



Accelerating the Flywheel: Sustaining an LPPD Transformation

LPPD-E Virtual Summit



09/05/24

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Enterprise Excellence
Manager, Product
Development

Agenda

- Setting the Context
- What was the current state
- Getting to the current state
- What is the next desired state
- What have I learned



A Bit About Me...





Good to Great - The Flywheel Effect

*“No matter how dramatic the end result, good-to-great transformations never happen in one fell swoop. In building a great company or social sector enterprise, there is **no single defining action, no grand program, no one killer innovation, no solitary lucky break, no miracle moment.** Rather, the process resembles relentlessly pushing a giant, heavy flywheel, turn upon turn, building momentum until a point of breakthrough, and beyond.”*

- Jim Collins



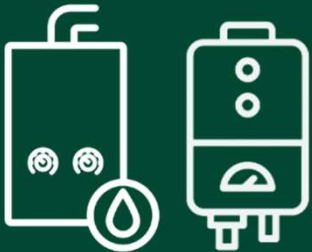
<https://www.jimcollins.com/concepts/the-flywheel.html>

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Setting the Context

Who We Are



**GLOBAL
MANUFACTURER**
of residential and commercial
water heaters, boilers and
water treatment products



\$3.9B Annual Sales



12,000+ Employees

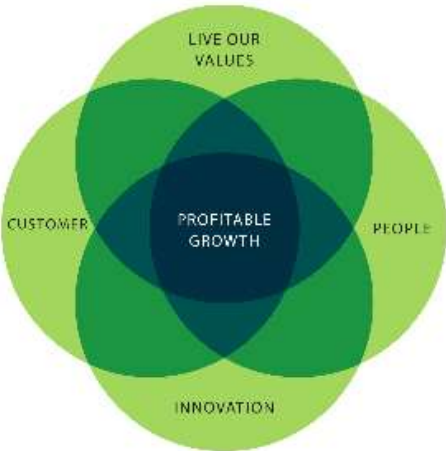


25 Global Manufacturing Facilities

AOS
LISTED
NYSE
S&P 500



Cascading the Vision – A.O. Smith Operating System



- A.O. Smith will achieve profitable growth
- A.O. Smith will emphasize innovation
- A.O. Smith will preserve its good name
- A.O. Smith will be a good place to work
- A.O. Smith will be a good citizen

Create a culture of highly engaged people solving problems or innovating to drive business performance

Vision

 Create the Culture  Develop the People  Implement the Tools *(correctly)*

Approach

Leadership & Strategy Alignment CI Capability Development Program Tools & Training Standardization

Strategy

New Product Development Process (AOSnpd)

New Product Development

- Impacts of poor NPD outcomes
 - Quality issues
 - Customer needs missed
 - Delayed launch dates

- Tangible costs
 - Direct bottom line impact
 - Loss of customer confidence
 - Rework

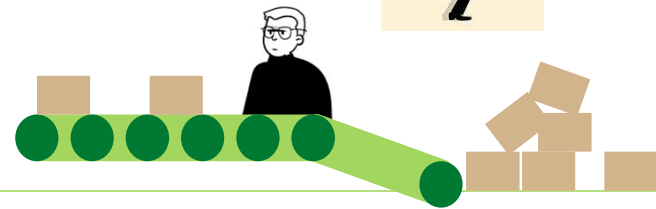
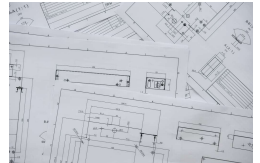
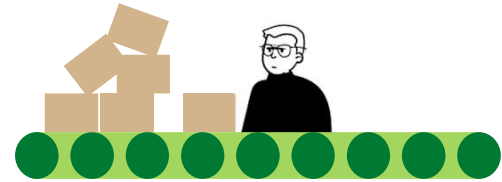
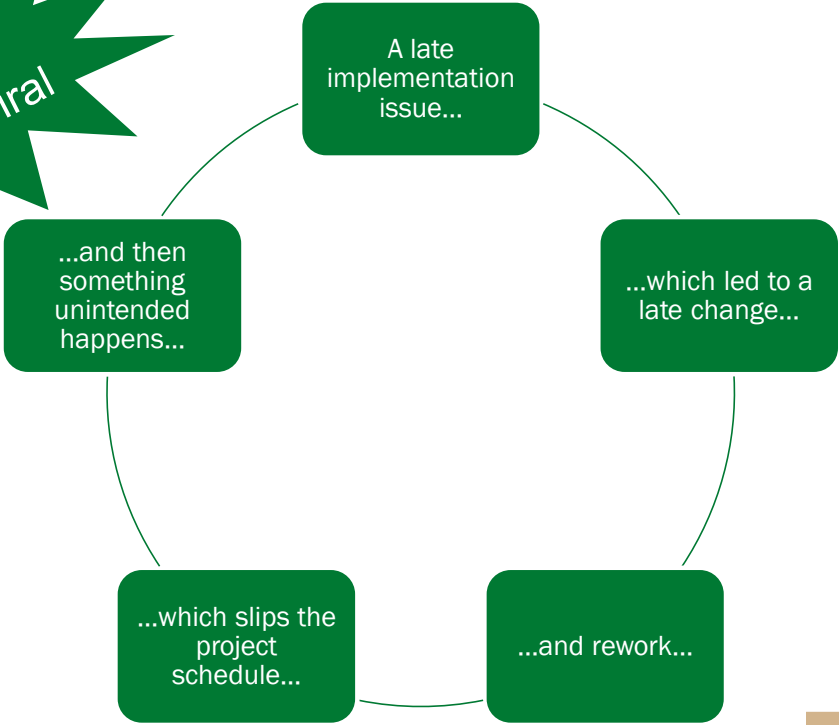


Photo by [Sebastian Herrmann](#) on [Unsplash](#)



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Have you ever experienced...





