

# Supplier Development Made Simple

-

*The Practical Path To A Better Supply Chain*

Kris Gorrepati and Hiren Shah  
**Cambrian Lab**

# Agenda

- About Cambrian Lab
- Supplier Development - More Important That Ever
- Supplier Development As a Systematic Process
- Demo
- Q&A
- Getting Started

# About Cambrian Lab

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

## Team

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

## Industries

Automotive, High-tech, Semiconductor Equipment, Medical Devices, Consumer Products

## 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)

## Offerings

**ZFlow** – Digital Workflow for the Modern Supply Chain

# Panelists

## Kris Gorrepati

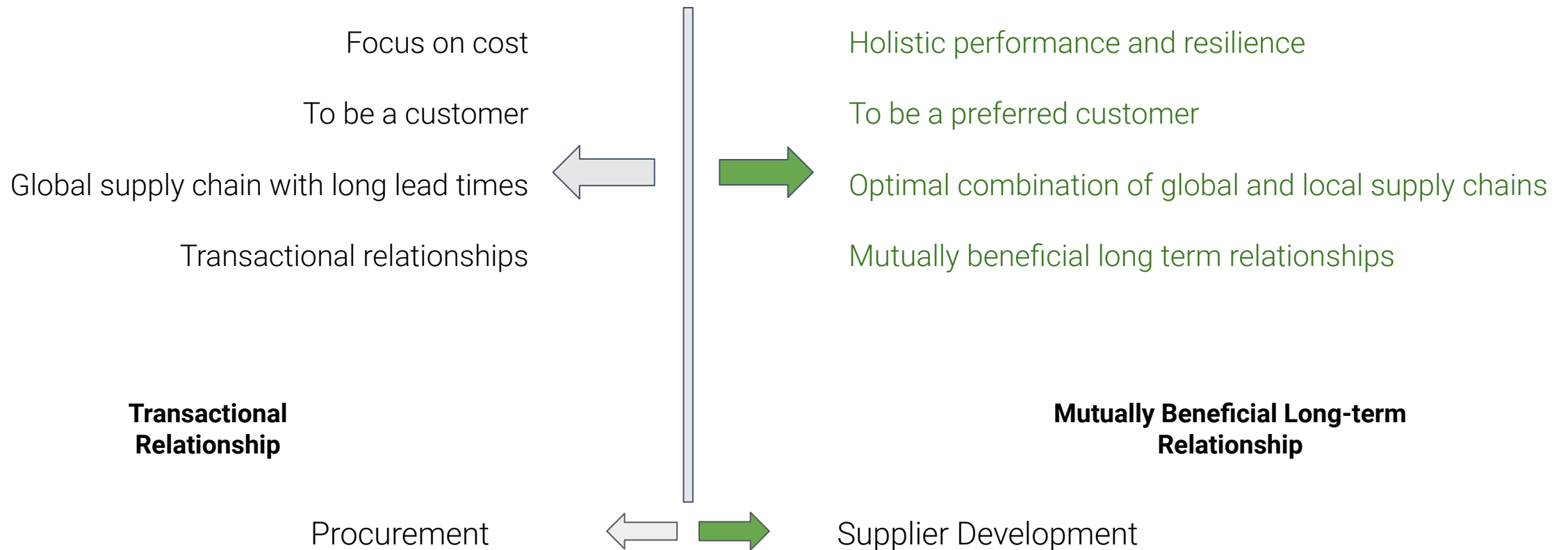
- 20+ years experience in New Product Development and Introduction and Supply Chain Manufacturing
- SAP, Samsung, Ford, Caterpillar
- Auto, High-tech, Software
- Michigan Tech (Mech Engg.), UCLA

