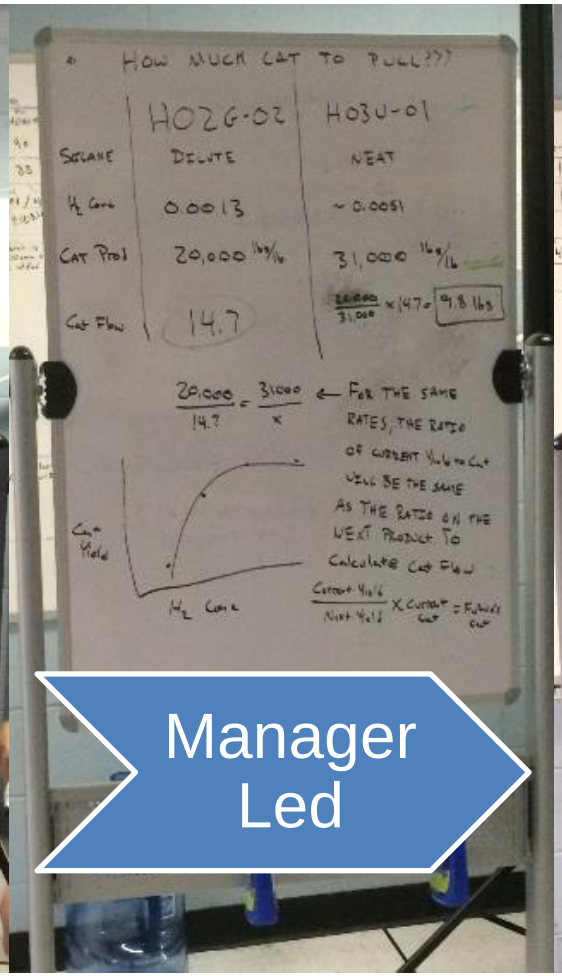
What's It Like Now?

Visual Management

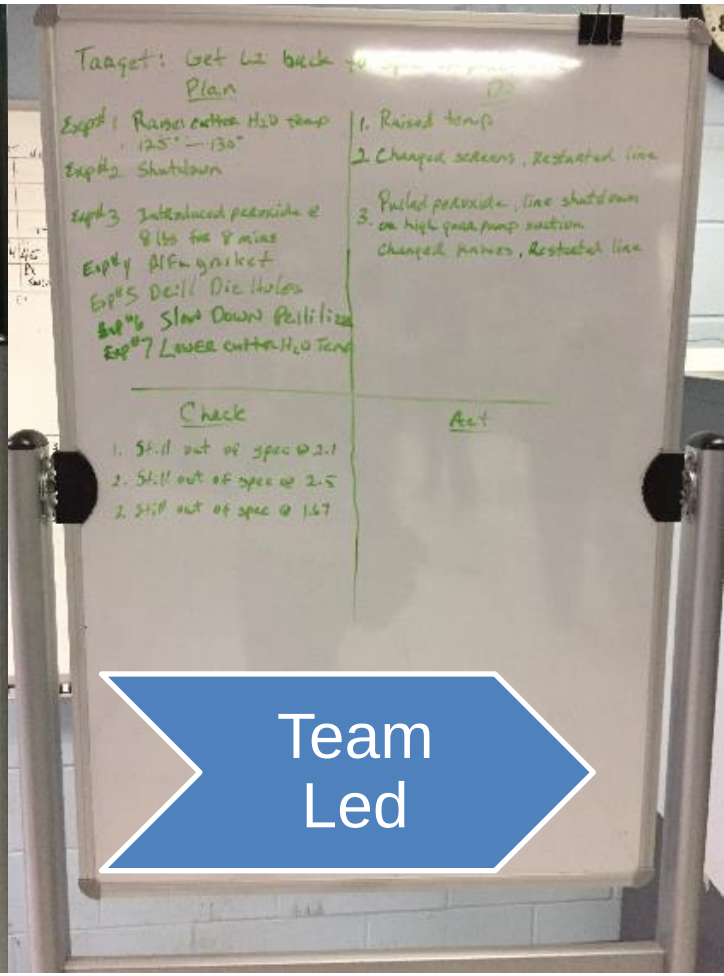




CI Led



Manager Led



Team Led

Reactor + 350 Section:
100, 200, 301

BSP's Days / Nights / Toolbox Times

* Need blinds tagged 106, 108, PIC, BR, TC3 at hastelloy
* Need vacuum truck @ processarea outfall.
* Need vacuum truck @ flare area outfall.
* add hasp for Isope Lock to local sources on TK201.

