



EDUCATIONAL SEMINAR

Developing a Problem Solving Culture

*Practical perspectives on how individuals at all levels can
solve problems.*

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Leigh Erickson, Site Leader/ISC Director Plymouth



Leigh J. Erickson | **DEVELOPING A PROBLEM SOLVING CULTURE**
12/13/18 | Honeywell Aerospace – Minnesota Region

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Agenda

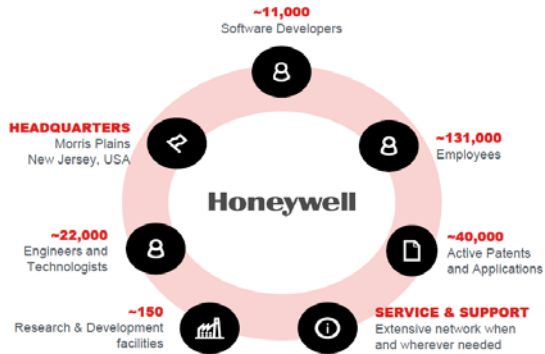
- About Honeywell
- Vision and the relation to Problem Solving
- Example – Between Cell Escape Alerts (BCEAs)
- Ties to Visual Controls, Tiered Accountability and Recognition Processes
- References for Further Learning

The Power of Honeywell

We bring together the physical and digital worlds to tackle some of the toughest business and societal challenges. We specialize in the things that are critically connected. Beyond smart phones and laptops, we make the connections that keep cities working, planes flying, factories running, and workers safe.

THAT'S THE POWER OF **CONNECTED**

THAT'S THE POWER OF **HONEYWELL**



Connected Aircraft | Connected Building | Connected Home | Connected Plant
Connected Worker | Connected Supply Chain

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The Power of Connected

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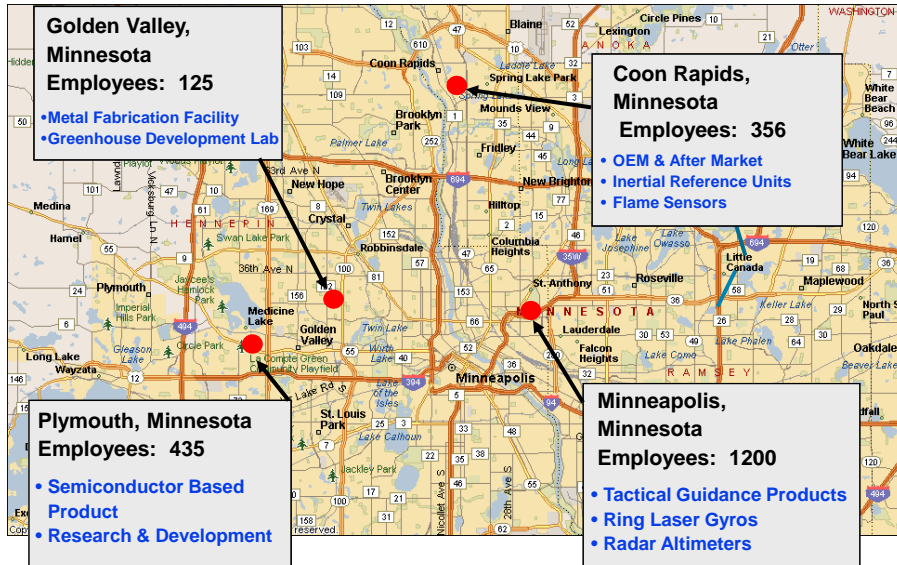
THE POWER OF **CONNECTED**

Aerospace	Home and Building Technologies	Performance Materials and Technologies	Safety and Productivity Solutions
Phoenix, AZ and Rolle, Switzerland	Atlanta, GA	Morris Plains, NJ	Fort Mill, SC
Enabling greater vehicle performance and fuel efficient turbochargers, more fuel-efficient and environmentally friendly airplanes, more direct and on-time flights and safer flying, our products and services are on virtually every commercial, defense and space aircraft.	Helping customers control their comfort, security, and energy use, our products, software and technologies are in more than 150 million homes and 10 million buildings worldwide.	Revolutionizing industries around the world with our high-performance solutions advanced materials, process technologies, automation solutions, and industrial software.	Improving enterprise performance and worker safety and productivity with our scanning and mobile devices, software, cloud technology, automation solutions, and personal protective equipment.

