

# Achieving New Product Introduction (NPI) Excellence

April 21, 2022

Kris Gorrepati and Manish Mathur



# Agenda

- Brief Intro
- Process Orchestration for NPI Excellence
- NPI Reviews
- NPI Sourcing
- Component Engineering
- Supplier Development
- Sustaining Engineering
- Q&A

# About Cambrian Lab

**Mission:** To Provide Effective and Practical Solutions for Supply Chain Excellence

## Team

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

## Industries

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

## Locations

SF Bay Area, Detroit, Boston, Houston

## Expertise

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



# Panelists

## 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, Manufacturing, and Data Management
- Ford, GM, Siemens PLM...
- Auto, High-tech, Software
- Michigan Tech (Elec Engg.), Walsh College (MBA)

# Modern New Product Introduction (NPI) Challenges



Even simple products are increasingly complex, connected and intelligent systems

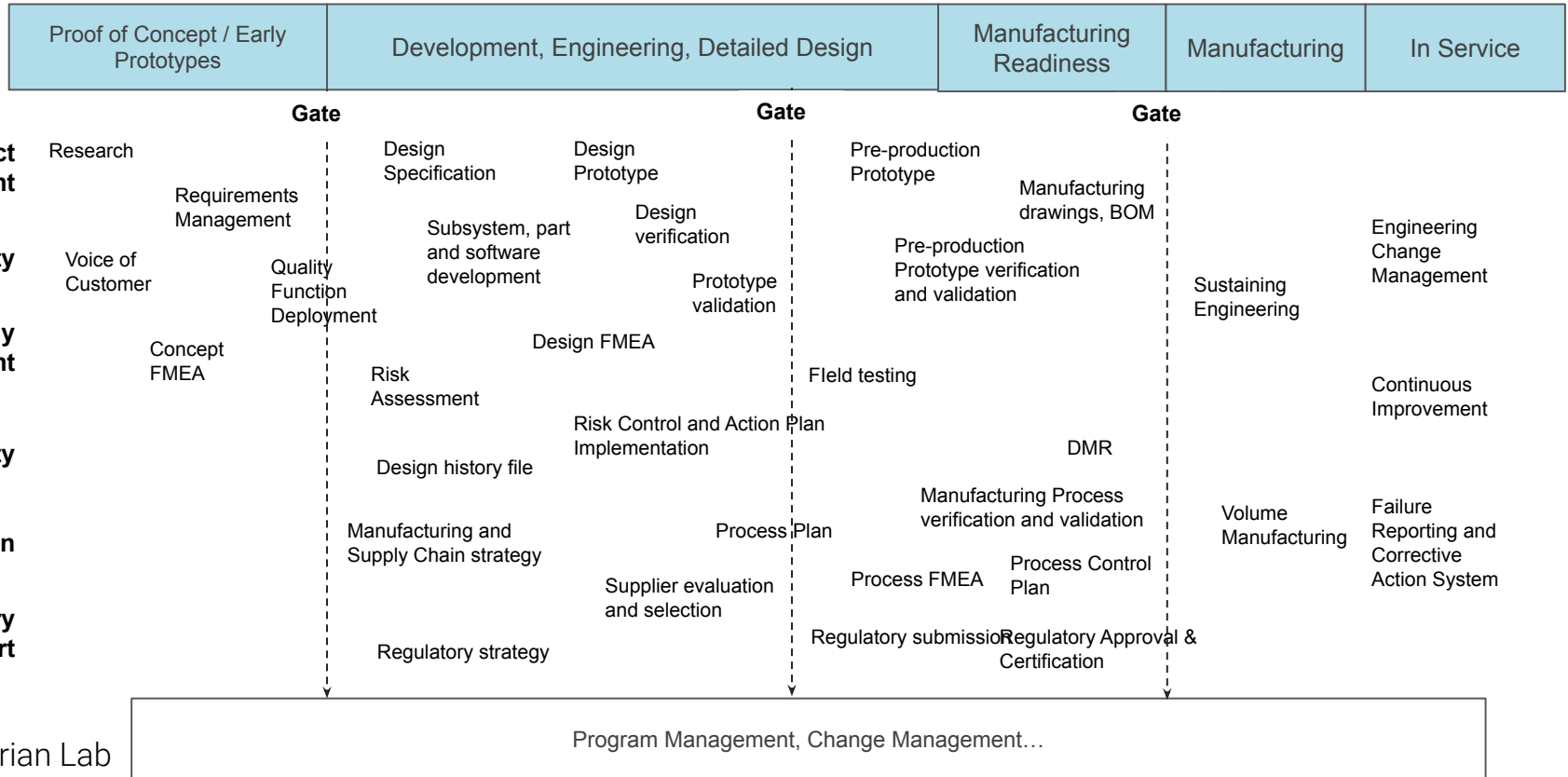
Increasing number customer and regulatory requirements



