

# *Quality is Everyone's Responsibility*

## Digital Workflows for Quality Management Excellence

June 06, 2024

Kris Gorrepati and Manish Mathur

KaizenKit

Designed by

Cambrian Lab

Quality is everyone's responsibility  
- *W. Edwards Deming*

# Agenda

- ❑ Introductions
- ❑ Cross-functional Quality Management and Challenges
- ❑ Workflow Based Approach to Cross-functional Quality Management
- ❑ Case Study
- ❑ Demo
- ❑ Q&A

# About Cambrian Lab

## Team

Supply Chain, New Product Introduction, and Technology Experts from SAP, Samsung, Siemens, GM, Ford, Applied Materials

## Expertise

- New Product Development/Introduction, Supplier Development, and Quality Management
- Enterprise and Supply Chain Technology (ERP, SCM, Manufacturing, CRM, Sourcing, Finance)

## Industries

Automotive, High-tech, Semiconductor Equipment, Medical Devices, Consumer Products  
**(From Fortune 100 to Start-ups)**

## Locations

SF Bay Area, Detroit, Boston, Houston

# Panelists Today

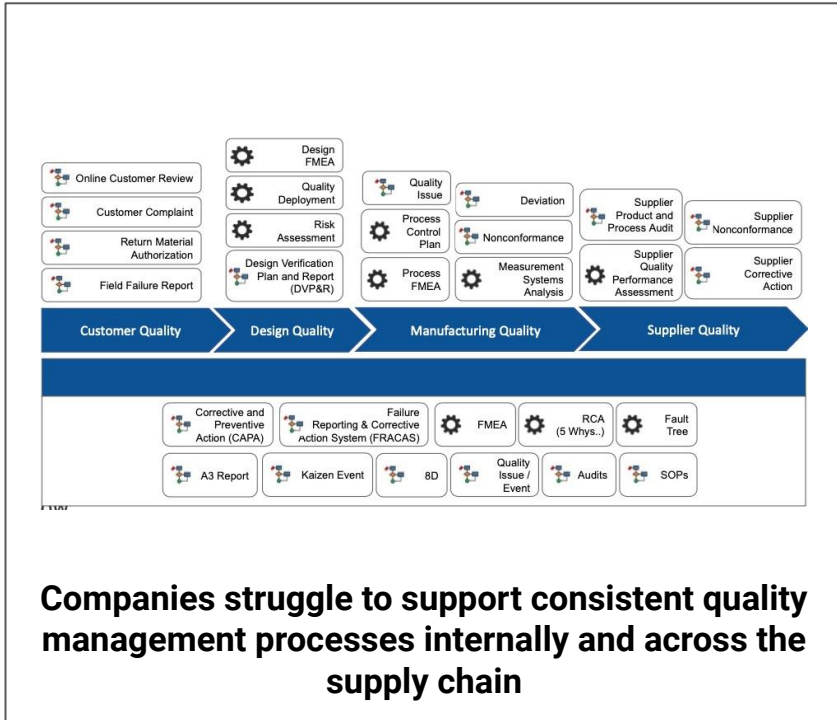
## Kris Gorrepati

- 20+ years experience in New Product Development and Introduction and Supply Chain Manufacturing
- SAP, Samsung, Ford, Caterpillar
- Auto, High-tech, Software
- Michigan Tech (Mech Engg.), UCLA

## Manish Mathur

- 20+ years experience in PLM, Business Analytics, Software Engineering
- GM, Ford, Siemens PLM, Cap Gemini
- Auto, High-tech, Software
- Michigan Tech (Elec Engg), Walsh College

# Making Quality Everyone's Responsibility is a Challenge



Root cause

- Quality is the responsibility of only quality department
  - No support for cross-functional quality management processes
  - Quality processes are disconnected from key business and supply chain processes
- Cross-functional Quality workflows are poorly supported**

Effect

- |                                  |                     |                         |
|----------------------------------|---------------------|-------------------------|
| Poor product and service quality | Reputational damage | High warranty cost      |
| Non-compliance                   | Customer returns    | Supply Chain Disruption |
- Uniformly bad consequences**

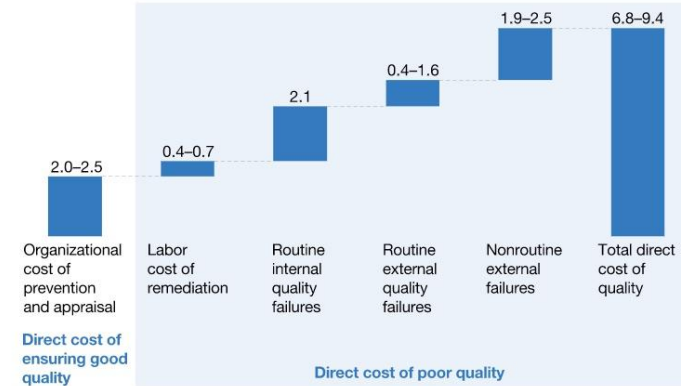
# Cost of Poor Quality >>>> Cost of Quality

Cost of Quality			
Cost of Good Quality		Cost of Poor Quality	
Prevention costs	Appraisal costs	Internal failure costs	External failure costs
<ul style="list-style-type: none"> <li>• Planning</li> <li>• Process Control</li> <li>• Quality Audits</li> <li>• Maintenance</li> <li>• Supplier Evaluation</li> <li>• Training</li> <li>• Design Review</li> <li>• Risk Assessment</li> <li>• FMEA</li> </ul>	<ul style="list-style-type: none"> <li>• Inspection</li> <li>• FAT</li> <li>• Document Review</li> <li>• Quality Audits</li> <li>• Calibration</li> <li>• Test Materials</li> <li>• Test product</li> </ul>	<ul style="list-style-type: none"> <li>• Scrap</li> <li>• Rework</li> <li>• Missing documents</li> <li>• Problem solving</li> <li>• Retest</li> <li>• Redesign</li> <li>• Downgrading</li> <li>• Variation</li> <li>• Downtime</li> </ul>	<ul style="list-style-type: none"> <li>• Warranty charges</li> <li>• Complaints</li> <li>• Returned Materials</li> <li>• Late Delivery Penalties</li> <li>• Rework After Installation</li> <li>• Lost Opportunities</li> </ul>

For the first nine months of 2020, Ford's warranty costs totaled \$3.87 billion, while GM's were \$1.68 billion, according to regulatory filings.

