

Build Better Products Faster

Digital Workflows

for

New Product Introduction (NPI) Excellence

Kris Gorrepati and Manish Mathur

 Z Flow

Designed by

Cambrian Lab

About Cambrian Lab

Mission: To Provide Effective and Practical Solutions for New Product and Supply Chain Development

Team

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

Expertise

- New Product 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)



Offerings

ZFlow – Digital Workflow for the Modern Supply Chain

Locations

SF Bay Area, Detroit, Boston, Houston

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

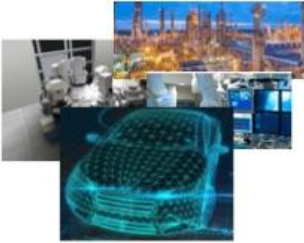
- 20+ years experience in PLM, Manufacturing, and Data Management
- Ford, GM, Siemens PLM...
- Auto, High-tech, Software
- Michigan Tech (Elec Engg.), Walsh College (MBA)

New Product Introduction (NPI) Today



Even simple products are increasingly complex, connected and intelligent systems

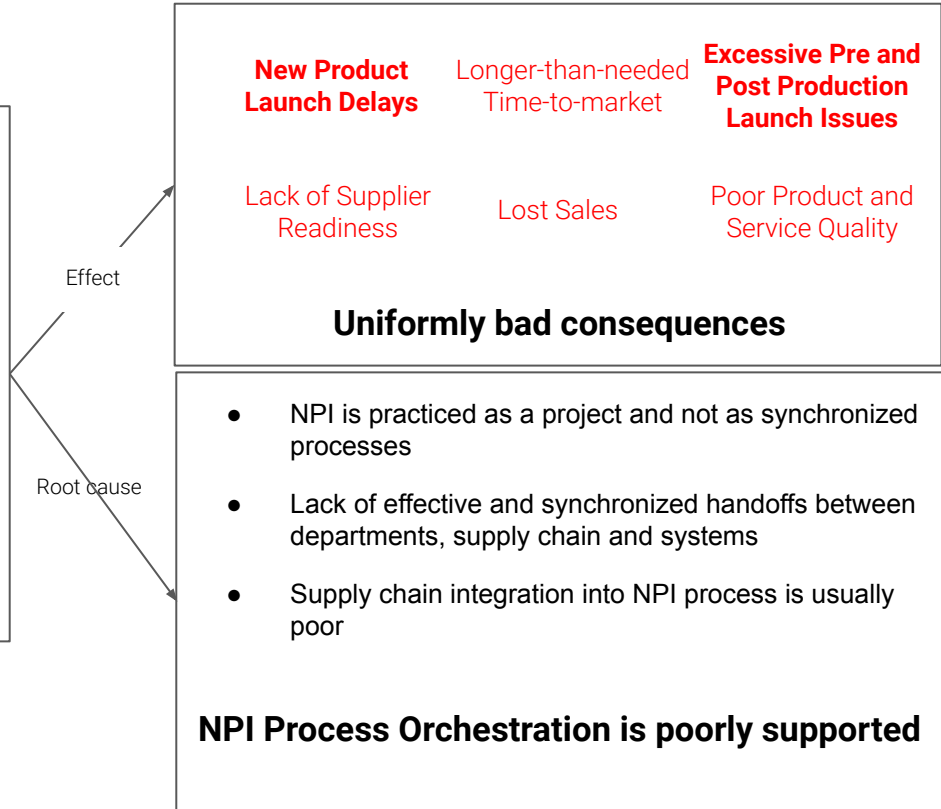
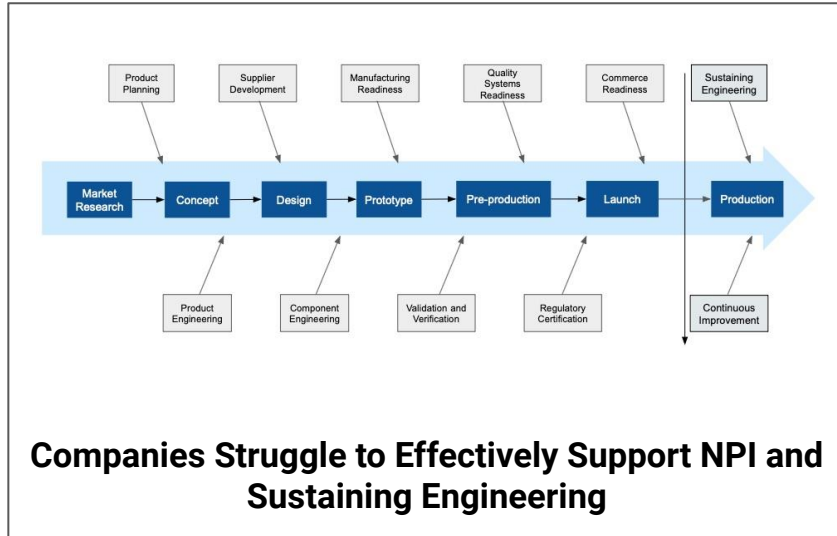
Increasing number customer and regulatory requirements