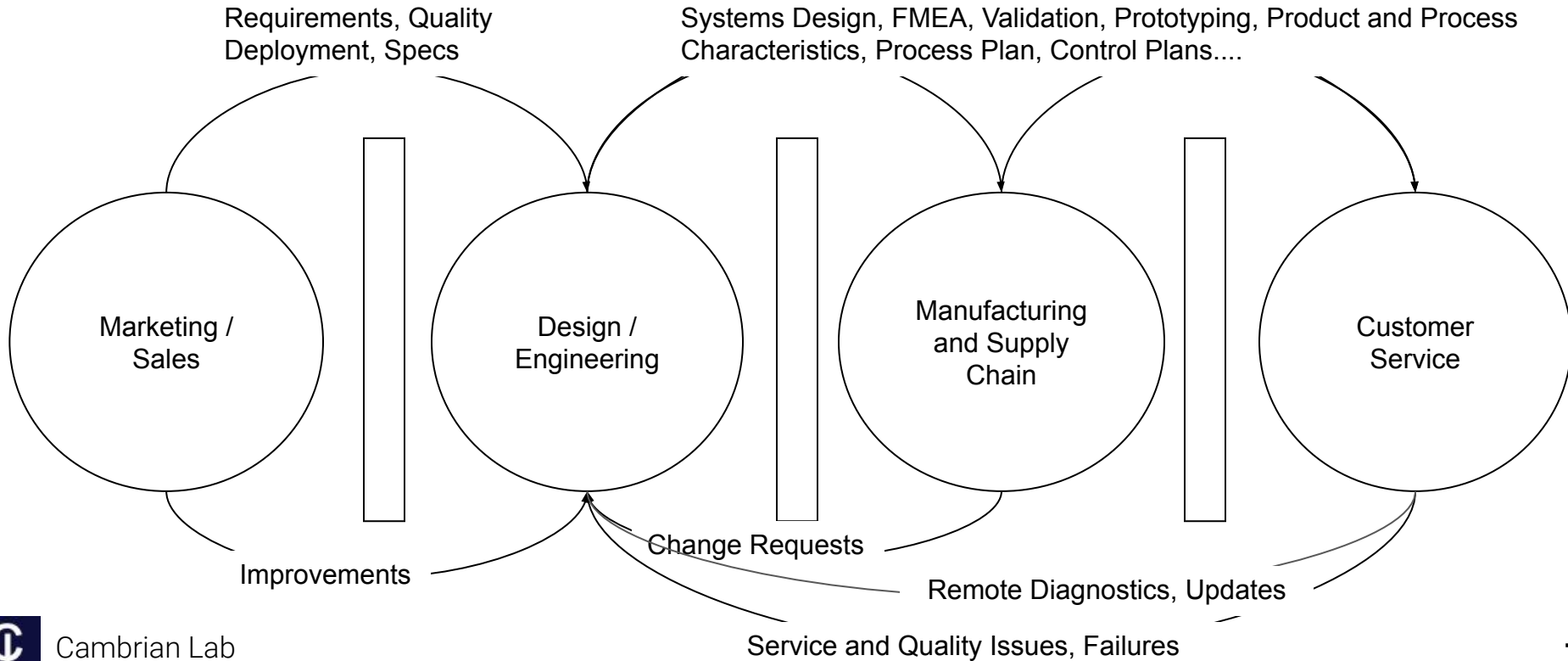
Complicated and risky supply chains

Never enough time for flawless launches

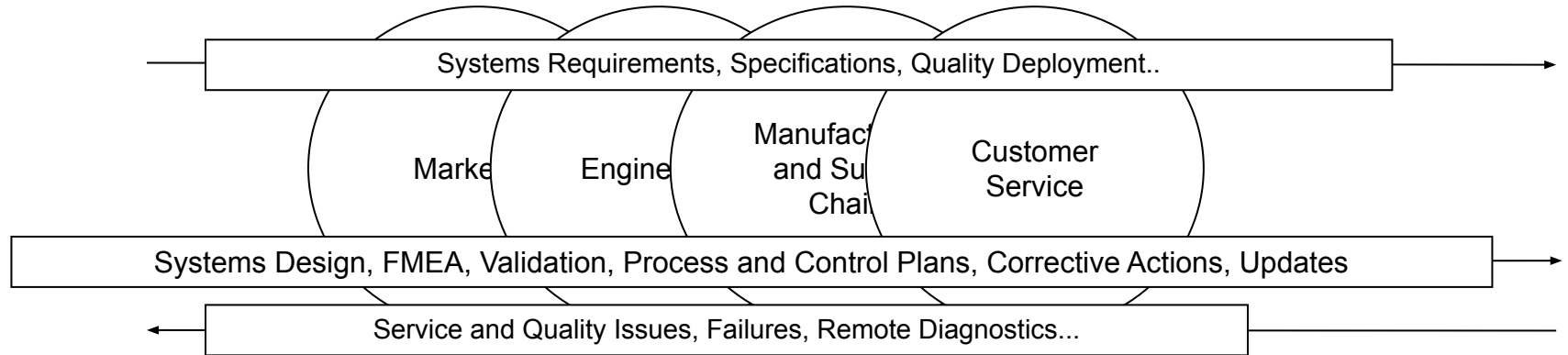
# Orders of Magnitude of NPI Work



# Process and Information Silos Are Obstacles