## Hiren Shah

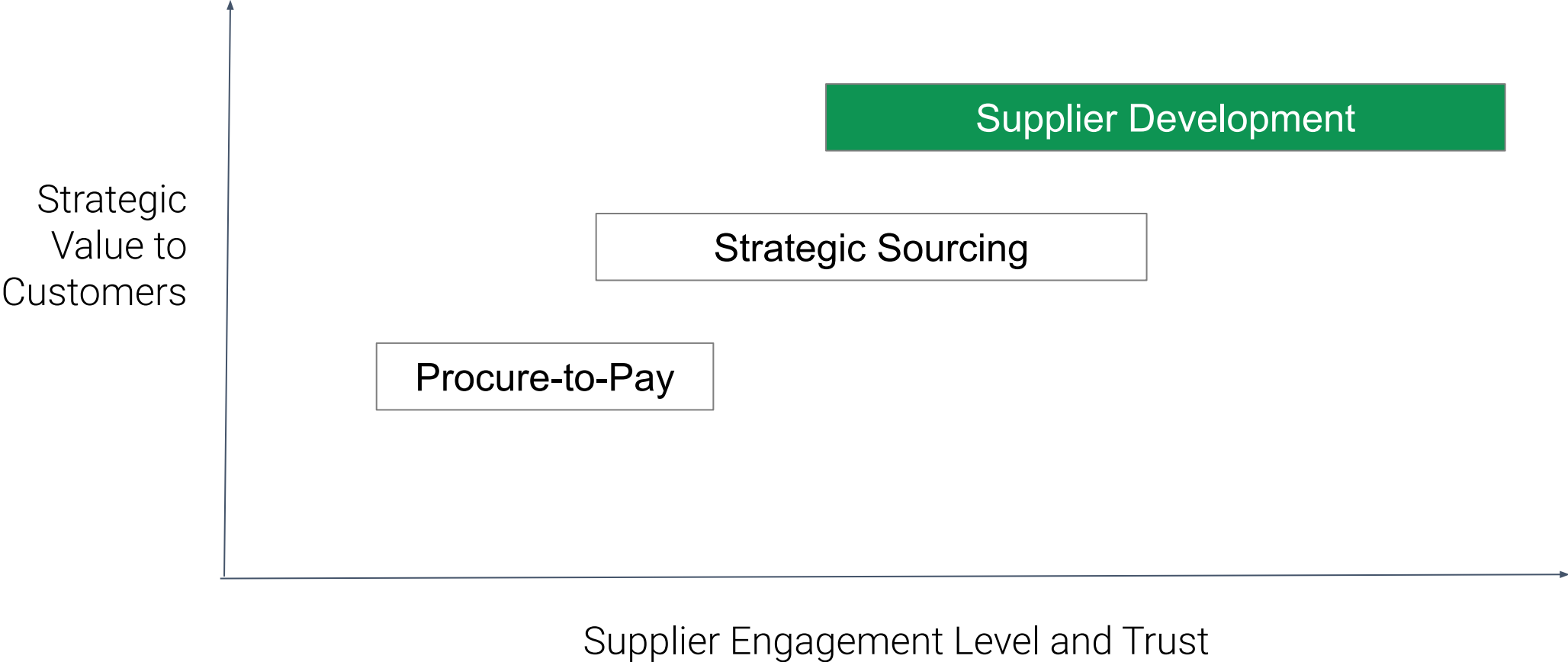
- 20+ years experience in ERP, CRM, Finance, Manufacturing
- SAP, Ford, Samsung..
- Auto, High-tech, Software
- Michigan Tech (Elec Engg.), University of Chicago