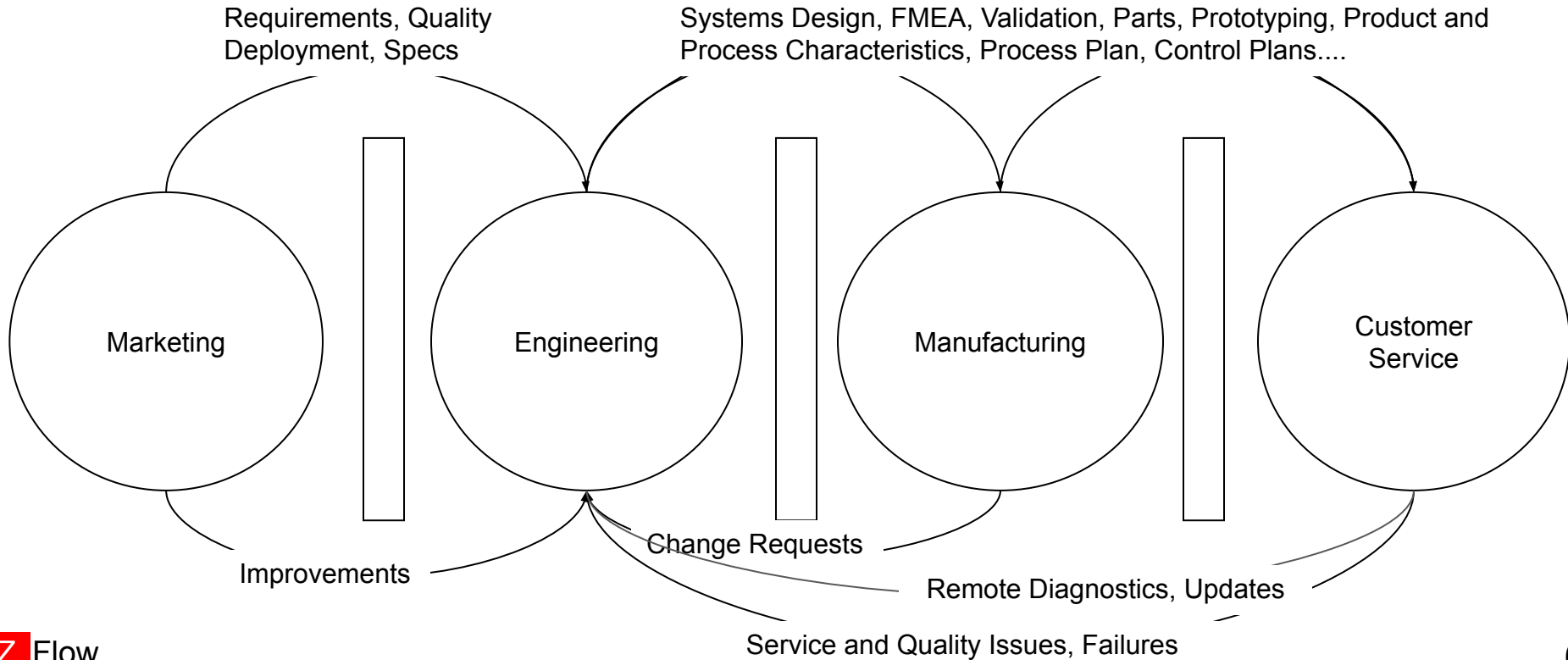
Complicated and risky supply chains

Never enough time for flawless launches

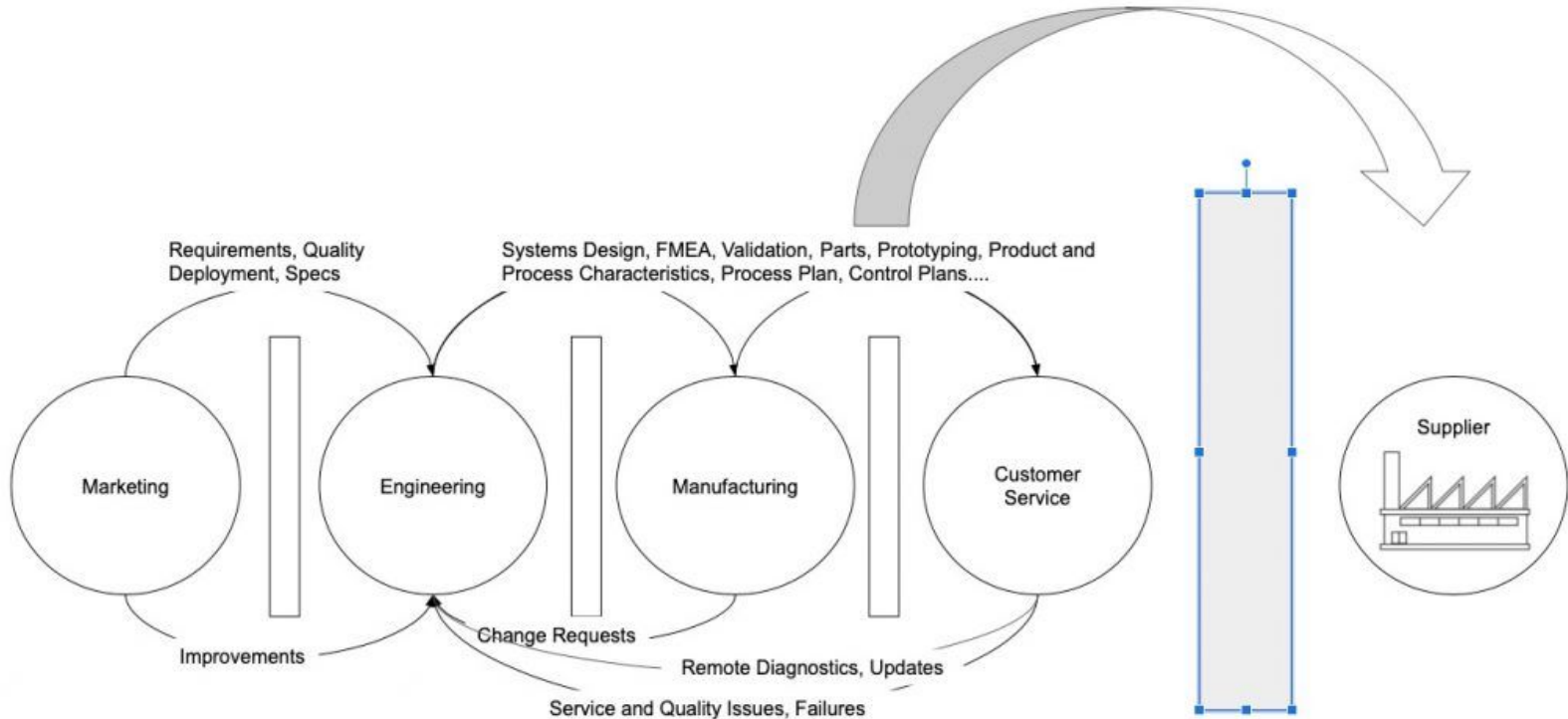
Effective New Product Introduction (NPI) Orchestration is a Challenge for Most Organizations