to Achieving NPI Excellence



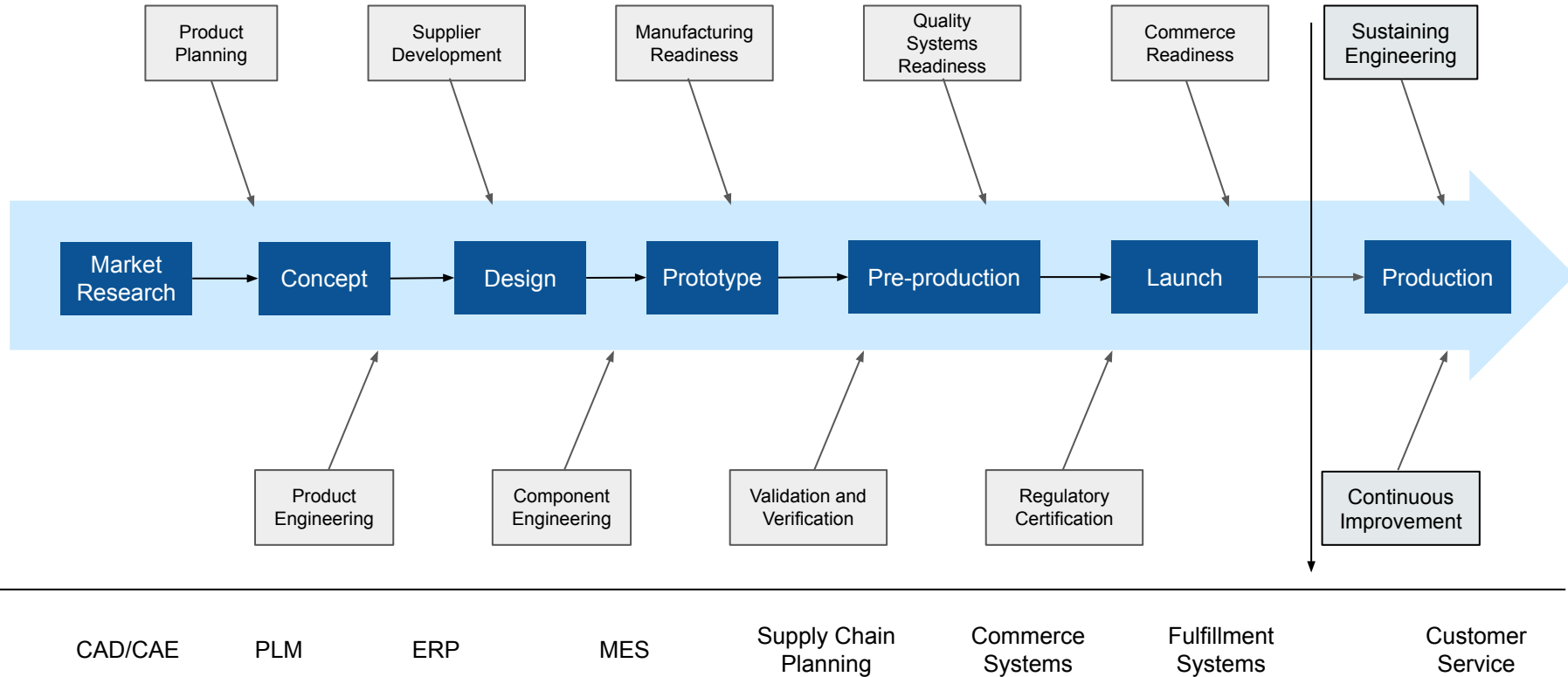
# Cross-functional and Seamless NPI Process Orchestration is Essential



for  
*Faster Time-to-market*  
*Fewer Product Launch Delays*  
*Fewer Post-Launch Issues*