The direct cost of quality in the medical device industry is \$26 billion to \$36 billion annually.

% of sales<sup>1</sup>



<sup>1</sup>Estimated annual sales of \$380 billion.

McKinsey&Company | Source: Health Research International; McKinsey analysis

# Why Making “Quality is Everyone’s Responsibility” Remains a Challenge

## To “Do What is Documented” as QMS is Hard

QMS via Email  
Manual  
Actual practice varies from what is expected  
Requires extraordinary effort from people

## Cross-functional teams and systems are disconnected

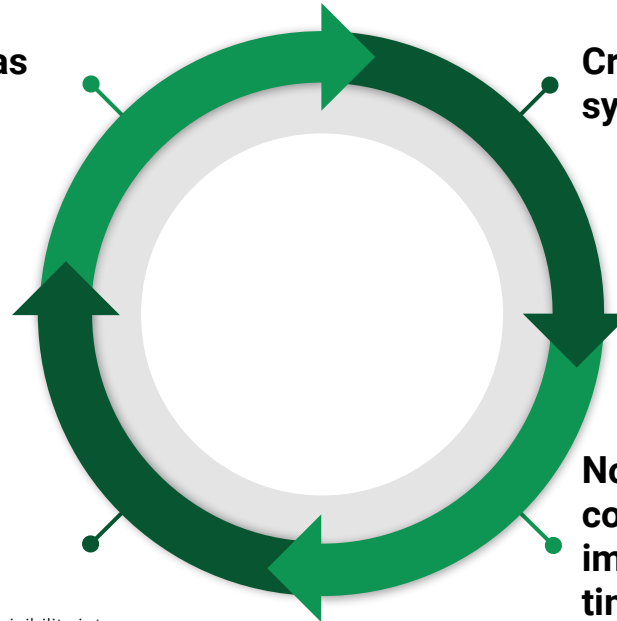
Missed handoffs  
Quality events fall through the cracks  
Institutional Knowledge lost

## Involving Supply Chain is Difficult

Suppliers not in the loop  
No visibility into Supplier quality practices

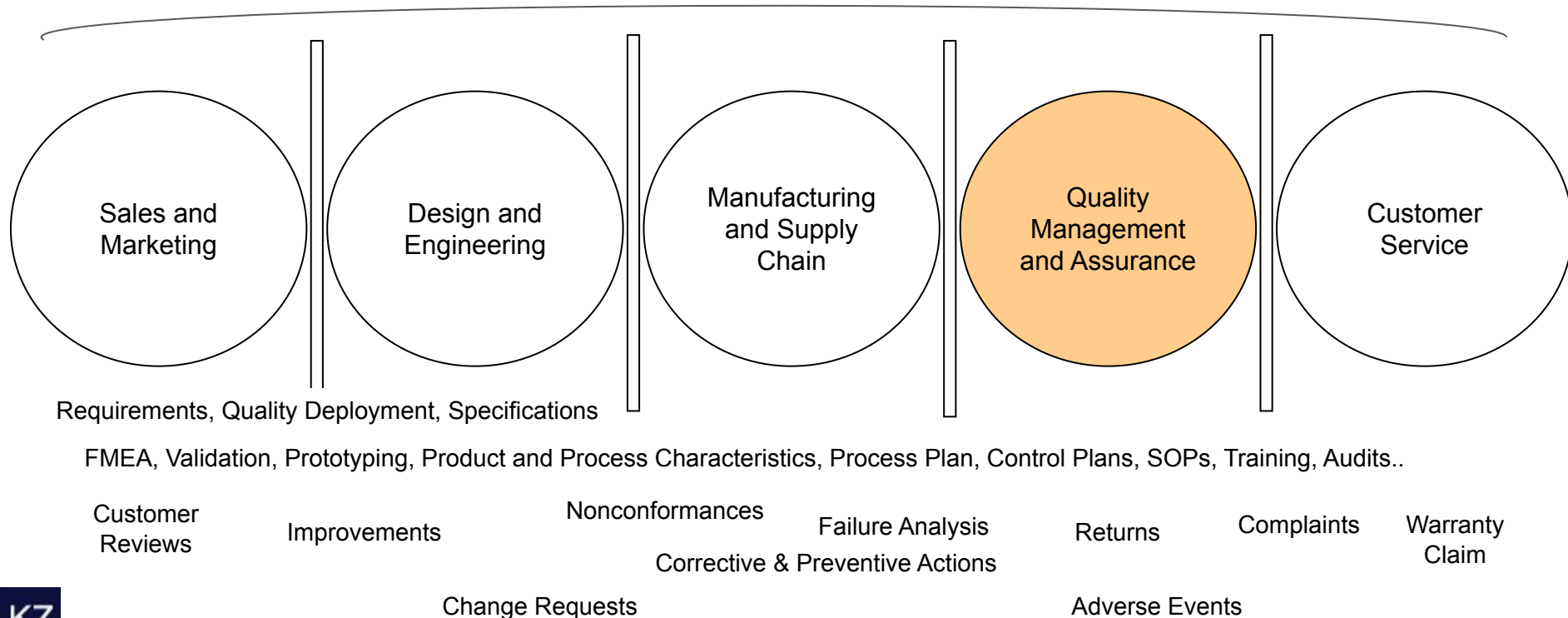
## No guarantee that corrective/preventive actions are implemented effectively and in a timely manner