Process and Information Silos Are Obstacles to NPI and Sustaining Engineering Excellence



Substantial Increase in Degree of Difficulty when Suppliers are Involved



Enter ZFlow – The Swiss Army Knife of Digital Workflow

Effective and Seamless NPI
Process Orchestration

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

Zero-code



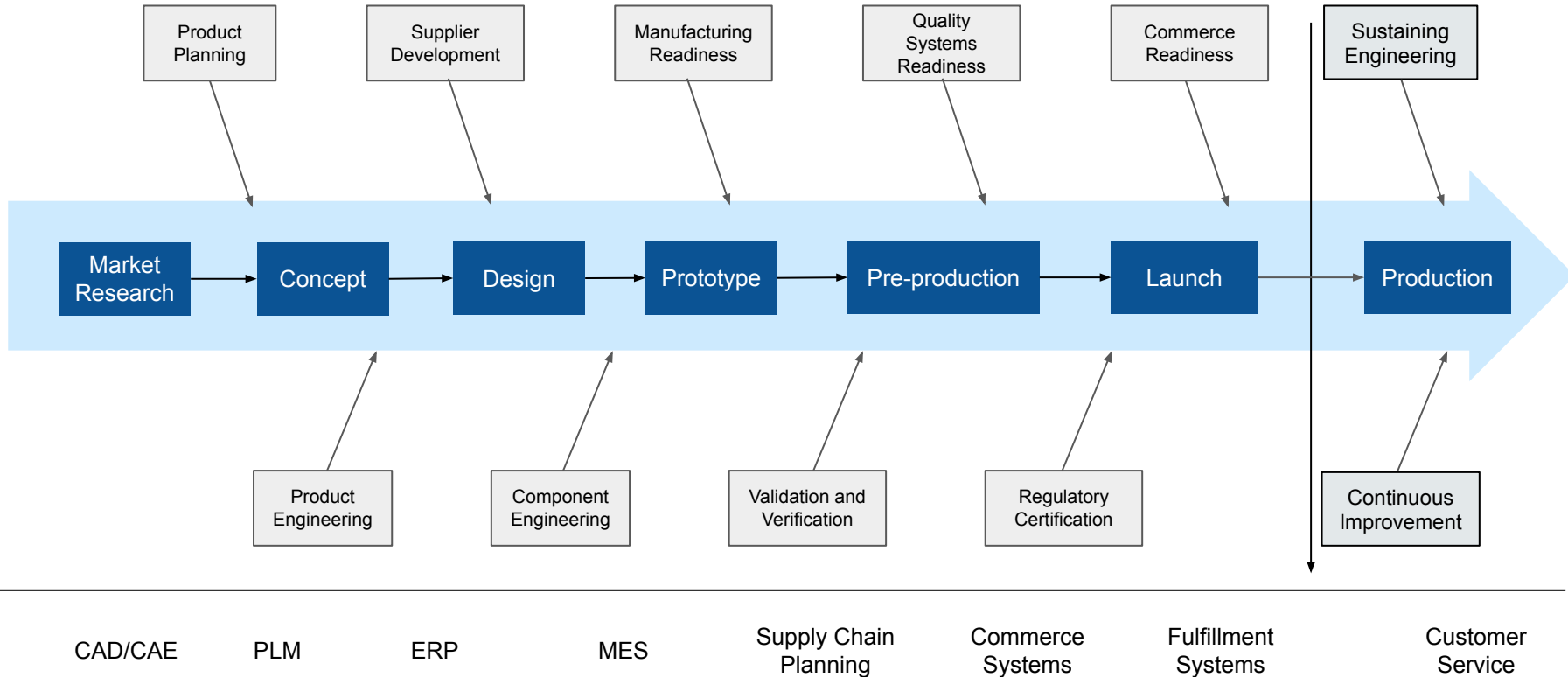
Involves All the Right
People at the Right Time

Supply Chain Ready

Integrated and effective
NPI workflows and
techniques

Digital Process Orchestration for NPI with ZFlow

Innovative NPI Process Orchestration with Integrated Workflows and Techniques



Innovative Workflows and Techniques for NPI Excellence

Program Management

Phase-Gate Program Management, Concurrent Engineering Orchestration, Agile Phase-Gate, NPI Program Risk Management

Product Planning

Voice of Customer, Requirements Management, Specification Management, QFD, System/Design FMEA, Usability FMEA...