Goals of AOSnpd

More predictable product development outcomes

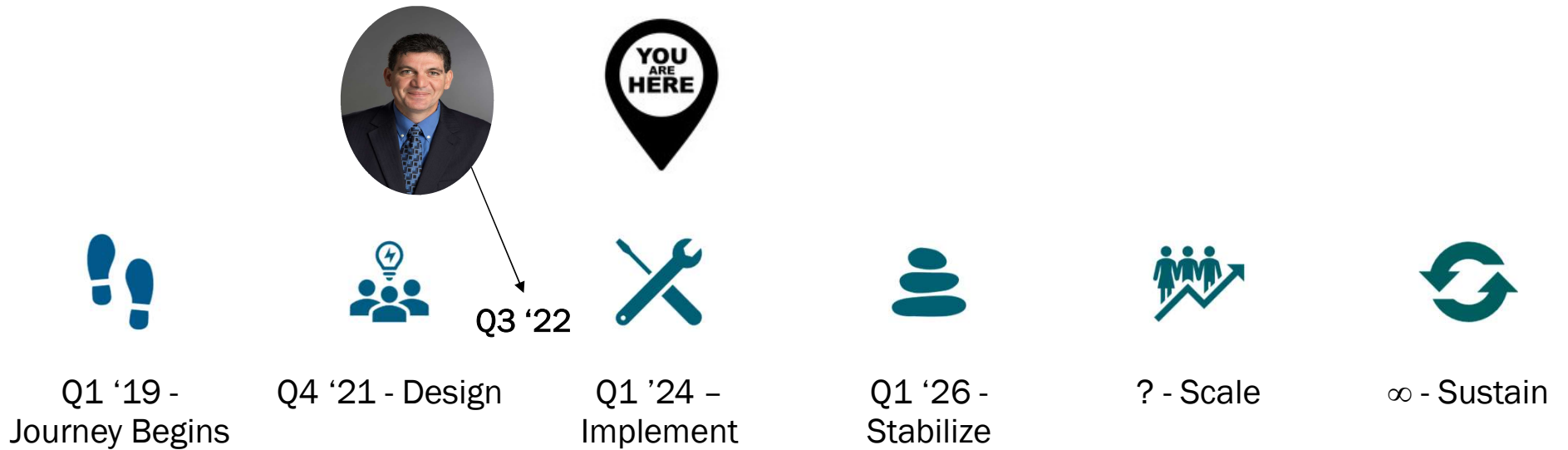
- Deliver products our customers are **excited** about
- Deliver them when we **planned** to