No learning from prior quality events  
Dropped or delayed corrective and preventive action implementation





# Process and Information Silos Are Obstacles to Making “Quality is Everyone’s Responsibility”



# Quality Events can get Lost in Disparate and Disconnected systems

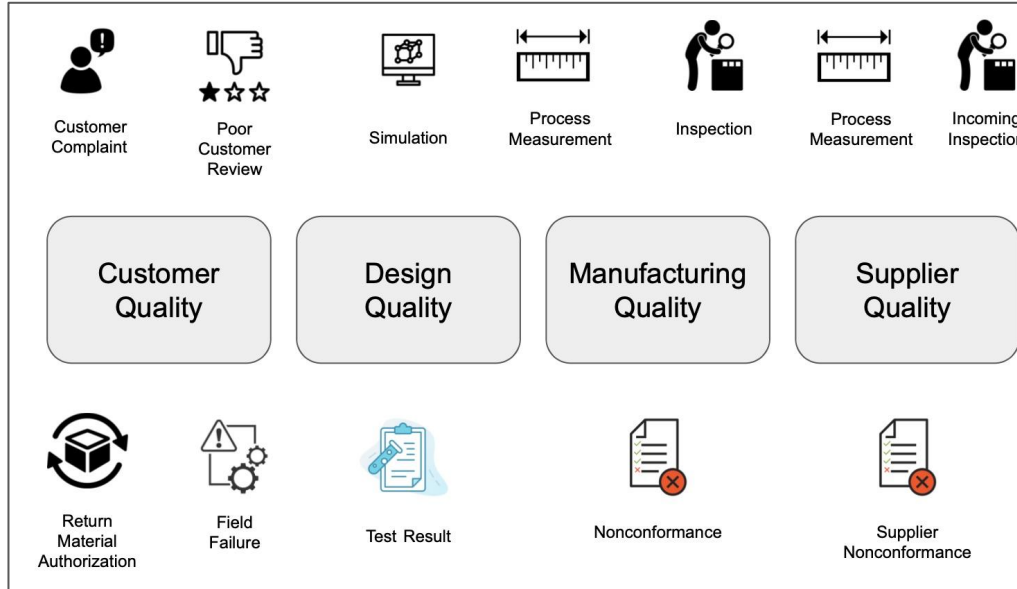
CRM  
Systems

E-commerce

Testing  
Systems

LIMS

Inspection  
Systems



ERP  
Systems

Supply Chain  
Systems

# The Answer - Cross-functional Workflows that Make “Quality is Everyone’s Responsibility” a Reality

Quality Workflows that can include and be started by anyone and system

Out-of-the-box Integration to ERP, MES, PLM, Supply Chain systems

Zero-code

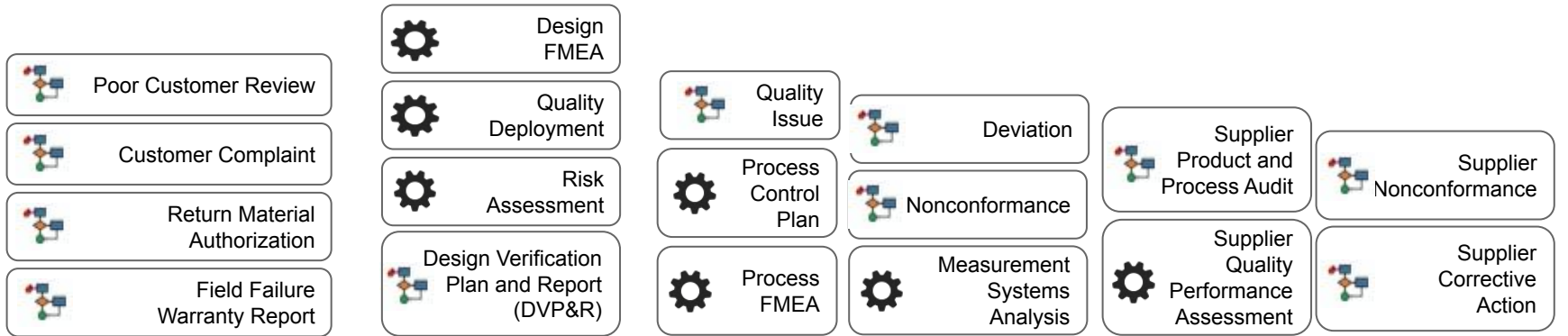


Proactively Involve Right People at the Right Time