Product Engineering

Systems Model, Parts, Bill of Material, Part/BOM/Firmware/Software Release, Product Cost Analysis, Lead Time Assessment

Component Engineering

Manufacturer Part Selection, Component Change Analysis, Product Change Notice Analysis and Resolution, End-of-life Analysis

NPI Sourcing and Supplier Development

Supplier Qualification and Selection, Supplier Development, Supplier Readiness Checks, Pre-production Procurement (Purchase Req/Order)

Verification and Validation

System and Design Verification Plan and Report, Simulation and Test Result Data Management, Closed Loop Test Failure Resolution

Manufacturing Engineering

Process Planning, Process FMEA, Control Plan, Manufacturing Process Change, Deviations, Non-conformance Resolution

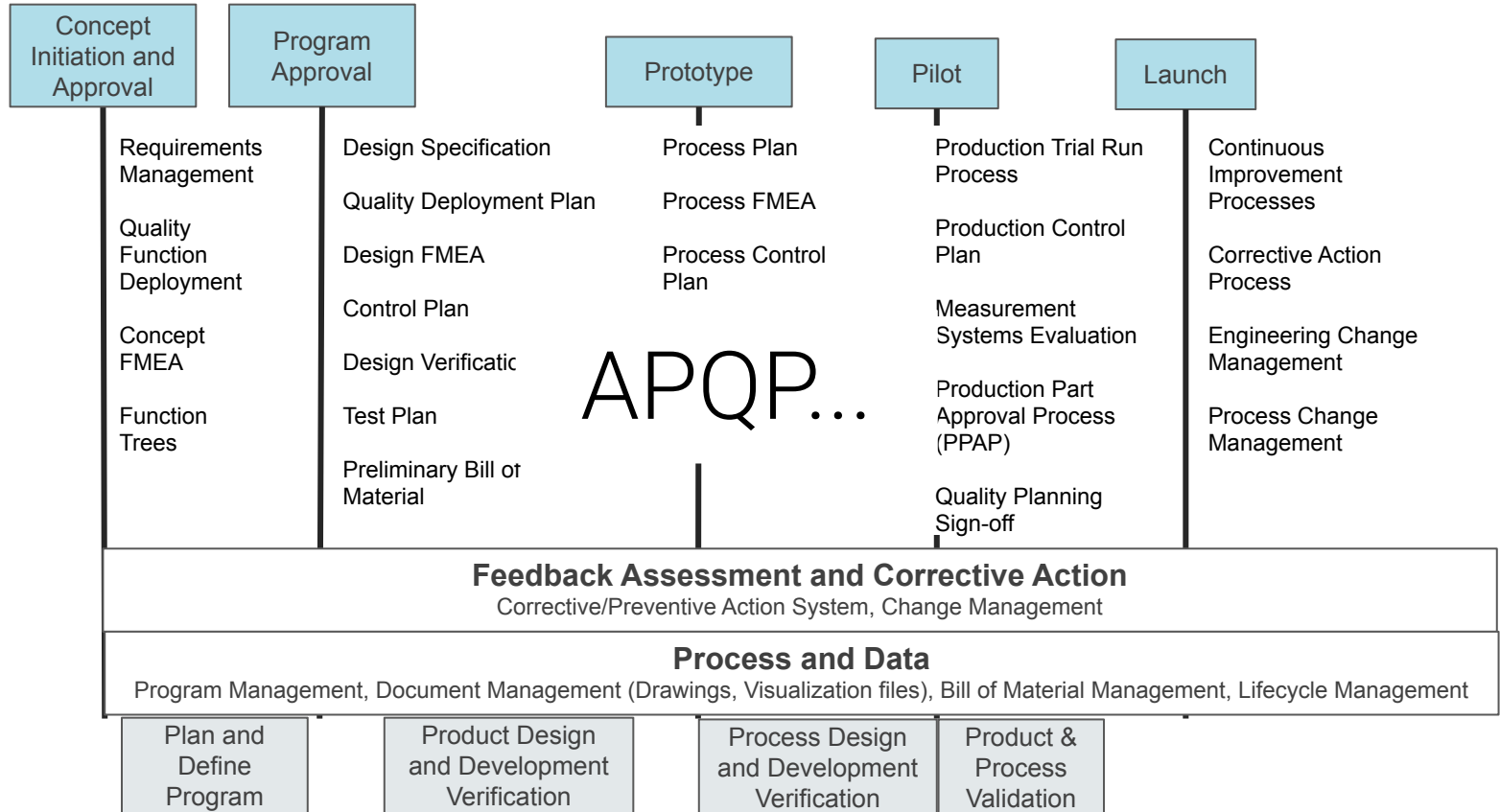
Quality Engineering

Product and Process Characteristics, Control Plan Implementation, CAPA, Root Cause Analysis (RCA), Measurement Systems, Failure Reporting (FRACAS)