-201 CRANE REQUIRES HOT WORK
LEVEL TWO PERMIT TO OPERATE
MOTOR IS NOT RATED FOR THE AREA

TE 302 HB Done
TE 304 HB Done
TE 309 HB NOW
TD 106 & 108 open and being blinded
D/B Heat lotto'ed waiting of verification
started work on TH 305/351
TD-101 lotted Not verified
R×R Gear Box & seal pack Going Work on

*R201 end bell is off & area is washed
*TD106 washed out,
LOTO'ed 350-1 pt 1

Fixing to verify Teal arms lotto

Finishing + 500 Section

BSP's Days / Nights

Line 1 Loto'od + verified
Rineo removed Line 1.

Transfer lines 3001/3002 N2 purged from Rx to baghouse.

- L-2 pt. 1 Loto'd, verified
- 300-1 LOTO'ed verified
Blind list walked out except 3 knife valves.
- 400-1 LOTO'ed. verified
- 400-3, 400-5 LOTO'ed, Verified
Work started, not complete.
- 500-1 Lotto'ed needs walking out
- 400-6 LOTO'ed, needs walking out
TP0301 + Slide gate under removed.
Hoist for TM301 still not repaired, waiting for scaffold to be built.
Bags out of baghouse.

* Need blinds tagged

Flare, CT, Battery Limit, Electric

BSP's Days / Nights

C3= Header – N2 purged from metering skid to TD201.
C2= Header – N2 purged from FP3 OSBL to TD201.
H2 Header – N2 purged from OSBL to flare @ TC2018.
OSBL Part 1 LOTO completed. Blinding in progress as of s/c.
C/T – Part 1 LOTO verified...
...Ready to blind.
...Basin + Pump Suction Sump still draining.

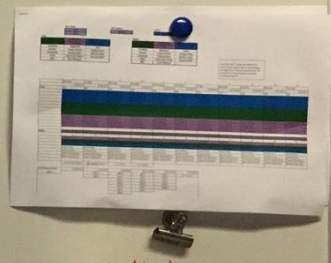
* Water washed flare header.

Safety Items, Near Misses, BSP Findings to Discuss, LCAs:

What does LOTTO stand for? Powerball

3 PM Permit Walkthrus
Wk1 Wk2 Wk3 Wk4
Su
M
T
W
Th
F
Sa

Albert's Lists



- walk blind list for P/c / baghouse.