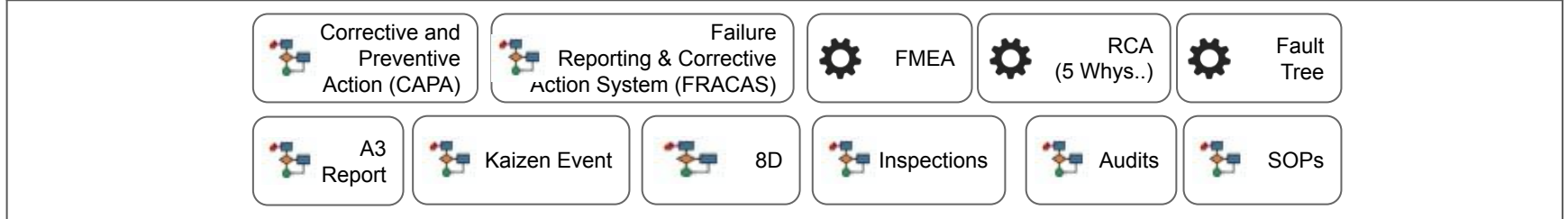
Supply Chain Ready

Integrated and effective quality tools and techniques

# Quality is Everyone's Responsibility



## Cross-functional Quality and Continuous Improvement Tools

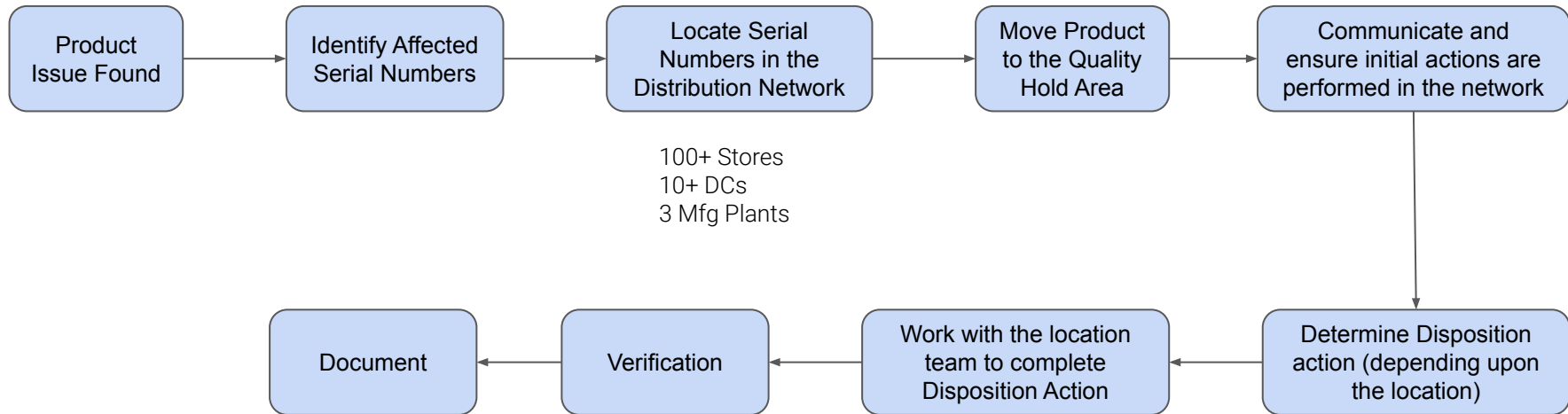


# Agenda

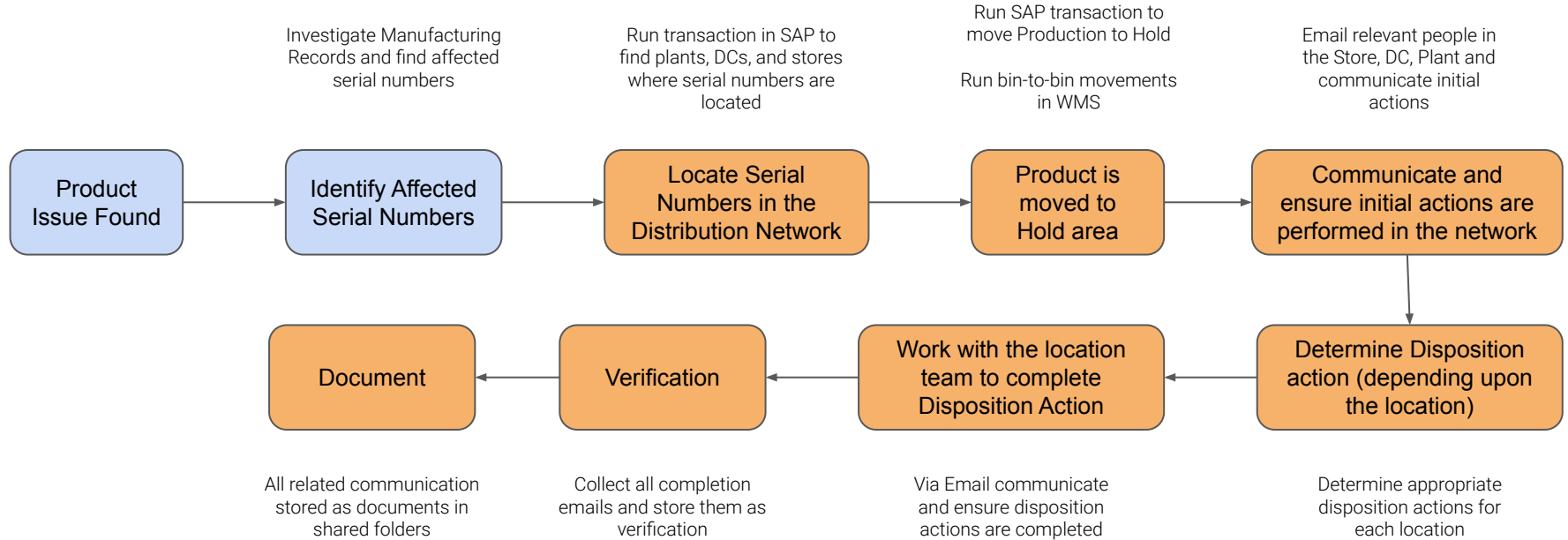
- ❑ Introductions
- ❑ Cross-functional Quality Management and Challenges
- ❑ Workflow Based Approach to Cross-functional Quality Management
- ❑ **Case Study**
- ❑ Demo
- ❑ Q&A

# Case Study Overview

Manufacturer needs to act fast to move non-conforming product (so that it does not end up with customers) from various distribution nodes (Stores, DCs, and Manufacturing Plants) to support immediate actions, fixes and eventual disposition