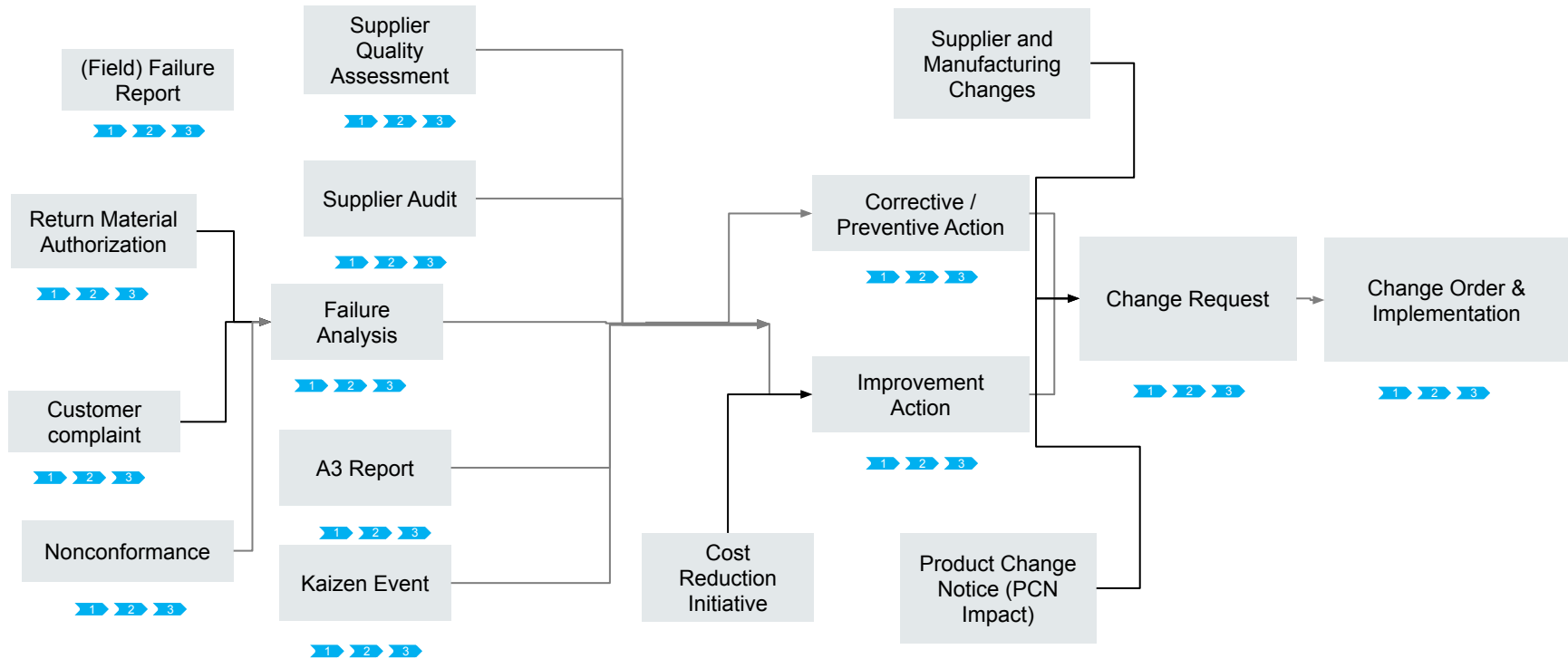
Regulatory and Standards Certification

CE, FDA, RoHS..(Compliance evaluation, readiness, preparation and submissions)

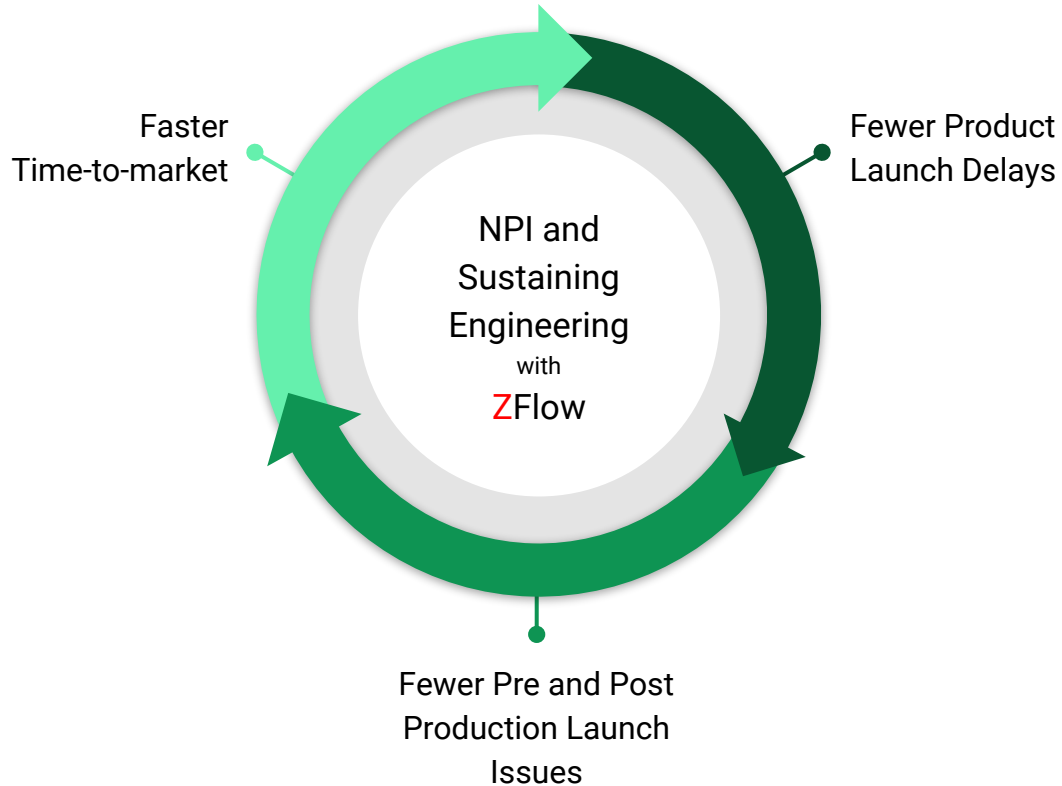
Industry Specific Workflows and Techniques for NPI



Sustaining Engineering and Continuous Improvement with ZFlow



Our Mission for NPI and Sustaining Engineering



NPI Process Orchestration with ZFlow

Stage-gate process with cross-functional teams

Making Suppliers integral to NPI and Sustaining Engineering

The screenshot displays the ZFlow interface for 'Template - New Product Development - Stage Gate Process'. The process flow includes stages: Program Set (Launch Pad), Concept Development Project, Concept Approval, Design Review, Design and Engineering Project, and Production Feasibility Review. A 'Rejected' path is also shown. Below the flow is a table for role assignments:

Role Name	Description
<input type="radio"/>	Participant
<input type="radio"/>	Design Engineer
<input type="radio"/>	Process Admin
<input type="radio"/>	Manufacturing Engineer
<input type="radio"/>	Product Manager
<input type="radio"/>	Project Manager
<input type="radio"/>	Quality Coordinator

The screenshot shows the 'Supplier - List' interface with a table of suppliers and a 'Launch Pad for Supplier Administrator' section.