<https://openclipart.org/detail/227254/lady-with-a-crystal-ball>



AOSnprd Journey

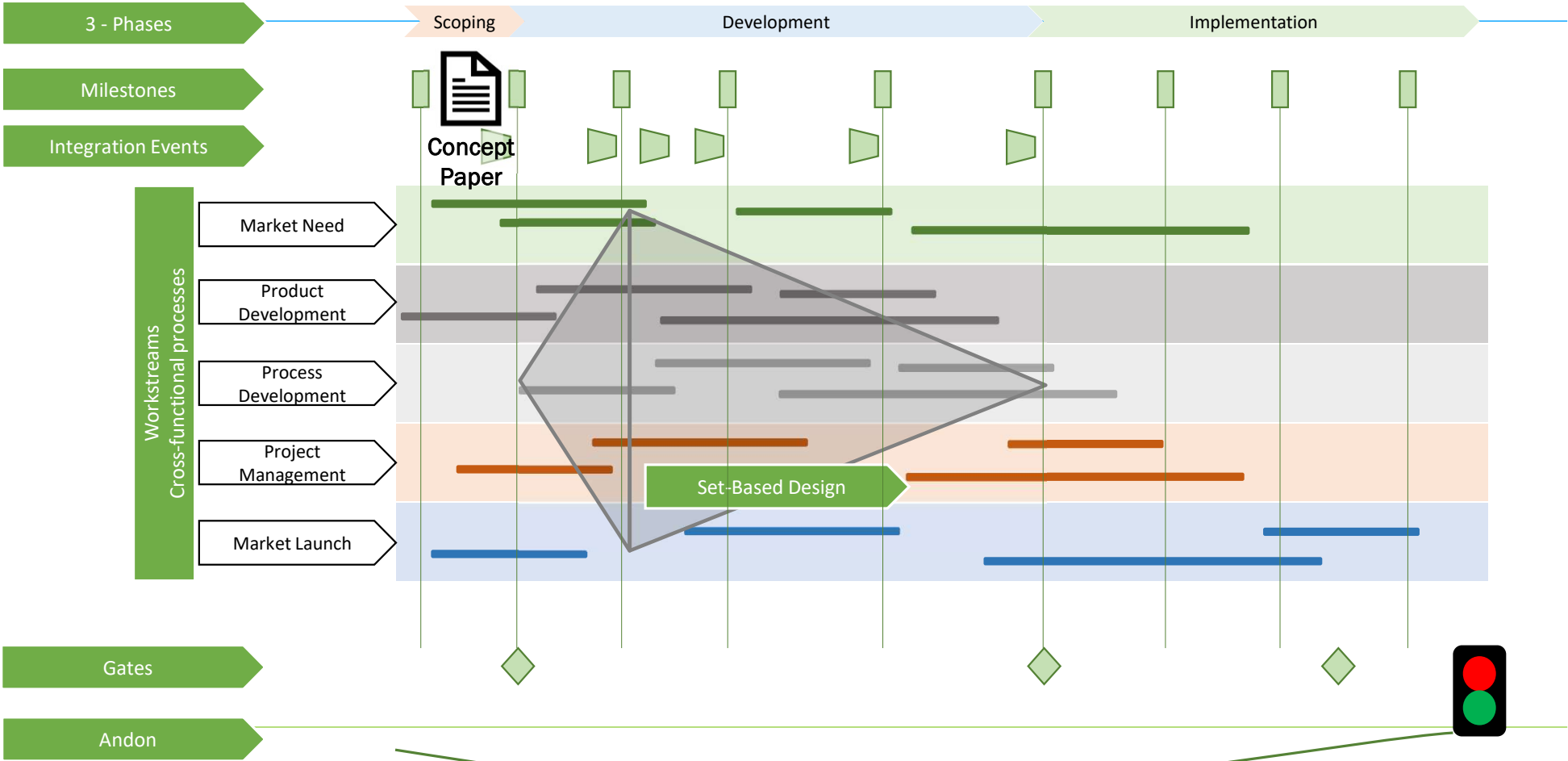




Current State - Then



AOSNPD – The Product Development Value Stream





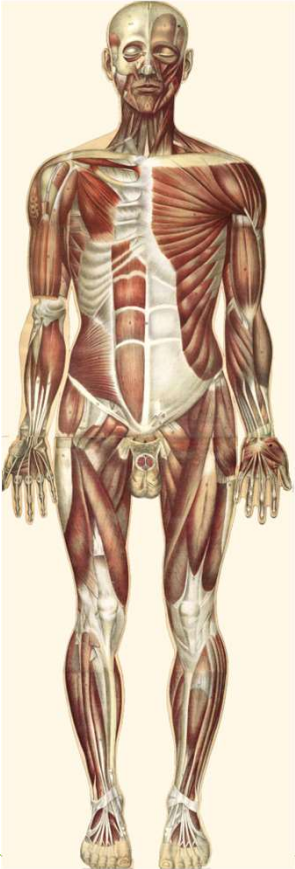
Getting to our Current State



Desired Transformation



The AOSnpd Structure was sound. Needed to put more meat on the bones





My Guiding Principles



Specific Capability



Robert Scoble, Seagate Wuxi China Factory Tour, <https://www.flickr.com/photos/scobleizer/3009516045/>, CC 2.0



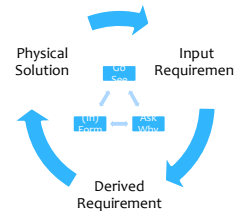
Specific Customer

Specific Product



- * Precisely Define **Value**
- * In terms of the customer
- * Identify the **Value Stream**
- * Relentlessly eliminate waste
- * Make Value **Flow** without Interruption
- * Let Customer **Pull** Value
- * Pursue **Perfection**

Abstract & General



Ambiguities in requirements identified and resolved
AKA - Make Decisions



Iterative
AKA - Learn



Concrete & Specific

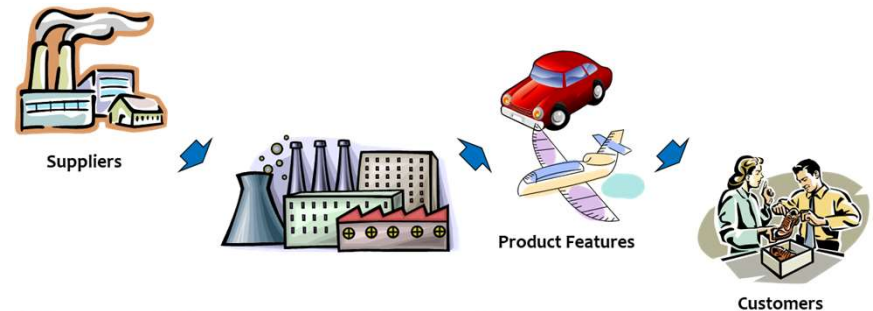
Womack and Jones, Lean Thinking, 2008



What value does product development actually produce?

Development Produces an Operational Value Stream

- Knowledge is the Fundamental Unit of Flow
- Problem-solving to make decisions is the Fundamental Task



Development Only Has Value
****if** it Enables Operations to Deliver Better Products to**
Customers

*Ron Mascitelli

Initial Observations

Lack of Clarity on Key Concepts

- Concept Paper
- Integration Events
- What is an Andon?

Adequacy of Coaching Model

Importance of Project Management Model

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Importance of Project Management Model

Standardized Concept Paper Format & Questions

- *Attributes of the market*
- *The value proposition*
- *Alignment with the business unit.*

- *Description of the solutions needed by the business*
- *Attributes of the solutions*

- *Financial case,*
- *A credible high-confidence milestone schedule*
- *The needed resources*

Characterizing the Opportunity

Market

Value Proposition

Alignment with the Business Unit Strategy

Characterizing the Solution

Market Strategy

Product Capabilities

Process Capabilities

Project Target Ranges

Characterizing the Financial Opportunity

Financial Case

Schedule

Resources

Knowledge Gaps

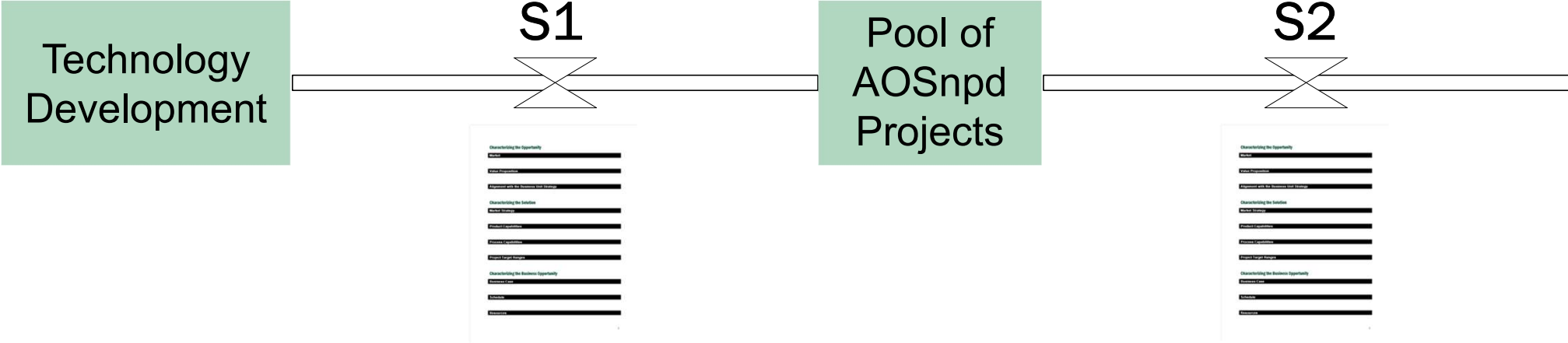
Within each section, we have questions that we expect all projects to answer with the appropriate evidence.