# Process Orchestration for NPI Excellence



# Upside to Achieving New Product Introduction Excellence

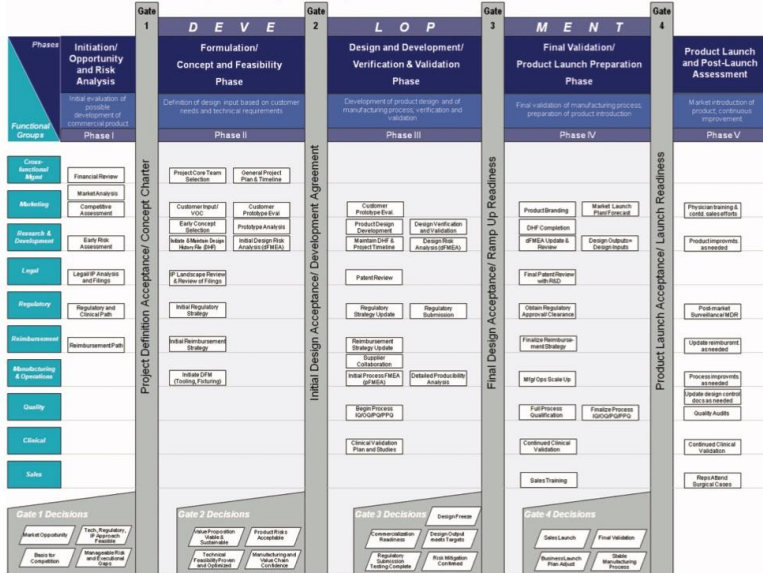


# Agenda

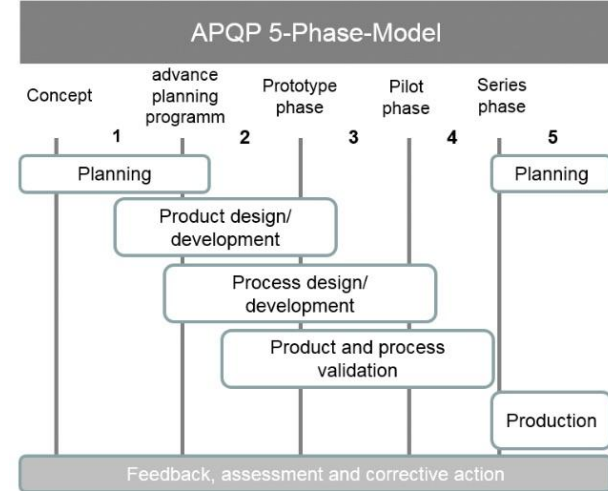
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# NPI for Different Products/Industries

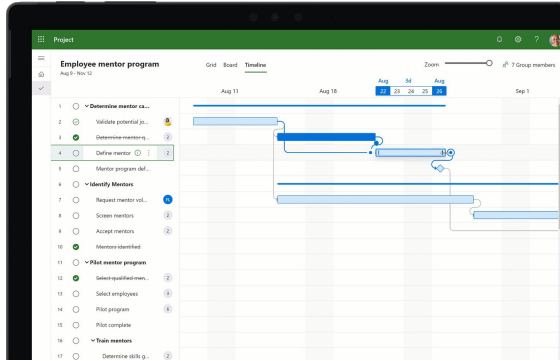
Medical Device Development: High-level Representation of Development Phases and of Functional Activities



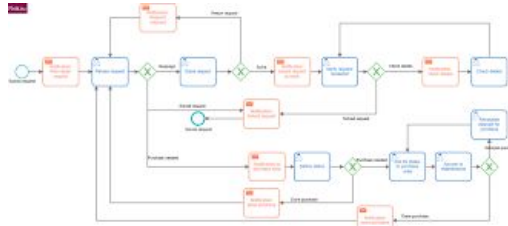
Source: Stage Gate Process for the Development of Medical Devices  
Jan B. Pietzsch, et al



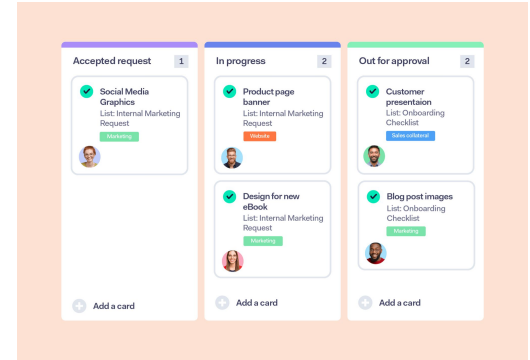
# Is NPI a Project (or) Process (or) ???