# AS-IS Standard Operating Procedure



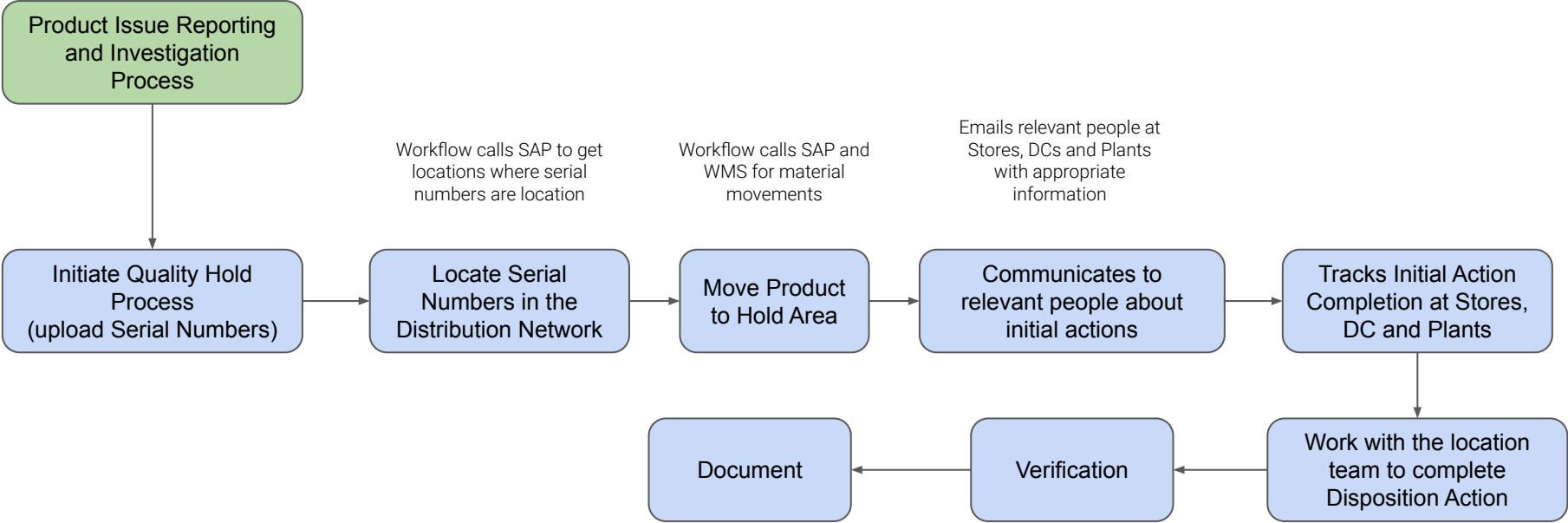
**3-6** month project

**10-20** people involved

High chance of defective product making it to customers

**Very expensive and damaging to the brand** if defective product ends up with customers

# Digital Workflow Based Standard Operating Procedure



**2-3** week project

**1-2** coordinators

Defective product moved out of plants, DCs, and Stores quickly

**Minimize customer impact**

Uses workflow to allow one-to-one communication, completion and action tracking between coordinator and locations for disposition actions



# Initiate Product Hold

Launch Pad Administration ▾ Data Maintenance ▾ Repository Reports Search

Product Hold - [redacted]

Info **Current Activity** Data Members Roles WorkFlow Log Graph Process Report

Current Activity: Wait for Plant Action Completion (Current Status: Activity restarted) You are Acting for the Performer Performers: [redacted]

[▶ Complete](#) [▶ Resend Notifications](#)

Primary Facility: [redacted] ▾

Reporting Store/DC/Facility : [redacted] ▾

Reference ID: [redacted]

Issue Description: [redacted]  
Wiring Issue

Initial Action Instructions: [redacted]  
Put these items in hold  
Disposition Plan - FTC's will visit for rework - Please respond Back when complete

Current Scope\*: [redacted] ▾

Last Update: [redacted] 2023/05/04 14:00

## Serial Number

#	Serial Number
<input type="checkbox"/> 1	[redacted] 254
<input type="checkbox"/> 2	[redacted] 255
<input type="checkbox"/> 3	[redacted] 256
<input type="checkbox"/> 4	[redacted] 257
<input type="checkbox"/> 5	[redacted] 258
<input type="checkbox"/> 6	[redacted] 280
<input type="checkbox"/> 7	[redacted] 291
<input type="checkbox"/> 8	[redacted] 292
<input type="checkbox"/> 9	[redacted] 293
<input type="checkbox"/> 10	[redacted] 294


# Workflow connects to SAP, gets Locations of Serial Numbers, and initiates movement to Quality Hold Area in WMS

#	Material Number	Equipment Number	Description	Serial Number	Plant	Current S Loc	Customer	Impacted Quantity
<input type="checkbox"/> 1				38	A12	0001		
<input type="checkbox"/> 2				8	A12	0001		
<input type="checkbox"/> 3				20	A12	0001		
<input type="checkbox"/> 4				38	A12	0001		
<input type="checkbox"/> 5				38	A12	0001		
<input type="checkbox"/> 6				3	A2	0001		
<input type="checkbox"/> 7				4	A2	0001		
<input type="checkbox"/> 8				2	A2	0001		
<input type="checkbox"/> 9					A2	0001		
<input type="checkbox"/> 10					A4	0001		
<input type="checkbox"/> 11	105000410	105000410	CV25-10/24-85-20 Coil/STON/CASE	1102000	A4	0001		

# Workflow Identifies and Communicates with Relevant Stakeholders at Impacted Locations

#	Comments	Plant	Email Distribution List	Initial Action Completed?	Initial Action Response	Initial Action Completed By (USER ID)	Disposition Completed?	Disposition Actions
1			A1	Yes	Put on hold		Yes	FTC reworked the wiring
2			A2	Yes	Moved to hold in		Yes	FTC visit 5.4.23
3			A4	Yes	Moved all the		Yes	Held in HOLD Area - Will confirm once rewor