Role of 'True North'

Integration Events, Alignment Meetings & Onboarding

Standardized Concept Paper Format & Questions



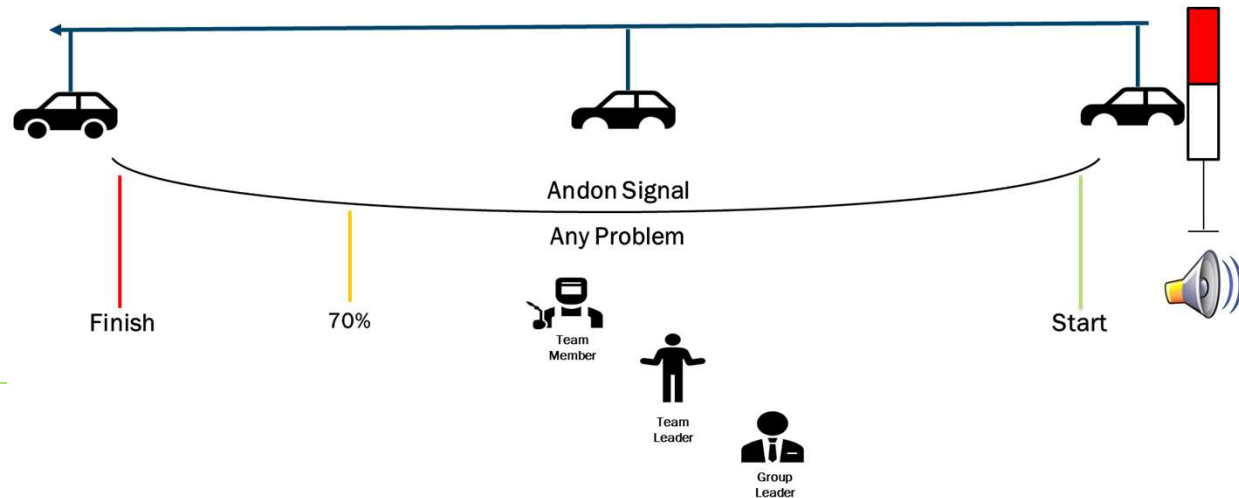
Maturity of the answers to the questions evolve



Andons

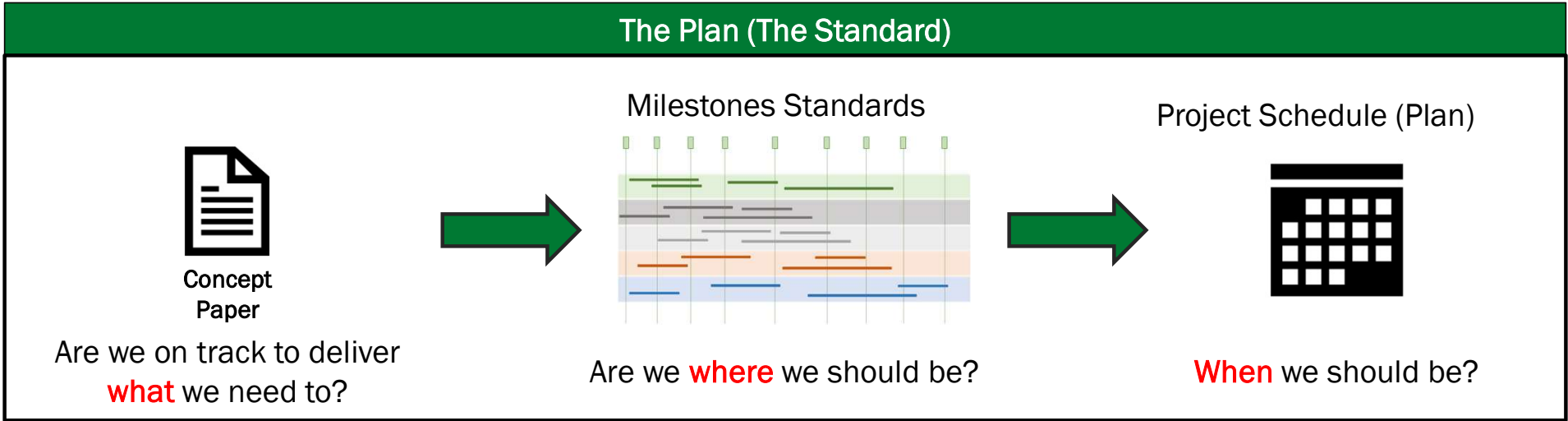
Problem: Teams were generating Andons (great behavior!), but an Andon has a special meaning, how do we preserve both?

- Solution
 - Clarify Definition
 - Coaching, Coaching, Coaching





What establishes an abnormal condition?



If we are not where we should be when we should be AND we cannot "immediately" rectify, we have an Andon.