Project

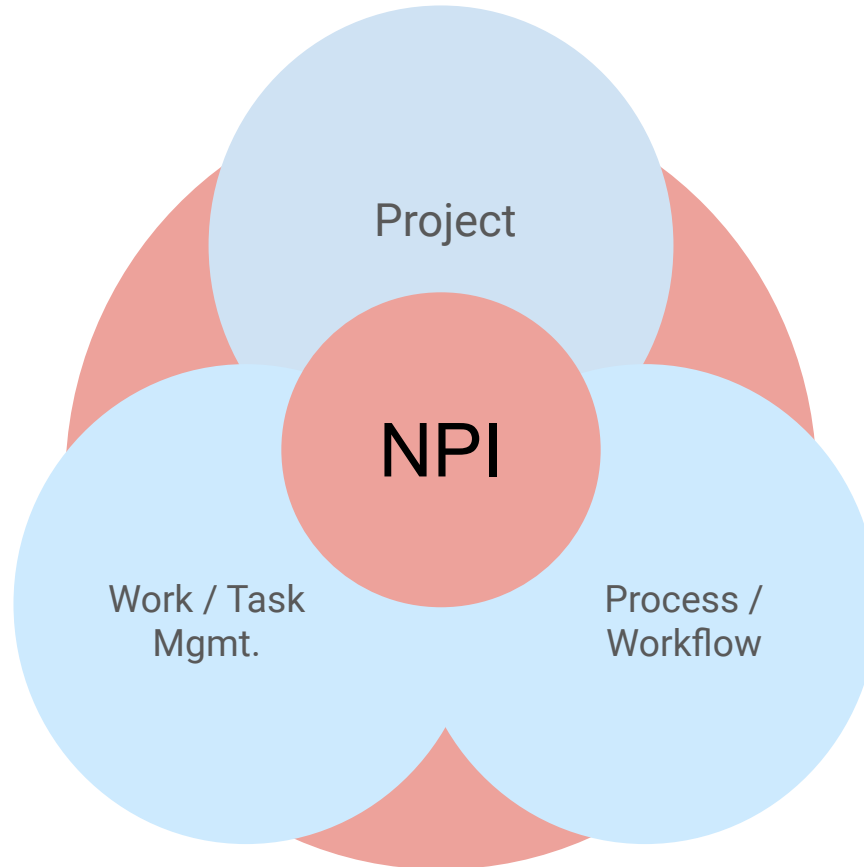


Process

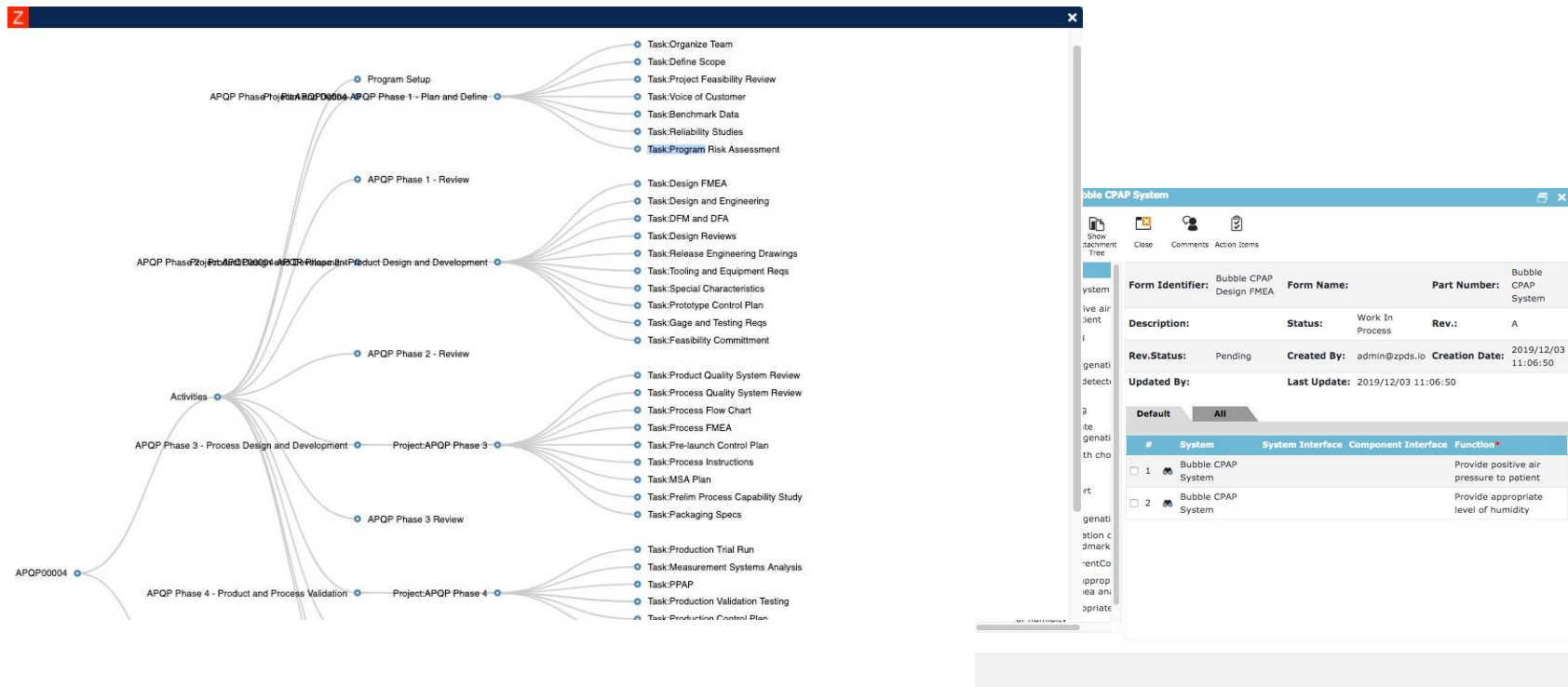


Kanban Board

# NPI is a Combination and Requires Orchestration



# NPI Process Orchestration



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# Effective NPI Review

Part: ZPhoneX  
Program: ZPhoneX

Overview

NPI Readiness

Supplier Readiness

Cost Management

Inventory

NPI Build

NPI Readiness

Part Number	Source	Supplier	Design Validation		PPAP Submission		Risk Assessment	
			Completed		Completed		Completed	
ZPhoneX	ExternalManufacturing							
A10X	ExternalSource	Intel	Required	No	Required	No	Required Yes	
Battery	ExternalSource	Honcell	Recommended	Yes	Required	Yes	Optional	
Box Contents	ExternalManufacturing							
Cameras	ExternalSource	LG Innotek	Optional		Optional		Optional	
Camera-Lens	ExternalSource	Yujingguang	Optional		Optional		Optional	
Camera-Lens	ExternalSource	Kantatsu	Optional		Recommended	No	Required Yes	
Camera-Lens	ExternalSource	Largan	Optional		Recommended	No	Required Yes	
Communications-module	ExternalManufacturing							
BT-GNSS-Frontend	ExternalSource	Broadcom	Optional		Optional		Optional	
BT-WLAN-Module	ExternalSource	Broadcom	Optional		Optional		Optional	