Name	Address	All
<input type="checkbox"/> 1 Alps Electric		
<input type="checkbox"/> 2 Avioq	SAVIOQ	Avioq Inc.
<input type="checkbox"/> 3 Avnet		
<input type="checkbox"/> 4 Bosch Sensortec		
<input type="checkbox"/> 5 Broadcom		
<input type="checkbox"/> 6 Carrier	Carrier	Carrier UTC
<input type="checkbox"/> 7 Cirrus Logic		
<input type="checkbox"/> 8 Genco	Genco	Genco Contractors
<input type="checkbox"/> 9 Generac	Generac	
<input type="checkbox"/> 10 Honeywell	Honeywell	
<input type="checkbox"/> 11 Huizhou Desay		
<input type="checkbox"/> 12 Intel		
<input type="checkbox"/> 13 Jabil		
<input type="checkbox"/> 14 Lattice Semiconductor		

Launch Pad for Supplier Administrator

- Crossfunctional Quality**
 - Failure Report (Active(0) | Insights | New)
 - Nonconformance Report (Active(2) | Insights)
 - Supplier Corrective Action (Active(1) | Insights)
- Continuous Improvement**
 - A3 Report (Active(0) | Insights | New)
 - 8D Problem Solving Process (Active(1) | Insights | New)
- Supplier Development**
 - Supplier Performance (Active(6) | Find | New)
 - Supplier Risk Assessment (Active(1) | Find | New)
 - Supplier Audit (Active(2) | Insights | New)
 - Supplier PPAP (Active(2) | Insights)
- Supplier Collaboration**
 - Forecast Collaboration (Active(0) | Insights | New)
 - Purchase Order Collaboration (Active(3) | Insights)
 - Subcontract Purchase Order (Active(0) | Insights | New)
 - Supplier Batch Manufacturing Record (Active(0) | Insights | New)
- Supplier Product Development (Active(1) | Insights | New)

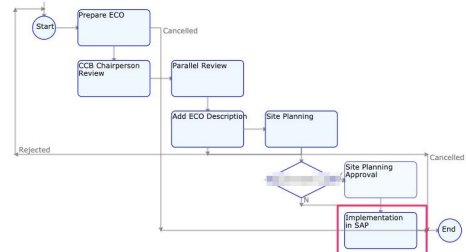
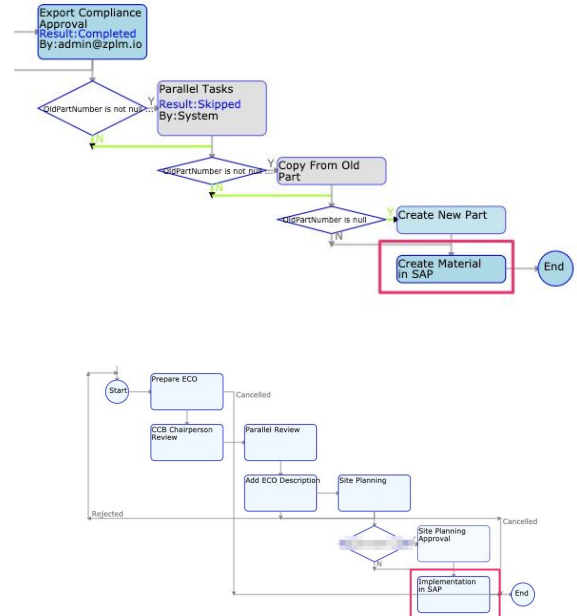
NPI Process Orchestration with ZFlow

Information-rich Supporting Workflows

The screenshot displays the ZFlow NPI process orchestration interface. At the top, there's a header for 'Design PDK - Builtin CPAP System'. Below it, a 'Process Information' section shows details like 'Form Identifier', 'Form Name', 'Part Number', 'Status', and 'Last Update'. A central area shows a 'New Component Manufacturer Qualification' workflow step. Below this, a 'Rejected' section shows a list of parts with their attributes. At the bottom, a table lists various components and their associated data.

Part	Attachment	DerivedParts	Suppliers	Alternates	Substitutes	Configurations	Price Cost (\$)	LeadTime (days)
iPhoneX							215.00	0
A10X							26.90	0
Battery							1.25	0
Box Contents	Part	1.00000	Box Contents				11.60	0
Camera	Assembly	1.00000	Cameras				19.90	0
Communications-module	Assembly	1.00000	Communications-module				41.90	0
BT-GNSS-Frontend	Part	1.00000	BT-GNSS-Frontend					0
BT-WLAN-Module	Part	1.00000	Bluetooth-WLAN-Module					0
Baseband	Part	1.00000	Baseband					0
GNSS-Receiver	Part	1.00000	GNSS-Receiver					0
RF Front End	Assembly	1.00000	RF Front End					0
Antenna Switch Module	Part	2.00000	Antenna Switch Module with Filters					0
Envelope Tracking IC	Part	1.00000	Envelope Tracking IC	Qorvo Inc				0
FEM	Part	3.00000	FEM					0
PAM	Part	4.00000	PAM					0
RF Transceiver	Part	2.00000	Multi-mode RF Transceiver					0
Display	Assembly	1.00000	Display				39.00	0
Electromechanicals	Assembly	1.00000	Electromechanicals				16.70	0
Glue Logic	Part	1.00000	Glue Logic				1.30	0
Mechanical	Assembly	1.00000	Mechanical				18.20	0
Memory	Assembly	1.00000	Memory				16.40	0
Power Management	Assembly	1.00000	Power Management				7.20	0