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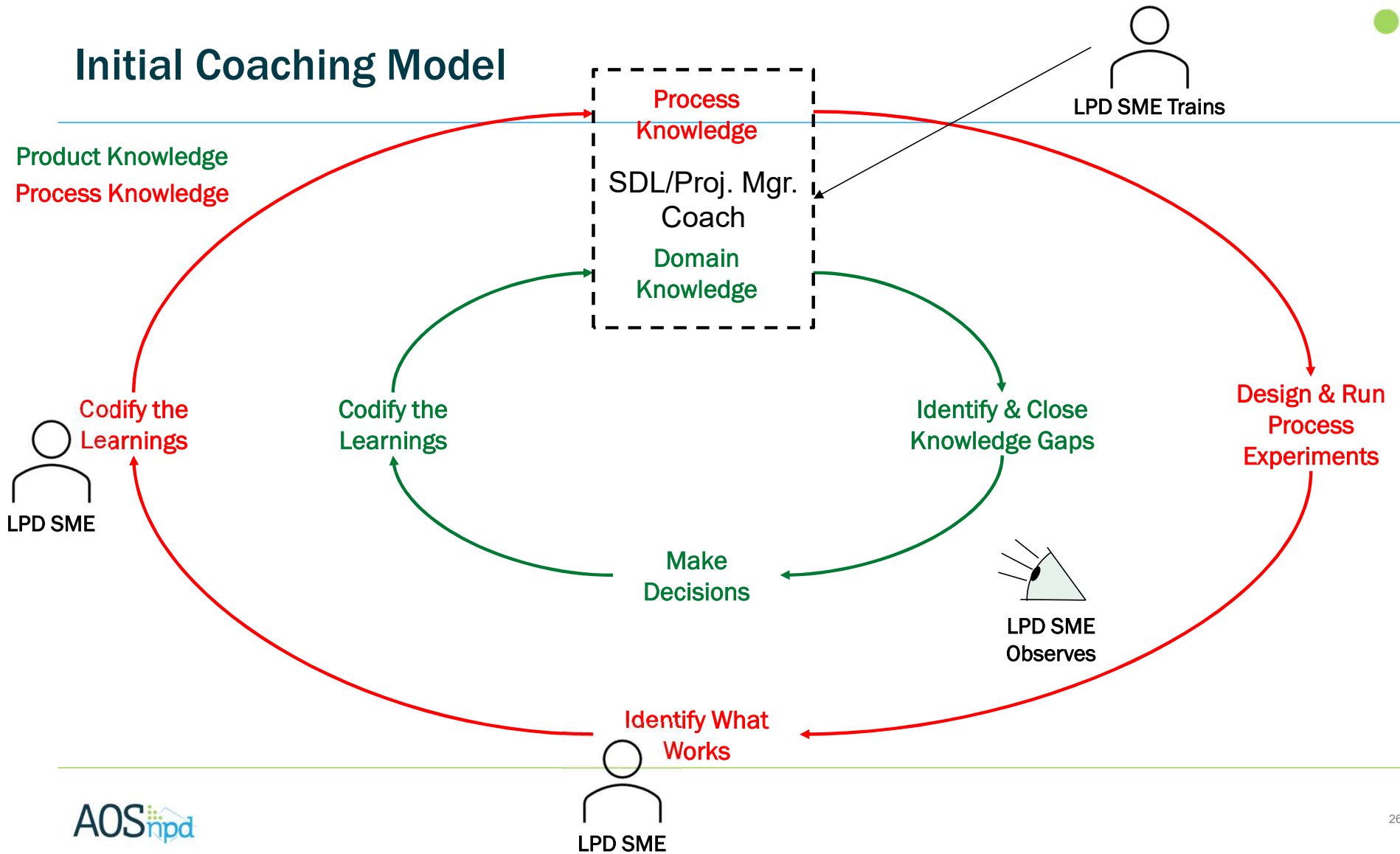
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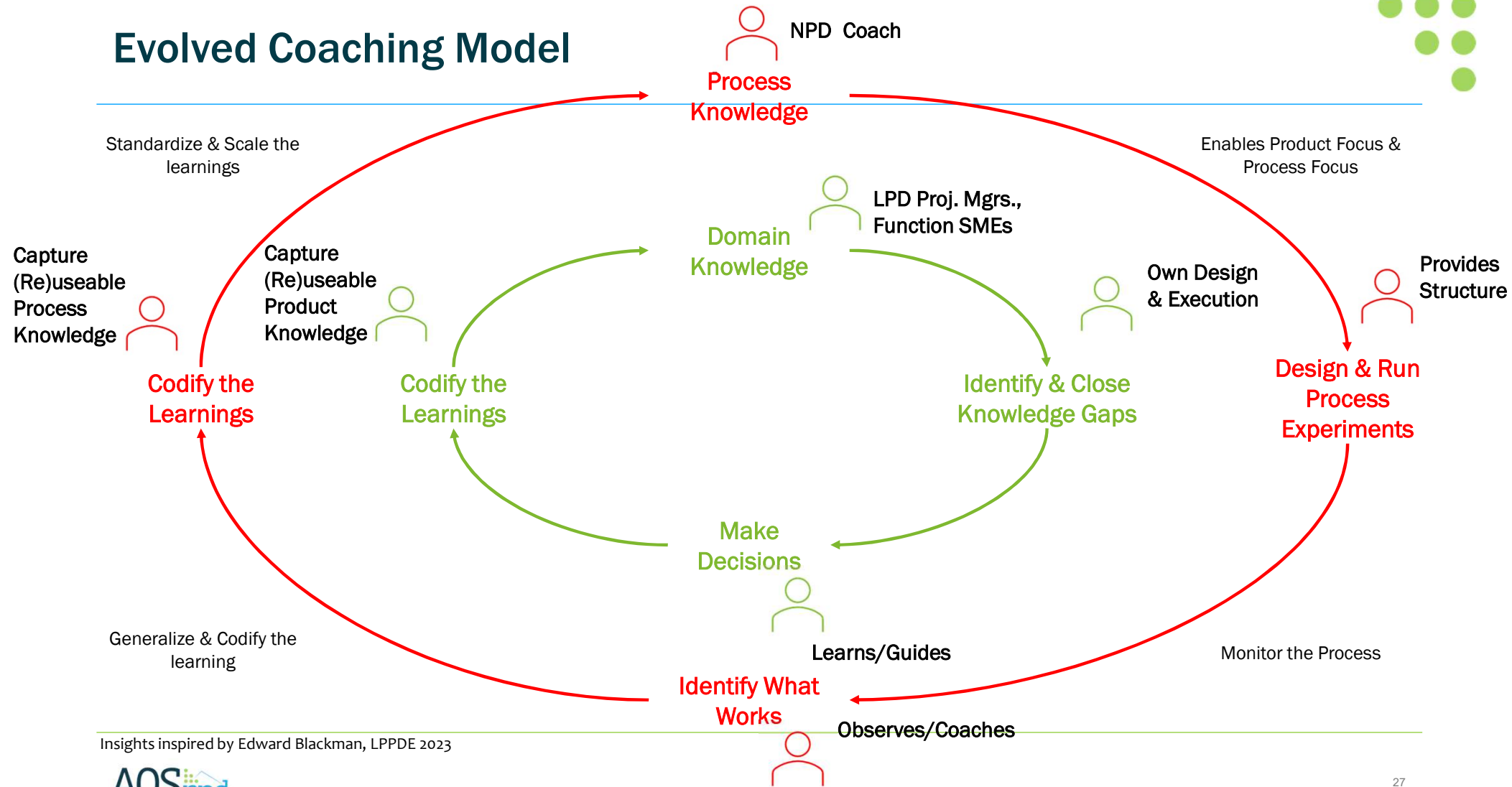
Initial Coaching Model