Baseband	ExternalSource	Skyworks	Optional		Optional		Optional	
Baseband	ExternalSource	Broadcom	Optional		Optional		Optional	
GN-Receiver	ExternalSource	Qorvo	Optional		Optional		Optional	
RF Frontend	ExternalManufacturing	Analog	Optional		Optional		Optional	
Antenna Switch Module	ExternalSource	Analog	Optional		Optional		Optional	

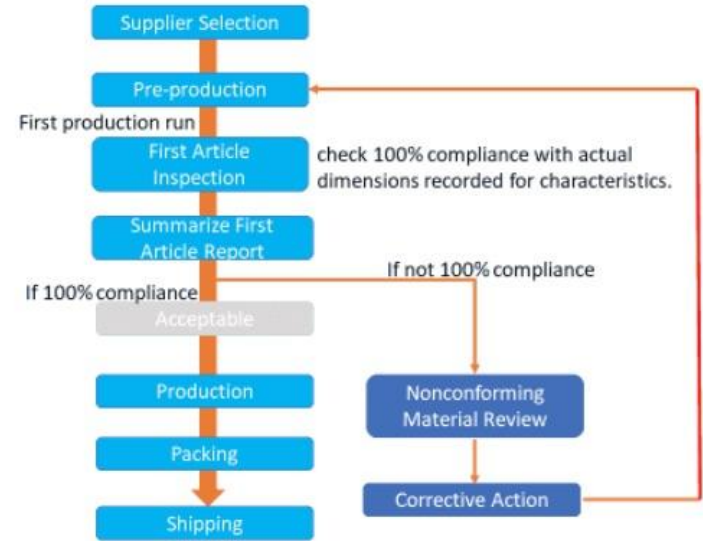
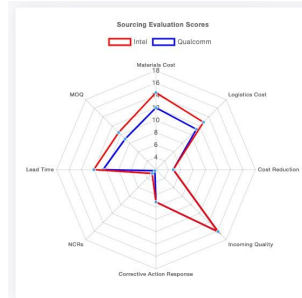
- ❑ Done as and when needed to support the NPI process
- ❑ Effective NPI reviews are cross-functional
- ❑ Provide broad visibility of the status for cross-functional teams
- ❑ Integrated
- ❑ Actionable

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# NPI Sourcing

- ❑ One of the most important and time consuming facets of NPI
- ❑ Cost is not the only consideration
- ❑ NPI Sourcing is not complete until Supplier is shipping



Need for a New Supplier

Evaluation, Selection and Contracts

Sub-system / Component Design and Validation

Manufacturing and/or Assembly Process Design and Validation

Production

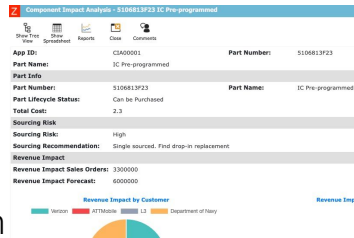
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# Component Engineering