# Workflow Allows bidirectional communication and coordination of initial actions, fixes and eventual disposition

Initial Action Instructions:	Put these items in hold Disposition Plan - FTC's will visit for rework - Please respond Back when complete	Disposition Instructions:	12S87
Current Scope:	Disposition	Creation Date:	2023/05/04 14:06:56
Last Update:	2023/05/04 14:22:31		
<b>Plant</b>			
Plant:		Email Distribution List:	
Initial Action Completed?:	Yes	Initial Action Response:	Moved all the serial numbers to HOLD area
Initial Action Completed By (USER ID):		Initial Action Date:	2023/05/04
Impacted Quantity Summary:	Qty: 10 Qty: 15 Qty: 75 Qty: 90 Qty: 110	Disposition Completed?:	Yes
Disposition Actions:	Held in HOLD Area - Will confirm once reworked	Disposition Completed By (USER ID):	
Disposition Date:	2023/05/04		
<b>Attachments</b>			
 <input type="button" value="CHOOSE FILE"/> No file chosen			

# Agenda

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- ❑ **Demo**
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# Demo

Systematically address  
minor and major quality  
issues

Learning from  
Failure

Involving Suppliers

# Ready to Use Cross-functional Quality Workflows, Tools, and Techniques

KZ Launch Pad Administration ▾ Data Maintenance ▾ Repository Reports New Search ZFlow Admin ▾

### Launch Pad for Administrator

#### Crossfunctional Quality

- Corrective Action Request  
List | Find | Insights | New
- Failure Report  
List | Find | Insights | New
- Custom Corrective Action Report  
List | Find | Insights | New
- Nonconformance Report  
List | Find | Insights
- Quality Issue  
List | Find | Insights | New

#### Continuous Improvement

- A3 Report  
List | Find | Insights | New
- 8D Problem Solving Process  
List | Find | Insights | New
- Kaizen Event  
List | Find | Insights | New

#### Manufacturing Quality

- Inspection Report  
List | Find | Insights | New
- Control Plan  
List | Find | Insights
- Measurement Sys Analysis  
List | Find | Insights
- Process FMEA  
List | Find | Insights
- Process Plan  
List | Find | Insights

#### Design Quality

- NPI Review  
List | Find | New
- APQP Program  
List | Find | Insights | New
- First Article Inspection Report  
List | Find | Insights | New
- Medical Device NPI  
List | Find | Insights | New
- Supplier PPAP  
List | Find | Insights
- DFMEA  
List | Find | Insights
- Design Verification Plan  
List | Find | Insights
- Part/Assembly  
List | Find | Insights
- QFD  
List | Find | Insights
- Requirement  
List | Find | Insights
- Risk Assessment  
List | Find | Insights
- Traceability Matrix  
List | Find | Insights

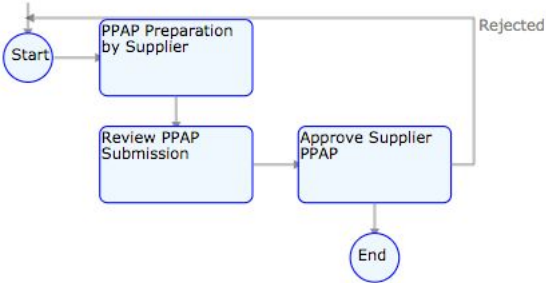
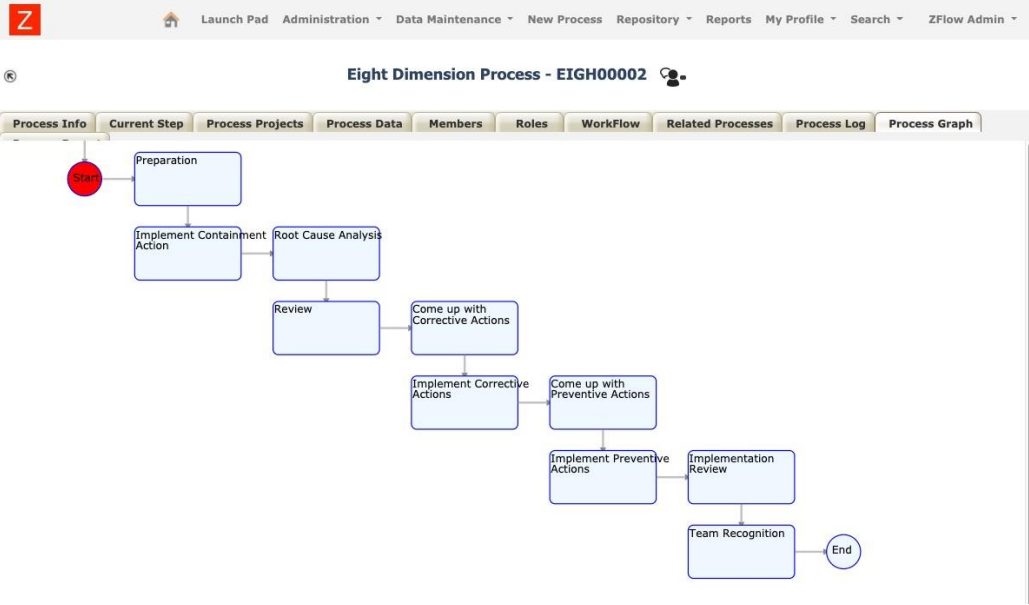
#### Supplier Quality

- Supplier Performance  
List | Find | New
- Supplier Risk Assessment  
List | Find | New
- Supplier Audit  
List | Find | Insights | New
- Supplier Corrective Action  
List | Find | Insights | New
- Supplier Performance Report  
List | Find | Insights | New
- Vendor Assessment  
List | Find | Insights | New
- Supplier Profile  
List | Find | Insights

#### Customer Quality

- Customer Review Assessment  
List | Find | Insights | New
- Field Failure Report  
List | Find | Insights
- MedWatch Report  
List | Find | Insights | New
- Return Material Authorization  
List | Find | Insights | New
- Warranty Claim Analysis  
List | Find | Insights

# Powerful Do-it-yourself Workflow Design and Execution





# Integrated and Effective Techniques as part of Quality Workflows

**Design FMEA - Delta Eclipse XZ**

Show Spreadsheet Attachments Show Attachment Tree Reports Close Comments Action Items