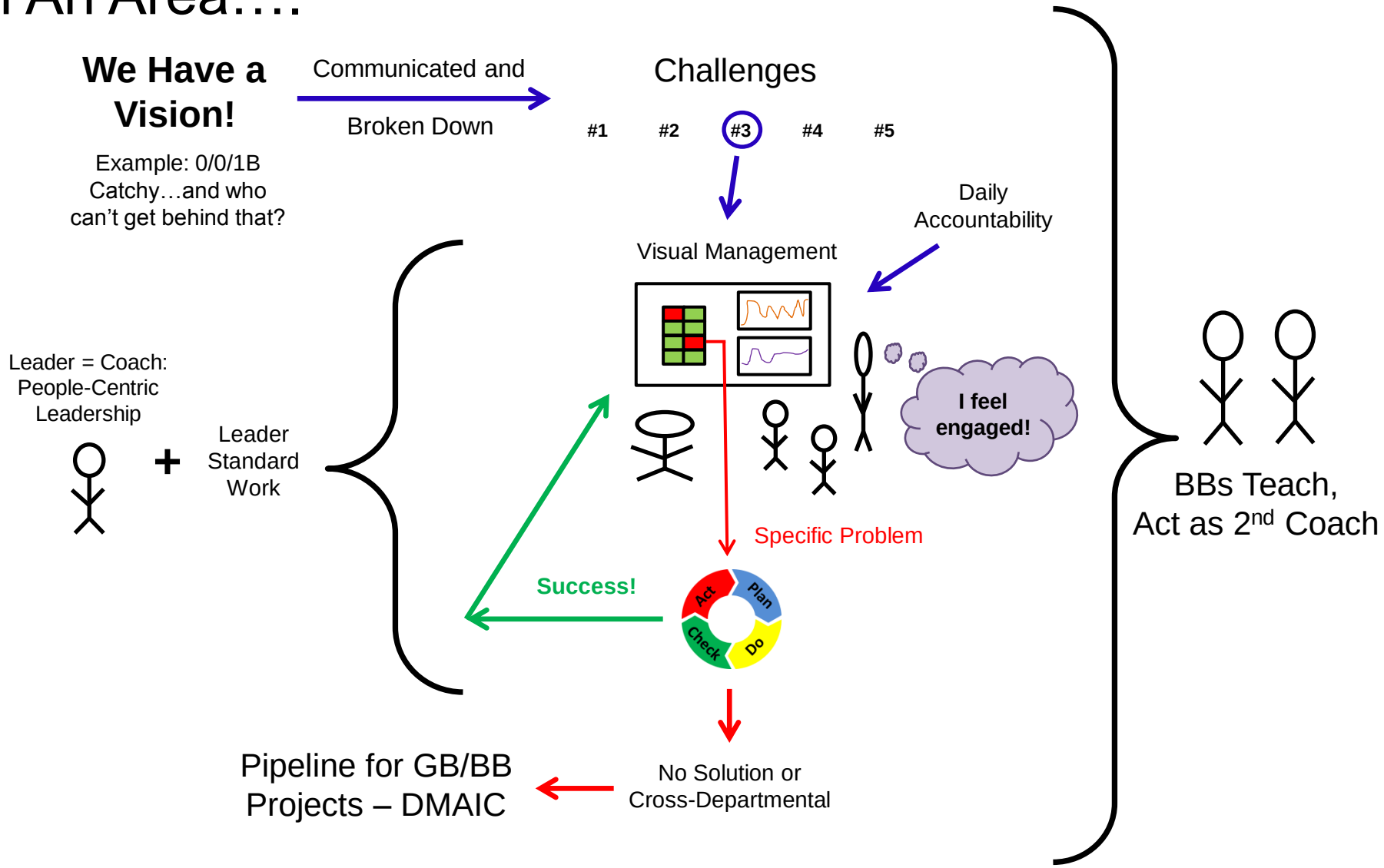
Our Playbook

- No matter what you implement (safety program, lean, error reduction program, etc) – the same playbook applies
  - Have a problem
  - Strategically select area
  - Train a sliver of the organization at a time
  - Have external facilitators
  - Refrain from training everyone
  - Always remember – it's all about PDCA

How We Implement

1. Vertical slice: leadership receives formal training
2. Start learning by doing and coaching
3. Adjust (PDCA)
4. Get soak time
5. Spread throughout the group in the same way

In An Area….


We Have a Vision!
Example: 0/0/1B Catchy…and who can't get behind that?
Communicated and Broken Down
Challenges
#1
#2
#3
#4
#5
Daily Accountability
Visual Management
I feel engaged!
Leader = Coach: People-Centric Leadership
+
Leader Standard Work
Specific Problem
Success!
Act
Plan
Check
Do
No Solution or Cross-Departmental
Pipeline for GB/BB Projects – DMAIC
BBs Teach, Act as 2nd Coach

Thank You!

In the spirit of continuous improvement, please complete the survey on the mobile conference app

Session No: TS/11

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