Product Knowledge
Process Knowledge





Evolved Coaching Model



Insights inspired by Edward Blackman, LPPDE 2023

Initial Observations

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Adequacy of Coaching Model

Importance of Project Management Model

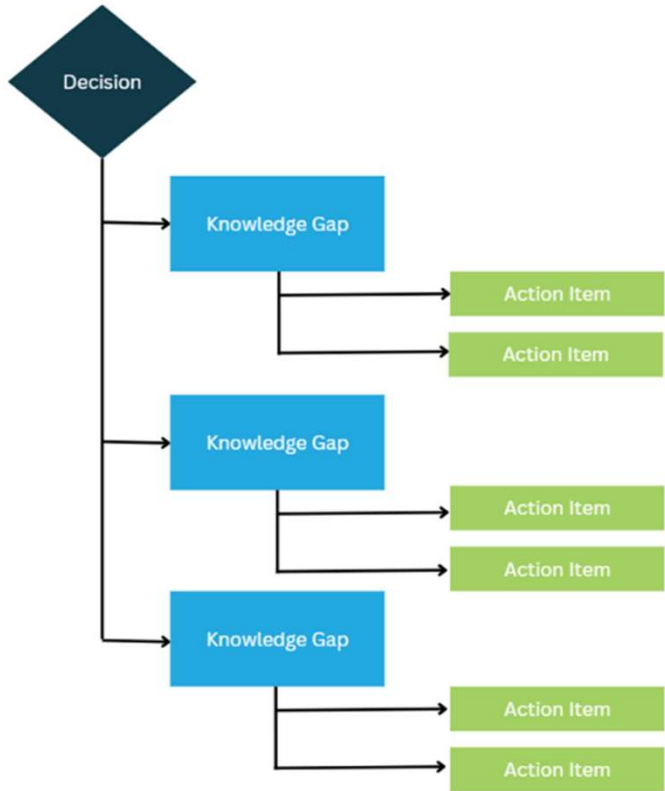


Decision Focused Learning





Shifting to Decision-based Management



| Decision Based Management | Vs. | Task Based Management |
|--|-----|--|
| Execution of decisions | | Execution of tasks |
| Set of largely known project decisions that need to be made | | Set of largely known task that need to be executed |
| Uncertainty of Task to Complete – High Probability of Generating New Tasks - High | | Uncertainty of Task to Complete – Low Probability of Generating New Tasks - Low |
| Oriented towards decision timing and integration of knowledge, thus pulling tasks and more adaptable to new information. | | Oriented towards task completion, thus pushing tasks and less adaptable to new information |

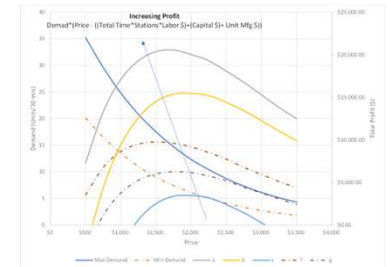
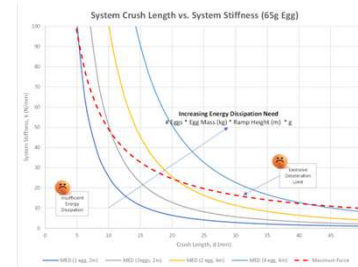
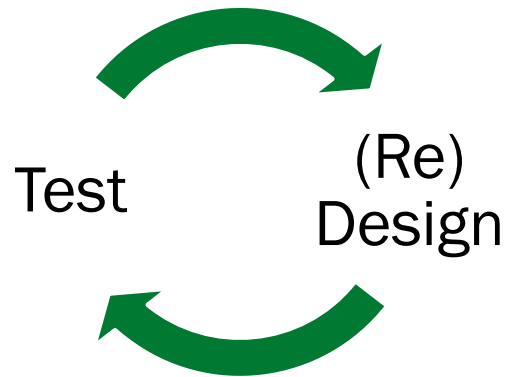
- Very hard to let go of the task-based mindset
- We have had to generate the initial set of decisions by phase
- Working with the Project Managers on a 2-year curriculum
 - develop a new mindset
 - engage them in developing the needed tools



Future State



Making the knowledge visible



Understand the Physics Understand the Economics
As they relate to Customer Needs

Design

“Learn First then Design”