**Design FMEA**

- Delta Eclipse XZ
  - Maintains designed level of low pressure
  - Desired vacuum level not maintained
  - Contamination of test environment
  - Leak due to o-ring failure
  - Continuous measurement
  - New o-ring
  - Vacuum system failure
  - Continuous measurement
  - Controls movement of IC test beds
  - Maintains temperature

**Form Identifier:** Delta Eclipse XZ DFMEA    **Part Number:** Delta Eclipse XZ    **Description:** Delta Eclipse XZ DFMEA

**Status:** Work In Process    **Rev.:** A    **Rev.Status:** Pending

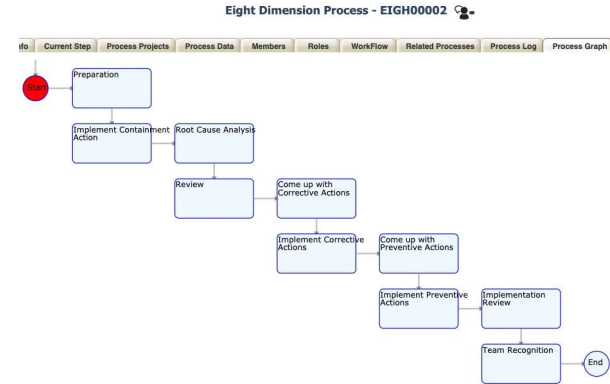
**Created By:** admin@zflow.io    **Creation Date:** 2020/12/14 8:37:54    **Updated By:** admin@zflow.io

**Last Update:** 2020/12/14 8:37:54

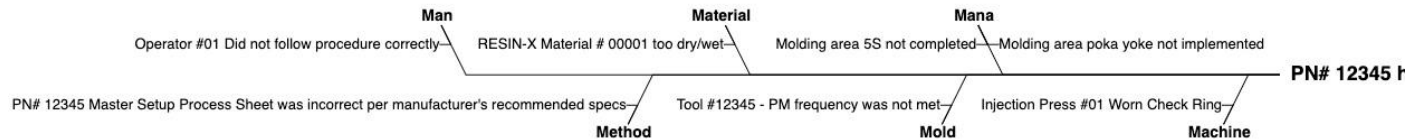
**Design FMEA Function**

#	System	System Interface
<input type="checkbox"/> 1	Vacuum Chamber	
<input type="checkbox"/> 2	Motion Controller	
<input type="checkbox"/> 3	Thermal Controller	

FMEA




8D





Fishbone


# Cross-functional Team Collaboration

**Z**
**Roles - Supplier PPAP**
✕

  
New

  
Edit

  
Delete

  
Update Processes


**Role Name**
**Description**
**From Org**
**Privileges**


<input type="radio"/> Participant			
<input type="radio"/> Design Engineer	No		
<input type="radio"/> Process Admin			
<input type="radio"/> Purchasing Lead	No		
<input type="radio"/> Supplier Representative	No		


**Z**
**Menu**


- Administration ▾
- Data Maintenance ▾
- New Process
- Repository ▾
- Reports
- My Profile ▾
- Search ▾
- ZFlow Admin ▾


### Organization Structure - Root


  
Edit


  
Add Organization


  
Add Position


  
Add New User


  
Export


  
Rename


  
Delete


  
Delete All


  
Expand All











  
Users

  
Open Org

  
Report

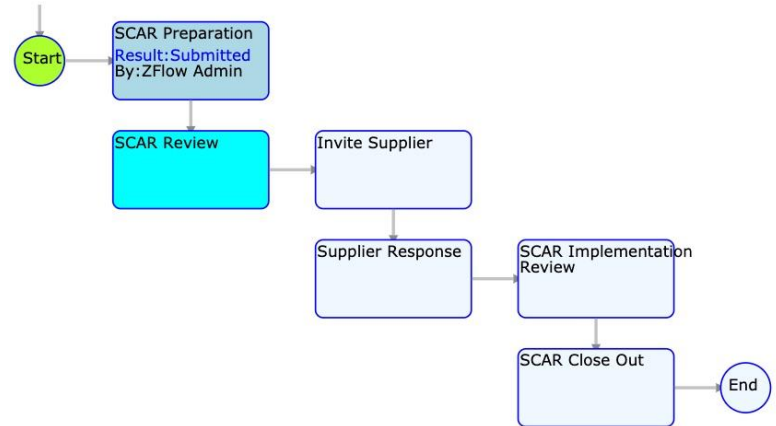
  
Download

  
Back

Entity	Type	Person Assigned	Reports To Position
<input type="radio"/>  Root	Organization		
<input checked="" type="radio"/>  ZZ Corp	Company		
<input type="radio"/>  Tezla	Organization		
<input type="radio"/>  CEO	Position	<a href="mailto:zflow-ceo@mailinator.com">zflow-ceo@mailinator.com</a>	
<input type="radio"/>  VP of Finance	Position	<a href="mailto:zflow-vp-finance@mailinator.com">zflow-vp-finance@mailinator.com</a>	
<input type="radio"/>  VP of Manufacturing	Position		
<input type="radio"/>  Fremont Plant	Division		
<input type="radio"/>  Plant Manager	Position		
<input type="radio"/>  Giga Factory	Division		
<input type="radio"/>  Z Lab	Organization		