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A Diverse Portfolio, Software Industrial Company

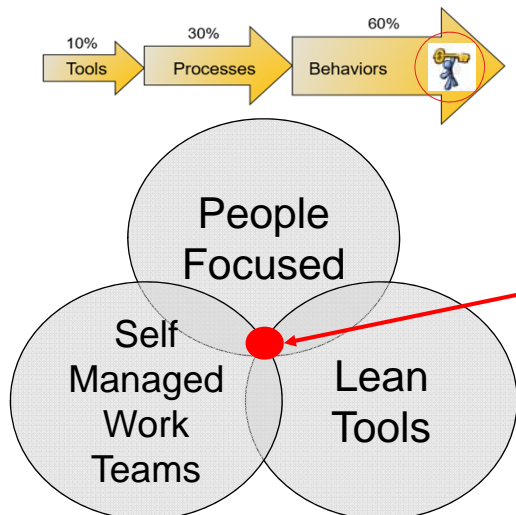
Honeywell-Twin Cities Locations



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Go beyond Lean Tools to Develop a Sustained Culture



The highest impact work has three elements:

- **Focus on people's** natural talents and abilities for engaging, challenging and enriching growth for the individual and the corporation
- Is developed by a cross functional, **self managed work team** that agrees it is the correct item to address
- Creates a new process or improve an existing process using **Lean Tools**
- Key to sustainment is the people and their behaviors!

All employees in all functions (ISC, Design, Finance, HR, etc.) are part of the team

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Standardized approach to problem solving

Plan → Do → Check → Act

One PDCA cycle could be:

- Operator Continuous Improvement (CI) Suggestion
- Kaizen
- Sprint (Scrum)
- A3

Current State
 "Feel Stuck"
 "Frustrated"
 Problem

Future State
 Where we
 need to go next

Vision
 Where we
 Want to be

Potential Inputs to Vision

ISC Strategy Deployment

Current Performance Metrics

Site Vision

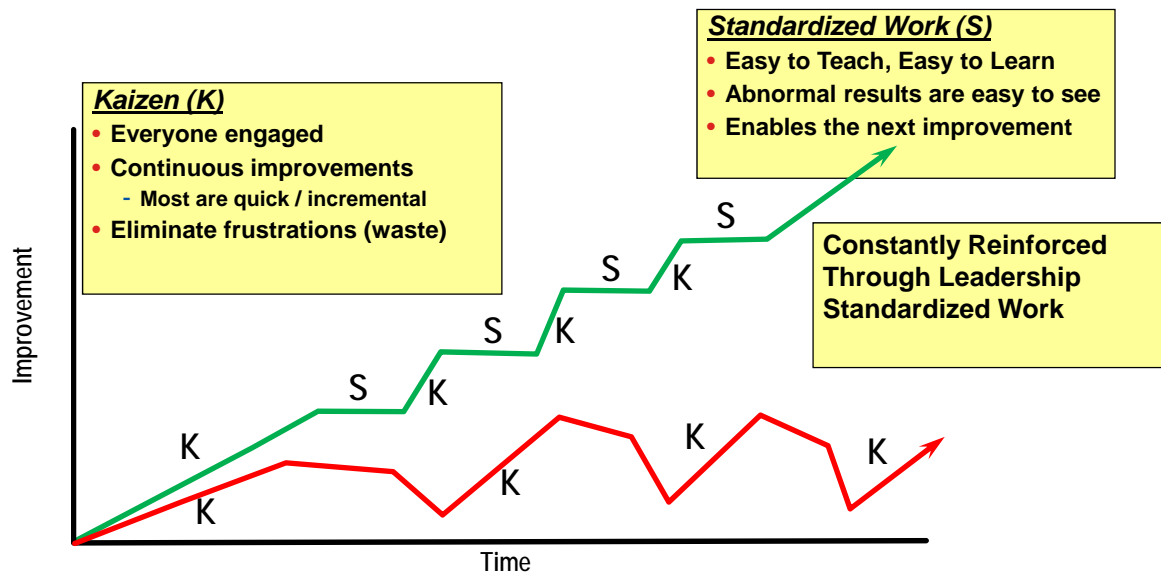
Enterprise Strategy Deployment

The journey to perfection is paved through endless cycles of PDCA!

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Problem Solving always ties to Process Improvement



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Aerospace-Minneapolis Site Vision

To continuously improve performance ensuring we thrive long term as the:

- Employer of choice for our employees
- Supplier of choice for our customers
- Customer of choice for our suppliers
- Location of choice for our corporation

Accomplished through:

Empowered, self managed work teams that drive personal ownership & accountability to achieve:

- Zero injury culture
- Zero defect culture
- 100% on time delivery to commitments
- Industry leading value proposition



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‘Why does that cell keep giving me bad parts?’