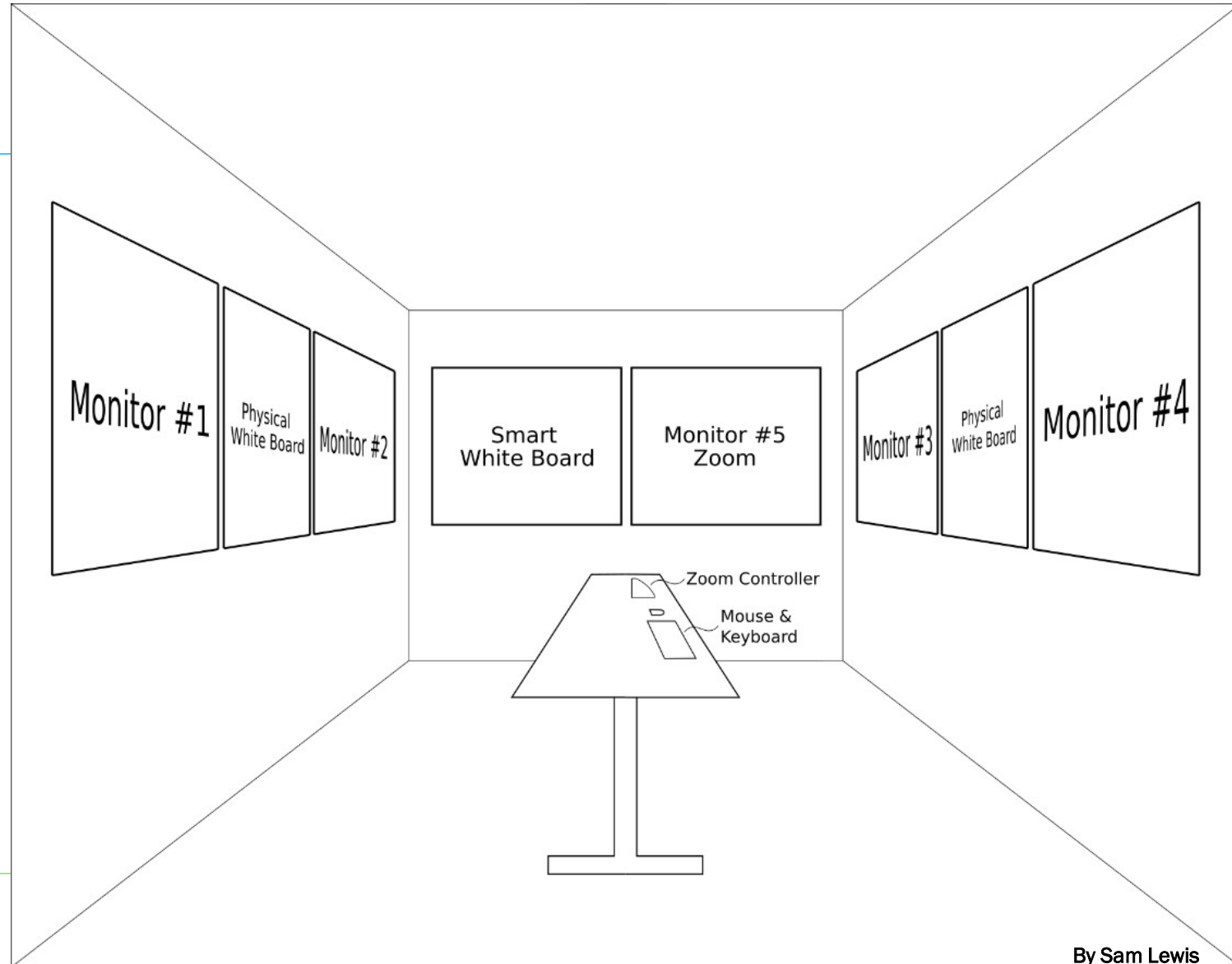
“Just Try Something”