Out-of-the-box Integration to Engineering, ERP(SAP..), Manufacturing, Supply Chain systems



Innovative and Effective Techniques for NPI Program and Supply Chain Risk Management

Supplier Risk Analysis

Supplier Risk Assessment - Initial Intel

Part Number: A10X
Part Description: A10X SOC
Manufacturing Plant: Portland

#	Seq No.	Risk Category	Risk Subcategory	Weight	Score	Rating	
1	1	Quality		60.00	3	69.00	
	#	Seq No.	Risk Category	Risk Subcategory	Weight	Score	Rating
	1	1	Quality	Defects per million	30.00	3	33.00
	2	2	Quality	Ease of problem resolution	25.00	2	18.00
	3	3	Quality	Product complexity	15.00	4	22.00
	4	4	Quality	Timeliness of corrective action	25.00	2	18.00
	5	5	Quality	Value of product	5.00	4	7.00
#	Period				Score		
2	2	Disruption			40.00	2	31.00
3	3	Procurement			0.00	0	0.00
4	4	Inventory			0.00	0	0.00
5	5	Intellectual Property			0.00	0	0.00

Supplier Readiness Assessment

Part Number	Source	Supplier Name	Supplier Relationship Status	Supplier Maturity Level
ZPhoneX	External/Manufacturing			
User Interface	External/Source			
Camera	External/Source	LG Innotek	Preferred	Integrated
Mechanical	External/Manufacturing			
A10X	External/Source	Intel	Preferred	
Memory	External/Manufacturing	Micron	Preferred	Integrated
Power Management	External/Source			
Communications-module	External/Manufacturing			
Display	External/Source	Huizhou Desay	Qualified	
Glue Logic	Internal/Source			
Electromechanics	External/Source			
Battery	External/Source	Honcell	Qualified	Basic
Box Contents	External/Manufacturing			
Camera	External/Source			
Camera Lens	External/Source	Yujinggang Karlitas Largan	Qualified Qualified Qualified	Basic Advanced Advanced
Communications-module	External/Manufacturing			
GN-Receiver	Procured	Qorvo	Qualified	
Baseband	Procured	Skynix Broadcom	Preferred Preferred	
BT-WLAN/Modem	Procured	Broadcom	Preferred	
BT-QSIG-Forward	Procured	Broadcom	Preferred	
RF Frontend	Procured	Analog	Active	Advanced
RF Transceiver	Procured	Qualcomm	Qualified	
RF Frontend	Procured			
Envelope Tracking IC	Procured	Texas Instruments	Preferred	Integrated

Product Supply Chain Risk Assessment

Product Supply Chain Risk Analysis - ZPhoneX

App ID: PRRA0001

Part ID: ZPhoneX

Part Number: ZPhoneX

Part Name: ZPhoneX

Overall Sourcing Risk	Low
Single Sourcing Risk	Low
Component Availability Risk	Low
End Of Life Risk	Low

Sourcing Risk Details

Components with Single Sourcing Risk: 5

Percentage of Components with Single Sourcing Risk: 10.00000

Components with Availability Risk

Percentage of Components with Availability Risk:

Components with EOL Risk: 3

Percentage of Component with EOL Risk: 5.00000

Supplier Risk

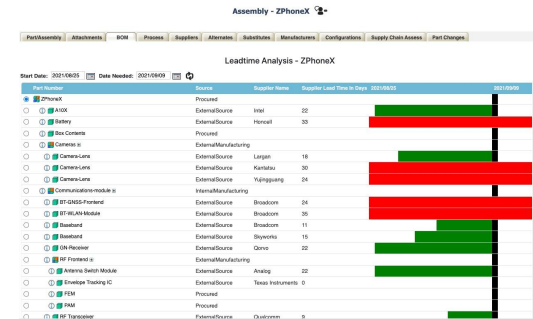
Supplier Quality Risk

Supplier SLA Risk

Supplier Stability Risk

Supplier Capability Risk

Lead Time Tracking and Analysis



Component Engineering Innovations in ZFlow

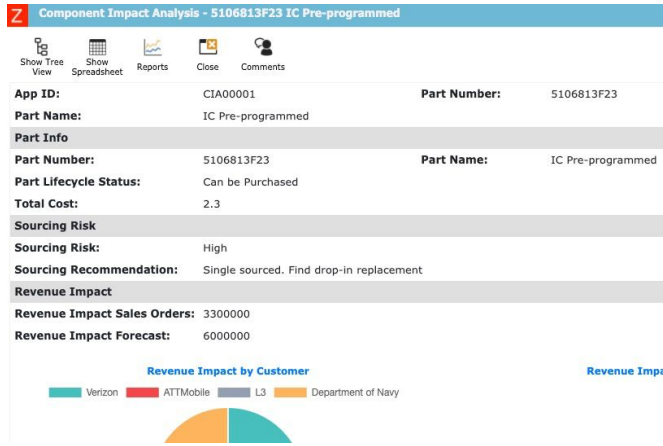


**Component
Manufacturer
Selection and
Change**

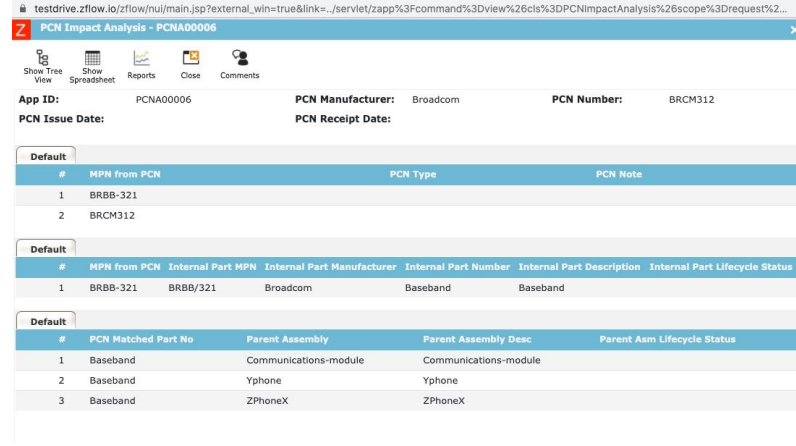
**Product
Change Notice
(PCN) Analysis**