# Easy and Secure Supply Chain Collaboration

Business Name	Supplier ID	Supplier Relationship Status	Supplier Maturity Level	Supplier Category
<input type="checkbox"/> Avioq Inc.	SAVIOQ	Active	Advanced	Strategic
<input type="checkbox"/> Bosch Sensortec	SBOSCH	Qualified	Advanced	Non -strategic
<input type="checkbox"/> Broadcom	SBRCM	Active	Advanced	Strategic
<input type="checkbox"/> Carrier UTC	Carrier			
<input type="checkbox"/> Cirrus Logic	SCIRRUS			
<input type="checkbox"/> Genco Contractors	Genco			
<input type="checkbox"/> Generac	Generac			
<input type="checkbox"/> Honeywell	Honeywell			
<input type="checkbox"/> Huizhou Desay	SHUIZHOU		Basic	Non -strategic
<input type="checkbox"/> Intel Corp	SINTC	Preferred	Integrated	Strategic
<input type="checkbox"/> Jabil	Jabil	Preferred	Integrated	Strategic
<input type="checkbox"/> Lattice Semiconductor	SLATTICE	Qualified	Advanced	Non -strategic
<input type="checkbox"/> Lennox International	Lennox			
<input type="checkbox"/> MetalDyne	MetalDyne	Active	Basic	
<input type="checkbox"/> Murata Manufacturing	MURATA	Active	Advanced	Routine
<input type="checkbox"/> Northern Tool and Equipment	NorthernTE			
<input type="checkbox"/> NXP Semiconductor	NXPSEMI	Preferred	Advanced	Non -strategic
<input type="checkbox"/> Qorvo Inc	QORVO	Qualified	Advanced	Non -strategic
<input type="checkbox"/> Qualcomm Inc.	QCOM	Restricted	Advanced	Strategic
<input type="checkbox"/> Skyworks Inc.	SKYWOKRS	Active	Advanced	
<input type="checkbox"/> TDK Corp	TDKCORP			

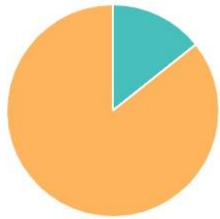


# Quality Workflow Visibility and Metrics

## Supplier Corrective Action - Processes - Total Records: 6

Approval Status ▾

Completed Rejected Approved Other



Process Status ▾

Not Submitted Running - Work In Process



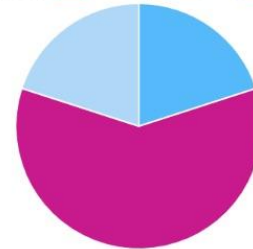
Issue Type

Field Failure Nonconformance Return Customer Complaint Poor Quality



Recommended CAR Type

Design Change Process Change Training Inspection

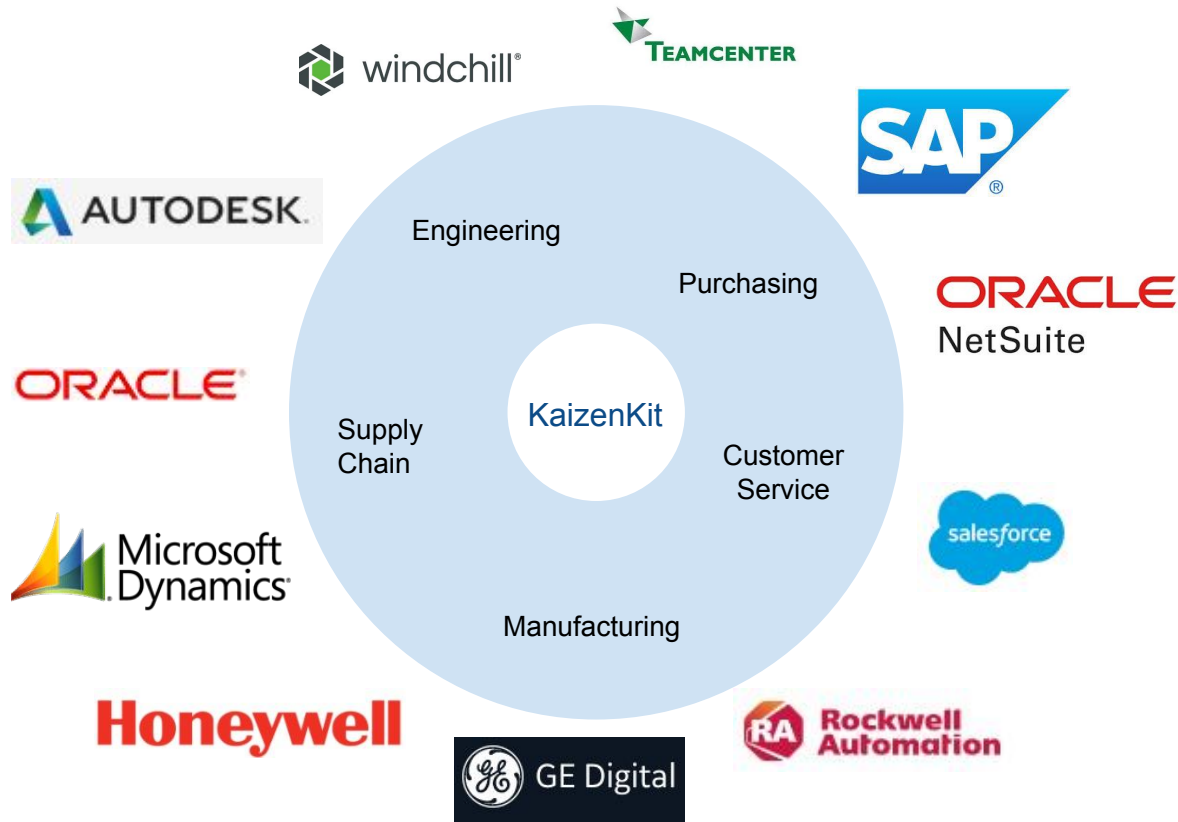


Root Cause Type

Part Process Training Quality Control



# Rich Capabilities for Integrating to ERP, Engineering, Manufacturing and Supply Chain Applications



# Summary

- ❑ *Proven success in many industries*
- ❑ *Easy to adopt and loved by users*
- ❑ *Easy to get started*

[Free Trial](#)

[Free Pilot](#)

# For More Information

<https://www.kaizenkit.io>

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