Trial & Error

Insight

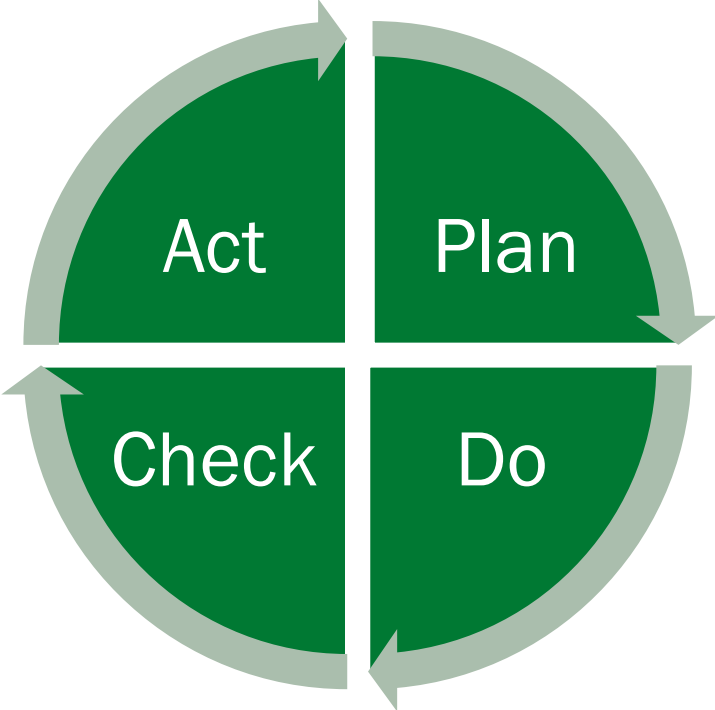
Making the Work Visible

- Daily Huddles
- Weekly Team Meetings

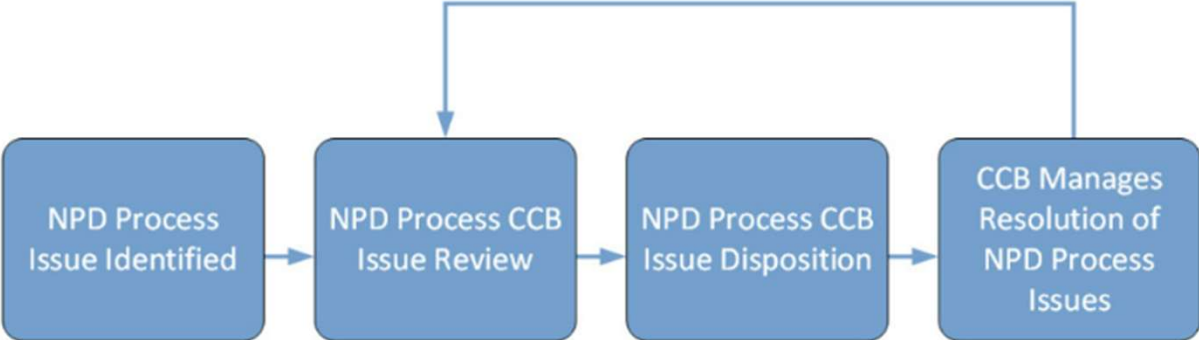




Continuous Improvement



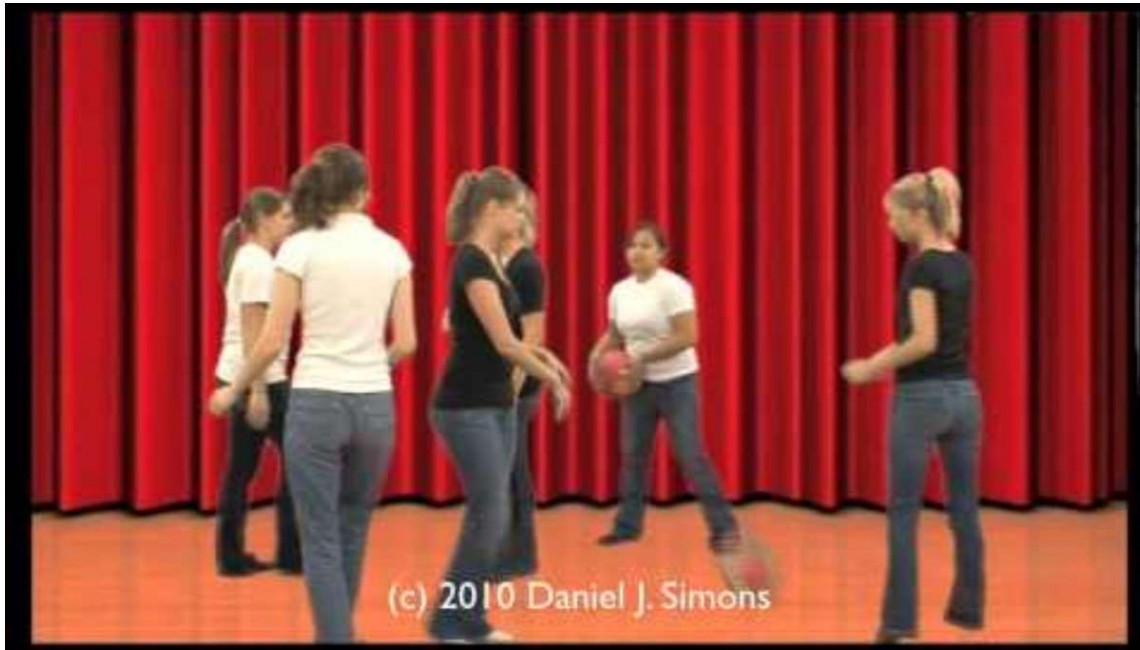
Change Control Board





What have I learned?

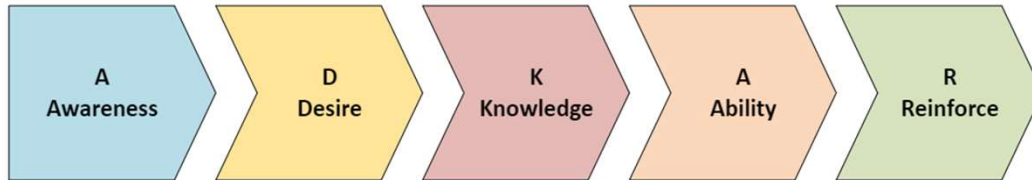
Count the passes...



- Overcoming pre-existing mental models is hard!



Change Management



- Provide enough tension to nudge the organization
 - But not so much that the rubber band snaps!
- *Switch* (by the Heath Brothers)
 - Shrink the change
 - Motivate the Elephant
 - Direct the Rider



Leadership Behaviors & Coaching Skills

- Asking the right questions
- Knowing which problems are yours to solve
- Empowerment is much easier said than done





Celebrate the Wins!

Cross Functional Engagement

- All aspects of the design are considered
- Core functional areas are actively participating in the product and process design

Surfacing Issues Early

- Applies beyond technical issues
- Identified mismatch in project direction and market needs early in design cycle

Project Portfolio

- Moving from tactical product roadmaps towards long term strategy
- What customer pain points or opportunities are we focusing on and what technologies do we need to deliver

Core Team

Andon & Shift Left

Chief Engineer

Direct result of AOSNPD's core tenets and design



Lessons Learned

Do's

- Engage stakeholders
- Go-to-Gemba
- Change management plan
- Everyone needs a coach, everyone is a coach
- Experiment to learn

Don'ts

- Expect late adopters and laggards to jump in right away
- Mandates
- Underinvest
- Think you'll ever be finished



It's All About the People....



Greg Reynolds
Certification & Reliability Director
30+ years at A.O. Smith



Mike Spivey
Sr. Project Manager & Lead Coach
40+ years at A.O. Smith



Kaitlyn Rice
AOSnpd Project Manager
1+ years at A.O. Smith



Thank You!

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