Frustration (Problem that needs solving)

Could also be:

- Why can't I get the right demand information?
 - Why can't the supplier ship on time?
- Why can't senior leaders recognize us more?

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Start where the issue is occurring

The energy to solve the problem and change the process is highest in the areas that are feeling the worst effects.

People who are 'repeatedly frustrated' see the value in doing something different.

- Step 1: Gather the group together (receiving and supplying cell) – create a list of things to know
 - Part numbers, quantity
 - What happened
 - What 'bad' means
 - Who is going to do what to investigate
- Step 2: Recognize that it repeats
 - 'This has happened before', 'there's lots of times we have to stop because it doesn't work right'



Start Building Repeatability (a process)

- Step 3: Build a standard form to use – start just with one group
 - 'We need to remember what questions to ask every time this happens!'

Between Cell Escape Alert
(Workmanship/Process)

Escape detected in _____ cell Date posted: _____
If AREA NAME S, circle one: X y Z EE AN ETC Originator: _____
 Phone #: _____

What operation was the defect caught at?
 (cell name & operation)? _____

Description of defect (Reason for Return - Include Quantity): _____

Part Identification (include S/N/PO/lot/Batch/etc. if applicable): _____

Has the part been non-conformed per the cell's documented procedure? Yes or No
 IF NO: Perform a non-conformance on the part before proceeding. Initials _____

Investigation (to be completed by supplying cell)

1. Where in the process was the failure created? _____

2. Should the failure have been detected? Yes or No (circle one)
 If yes then where: _____

3. Are adequate Operating Sheets or Work Instructions in place to perform & detect the failure? – Yes or No (circle one)

4. Are the operators currently performing the operation qualified to perform the operation (or working under the supervision of a qualified operator)? – Yes or No (circle one)

5. Are the operators following the Standard Operating Sheets or Work Instructions? – Yes or No (circle one)

6. Is the tooling and equipment adequate to perform the operation? – Yes or No (circle one)

7. Is this escape applicable to other product lines? – Yes or No (circle one)
 If Yes, Communicated to: _____

Containment Plan & Actions (Immediate actions to prevent further escapes; Address 2nd shift for questions 1-6 above)

Containment Assignments (Print)	Containment Verification (Sign & date)
Line Leader _____	_____
Supervisor _____	_____

Check list

- Add defect(s) to pareto chart
- Review at Tier 1 meeting
- Initiate Root Cause Corrective Action
- Communicate actions to customer cell

Classification

Workmanship
 Process

Where?

What?

How are we communicating that there was a problem?

How is it a problem?

Why did it happen?

What actions are happening now?

Who?



Show others as they run into the same frustration

- Step 4: Use the form across areas/functions
 - 'We figured out how to hold those guys accountable with this!'
- Step 5: Build it into Tiered Accountability by creating Visuals

QUALITY -- TIER 1

Block Machining

Daily Standard Work
 - **Group Leader:** Transfer the escapes from the Tier 1 BCEA/ECF/SEA Tracker and record the condition status. Transfer the abnormal status. Transfer the current caught data from the Tier 1 Escapes Caught Tracker chart and record the condition status.
 - **Supervisor:** Calculate and record Escapes, Abnormality and Escapes Caught table on the condition status for each.

Weekly Standard Work
 - **Supervisor:** Enter the Escapes Caught Goal for each cell and verify the sum of the cell's Escapes Caught table to the calculated Escapes Caught.
 - **Group Leader:** Enter the Escapes Caught goal. Abnormality - Actual Abnormality goal. Escapes Caught - Actual Escapes Caught goal.
Red: Escapes - Actual Escapes > goal. Abnormality - Actual Abnormality > goal. Escapes Caught - Actual Escapes Caught > goal.

ESCAPES			Monday (Fri)	Tuesday (Mon)
ESCAPES	Cell	Goal	Actual	Actual
Total Number of Escapes within the cell (SUM OF	Block Machining	0	1	0
Total Number of Escapes for the Week		0	1	1

When is something an Opportunity (Red condition)?

When do we talk about it?

What Tier level should it roll up to?