## Component Engineering & Supply

- Widespread shortages
- Lead times still increasing
- Ensure allocation from at least one supplier
- Aggressive multisourcing
- Know impact (revenue and customer)



## Manufacturer Part Changes

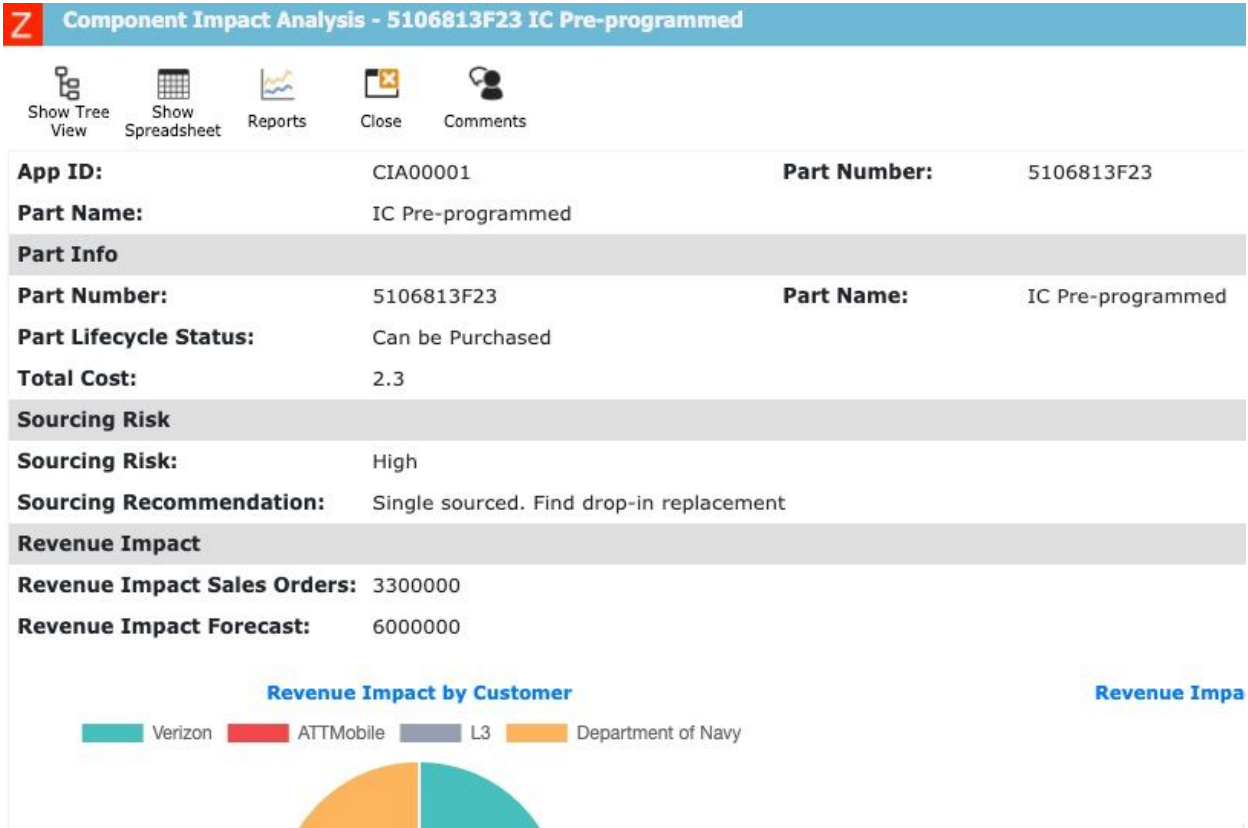
- Quickly address impact of Manufacturer Part Changes on assemblies and finished goods
- Requalification and change implementation

## Manufacturer Part End-of-life

- Last Time Buy from Manufacturers (requires visibility into expected future volumes)
- Essentially buy time and have enough until Redesign and Requalification
- Last resort, EOL your product
- Customer communication



# Component Impact Analysis



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# Supplier Development

## Supplier Capability



## Supplier Performance



## Supplier Relationship





# Supplier Development

## Evaluation, Audit and Performance Assessment



Category	Item	Performance Criteria	Measurement	Target	Actual	Score
Quality	Yield	Yield during startup	How long did it take to hit the target yield	ModelZ	0.00000	4
				ModelY	0.00000	5
	Defects	Number of Defects	Number of observed defects	ModelZ	0.00000	5
				ModelY	0.00000	5
Product Technology	Hardware	Fit and Finish	Paint gaps	ModelZ	0.00000	7
				ModelY	0.00000	7
Process Technology	Process Stability	Throughput	How long did it take to hit the target	ModelZ	0.00000	5
				ModelY	0.00000	5
Cost	Initial Cost	Initial Cost	What is the initial cost	ModelZ	0.00000	5
				ModelY	0.00000	7