**Component
End-of-life
Analysis**

Component Impact and Product Change Notice (PCN) Analysis



Component Impact Analysis
 to understand risk and revenue
 impact of components



PCN Analysis to intelligently
 match PCN parts to Internal
 Parts and their impact on
 assemblies and finished goods

Component End-of-life Analysis

Part Info

App ID: EOLA00001
Part Number: Baseband
Part Name: Baseband
Manufacturer Part Number: SKBB123
Manufacturer Name: Skyworks
Last Time Buy Date: 2020/08/31 0:00:00
Total Cost:
Part Lifecycle Status: Can be Purchased

Status

Criticality Score: 500
Status: Under Watch

Inventory Info

Total Demand: 1000000.00000
Total On Hand Inventory: 500000.00000
On Order Qty: 0.00000
Balance Qty: -500000.00000

Update Info

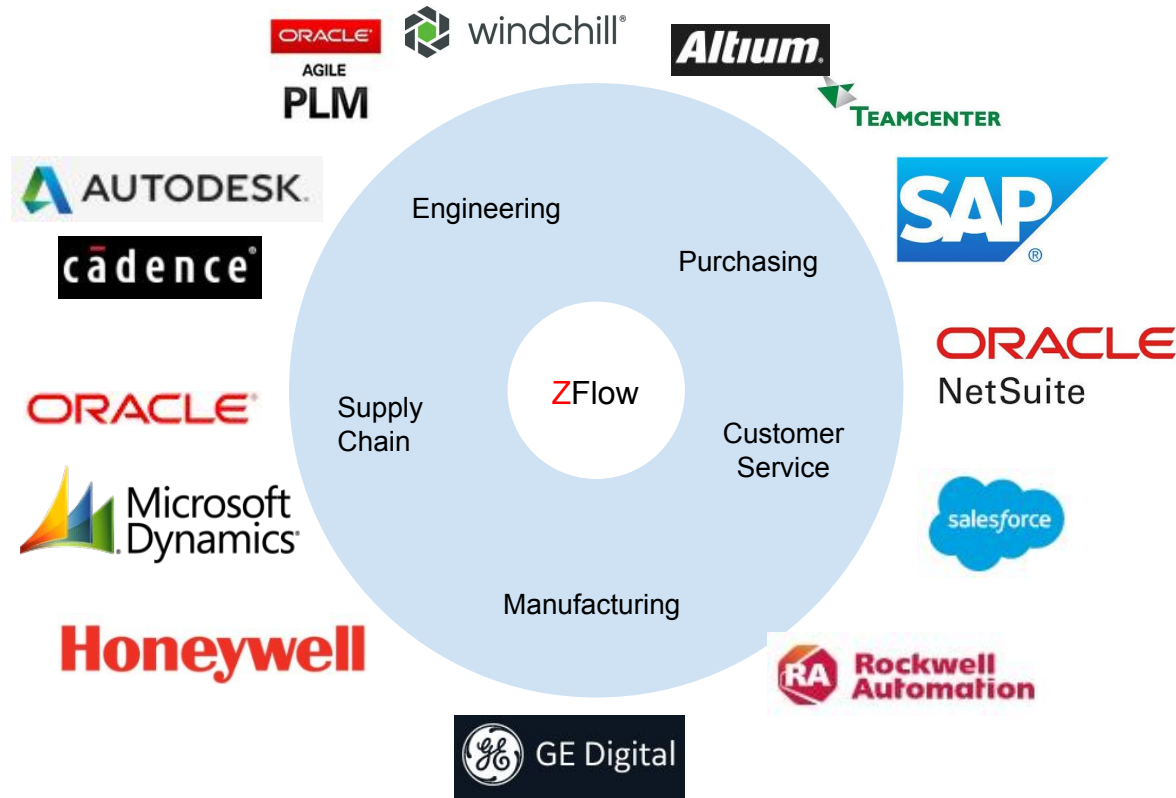
Last Update: 2020/07/16 7:43:29 Updated By: admin@zflow.io

#	Site	Buyer	Demand	On Hand Inventory	On Order Qty	Balance	Estimated Run Out Date
1	Shenzhen	Robert	0.00000	0.00000	0.00000	0.00000	
2	Taipei	Tim	1000000.00000	500000.00000	0.00000	-500000.00000	2020/09/30 0:00:00

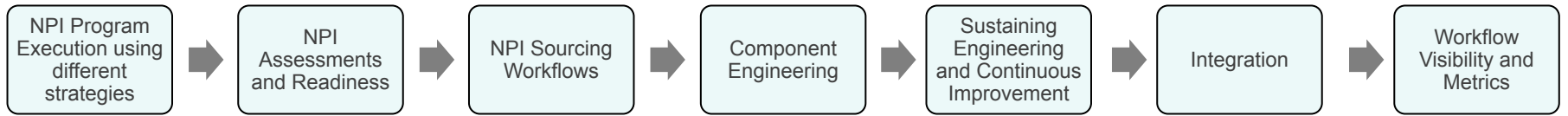
End-of-life Analysis to analyze and come up with the right strategy when manufacturer parts are going EOL

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

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



Demo



Summary

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

[Test Drive ZFlow](#)

[Free Proof-of-concept](#)

For More Information

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