QUALITY Daily Tier 2 Discussion

1. Any Escapes (BCEAs/ECFs/SEAs)
2. Any Trend Limits tripped
3. Any eCATS within 3 days
4. TPM
5. COPO

RLG Tier 3 Quality Tracker

Product(s)	Goal	Monday	Tuesday	Wednesday	Thursday	Friday
Customer Escapes	0	0	0	0	0	0
Final Test	1	0	0	2	1	1
Pre-Test	0	0	0	1	0	0
Build	1	0	1	0	0	0
Machining	0	1	0	0	0	0
Total Number of Escapes	2	1	1	3	1	1



Check the process and Share Successes

Tier III Review of the BCEAZEB Processes for the RLG Dept

Reviewer	Reviewee	Item	Discussion	Action	Due Date
1	2	3	4	5	6

Things to Check

Item	Review	Item	Review	Item	Review	Item	Review
1	2	3	4	5	6	7	8

Review Notes

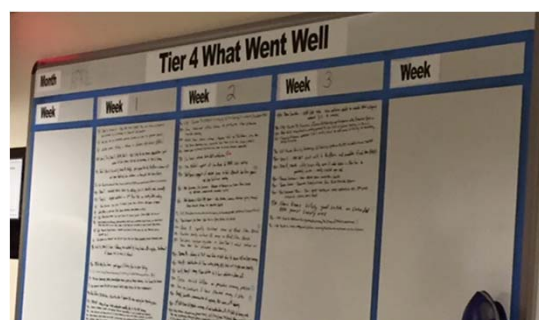
Reviewer	Reviewee	Item	Review
1	2	3	4

Step 6:

- When ideas migrate across cells, create checks for process effectiveness and learning opportunities between groups
- Good questions can be found in 'Creating a Lean Culture' by David Mann (Appendix A, B)
- 'Problem Solving' questions are on page 314, 323, 333

Step 7:

- Create opportunities to talk about the good behaviors and processes happening each day
- 'Inventor' cells can be reference points when another group runs into the same frustration
- Leaders can reinforce via reward/recognition processes high impact problem solving



In Summary

Building Problem Solving takes the whole team!

- Start with frustrations
- Let the team develop a Process
- Make the Process Standard
- Use the Process across multiple areas with the same frustration
- Build it into Tiered Accountability
- Check the Process to make sure it's working as intended
- Recognize/Reward the team as they solve their frustrations

Repeat!

We often ask ourselves 'the three questions':

1. Is there a process?
2. Is the process effective?
3. Is it improving?

Once it becomes commonplace to solve current (reactive) frustrations, the next step is FUTURE (proactive) frustrations, like:

- 'I know we're going to miss X delivery to X customer in a month'
- 'We're going to run out of material next week'
- 'I couldn't add another check in my day'

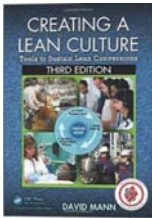
	Monday	Tuesday	Wednesday	Thursday	Friday
8:30 - 8:31	Introductions				
8:31 - 8:36	What Went Well (Board Scribe)				
8:36 - 8:44	Daily Metric Reporting – (SQDC) - See Metric Reporting Process for Specifics				
8:44 - 8:45	Communications				
8:45 - 8:47	Review Continuous Improvement Suggestions	Weekly Continuous Improvement Status	Review Continuous Improvement Suggestions		
8:47 - 8:54	Metric Deep Dive				
	Safety	Quality	Delivery	Inventory	Cost
8:54 - 9:00	Special Topics				
	Facilities	Site Projects Status	New Products	Special Topics	Communication & Engagement
	Monday	Tuesday	Wednesday	Thursday	Friday

Meeting Leader: Site Leader (or designee) Meeting Attendees: Site DC Leadership Team



Next Step Suggestions – Wherever You Are in Your Journey

Try Something Today!

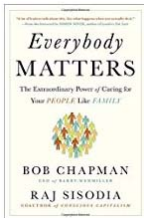


Lean Tools

- Creating a Lean Culture (David Mann), 3rd ed., 2014
 - How to implement Lean Tools across operations and office areas
 - Filled with examples - Problem Solving questions on pg. 314
 - Reads differently every time (context changes as you learn)

Self Managed Work Teams

- Turn the Ship Around (L. David Marquet), 2013
 - Check out his 'What is Leadership?' video for a 9.5 minute summary of Self Managed Work Teams www.leader-leader.com
 - Leaders give control to the team and support improvement

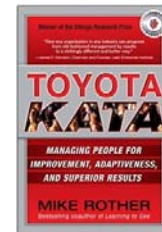


People Focus

- Everybody Matters (Bob Chapman and Raj Sisodia), 2015
 - Every person in your organization has skills and abilities that can be utilized for individual and organizational success
 - Solving frustrations leads to growth and improvement!

Problem Solving/Continuous Improvement Systemic Approach

- Toyota Kata (Mike Rother), 2010
 - Continuous Improvement and problem solving are a part of every day
 - Teaching improvement (problem solving) processes needs to happen for every employee in the organization



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