At Risk

Needs  
Improvement

Meets  
Requirement

Consistently  
Exceeds  
Expectations

Sets the  
Standard

## Supplier Development Activities

Training

Investment

Engineering  
Support

Supplier Quality  
Engineering

Corrective  
Actions

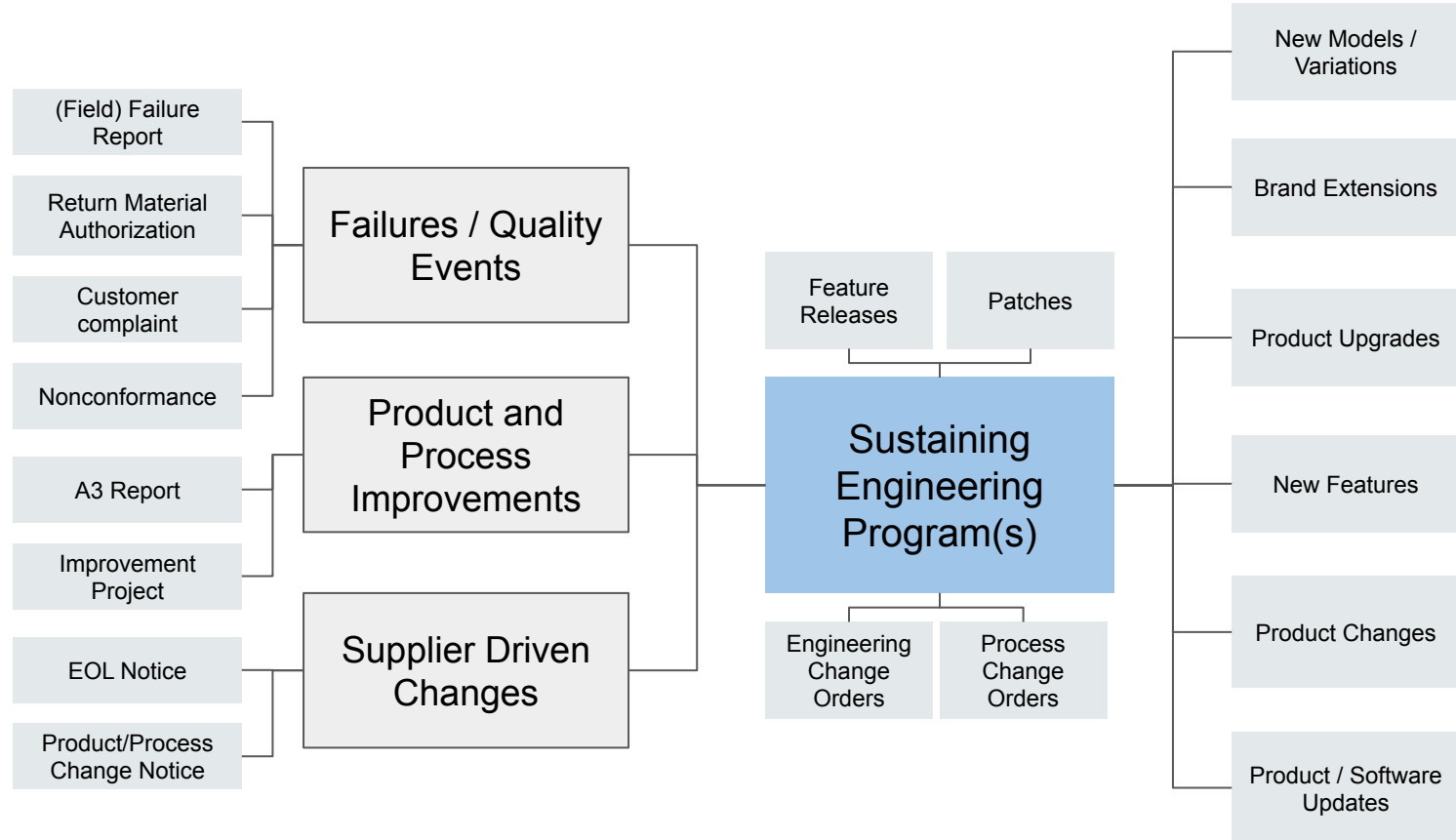
8D / A3 Report  
/ Kaizen Event

Recognition  
and Reward

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# Sustaining Engineering



# Upside to Achieving New Product Introduction Excellence



# Summary

- ❑ *Proven success in any industries*
- ❑ *Easy to adopt and loved by users and stakeholders*
- ❑ Test Drive or Free Pilot

# For More Information

Kris Gorrepati

Cambrian Lab

+1-408-569-3744

[Kris.gorrepati@cambrianlab.net](mailto:Kris.gorrepati@cambrianlab.net)