# Procurement vs. Supplier Development

## 2020-Present Supply Chain Crisis



# Strategic Value of Supplier Development



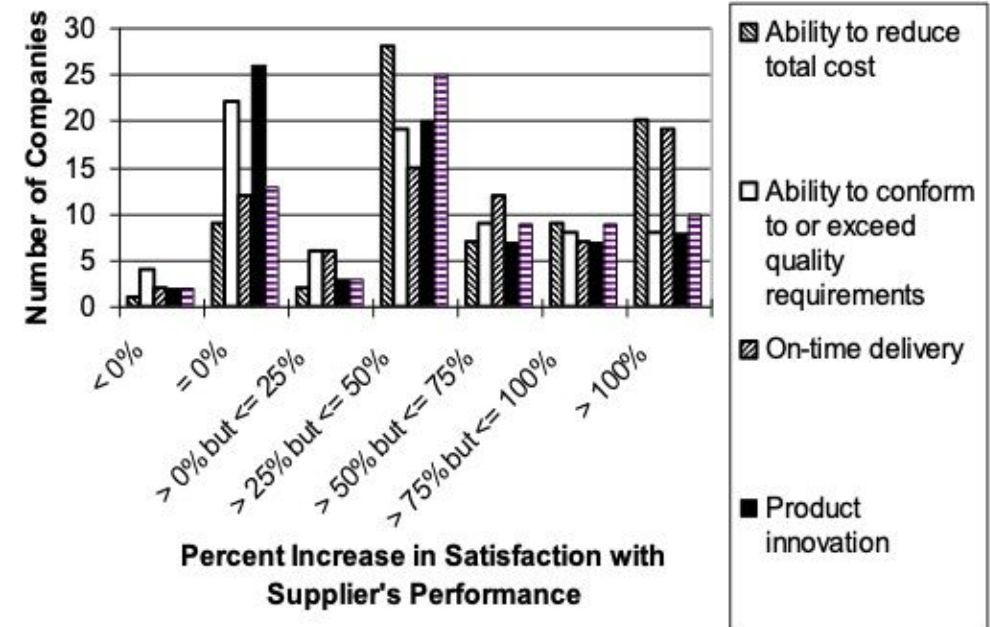
# The Business Case for Supplier Development

Figure 2 - Supplier Development Results

Krause, 1997, Survey of 527 firms  
Respondents: NAPM members

<i>Criteria</i>	Before Supplier Development	After Supplier Development
Incoming defects	11.65 %	5.45 %
% on-time delivery	79.85 %	91.02 %
Cycle time (from order placement to receipt)	35.74 days	23.44 days
% orders received complete	85.47 %	93.33 %

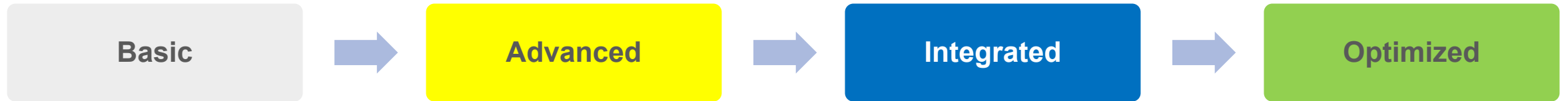
Figure 3 - Satisfaction



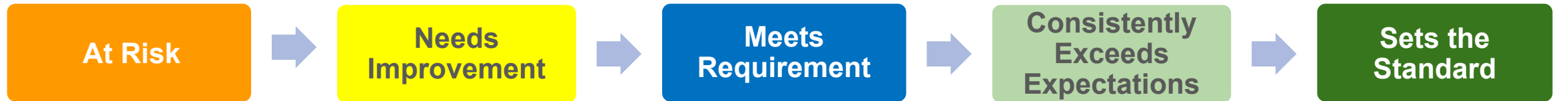
Source: Executive report of key results of recent research on supplier development strategies and outcomes – Dr. Robert Handfield

# Focus of Supplier Development is Improvement

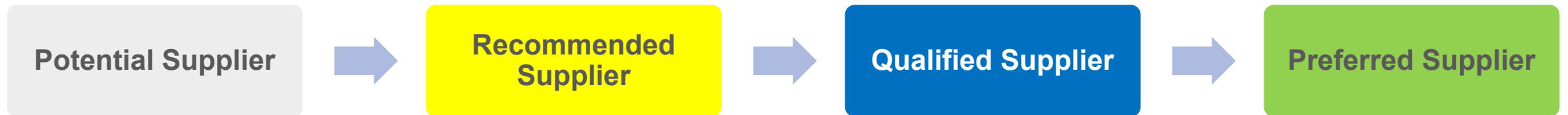
## Supplier Capability



## Supplier Performance



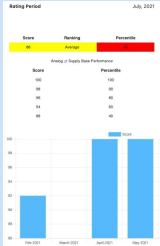
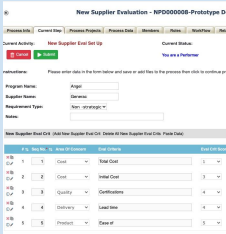
## Supplier Relationship





# Supplier Development

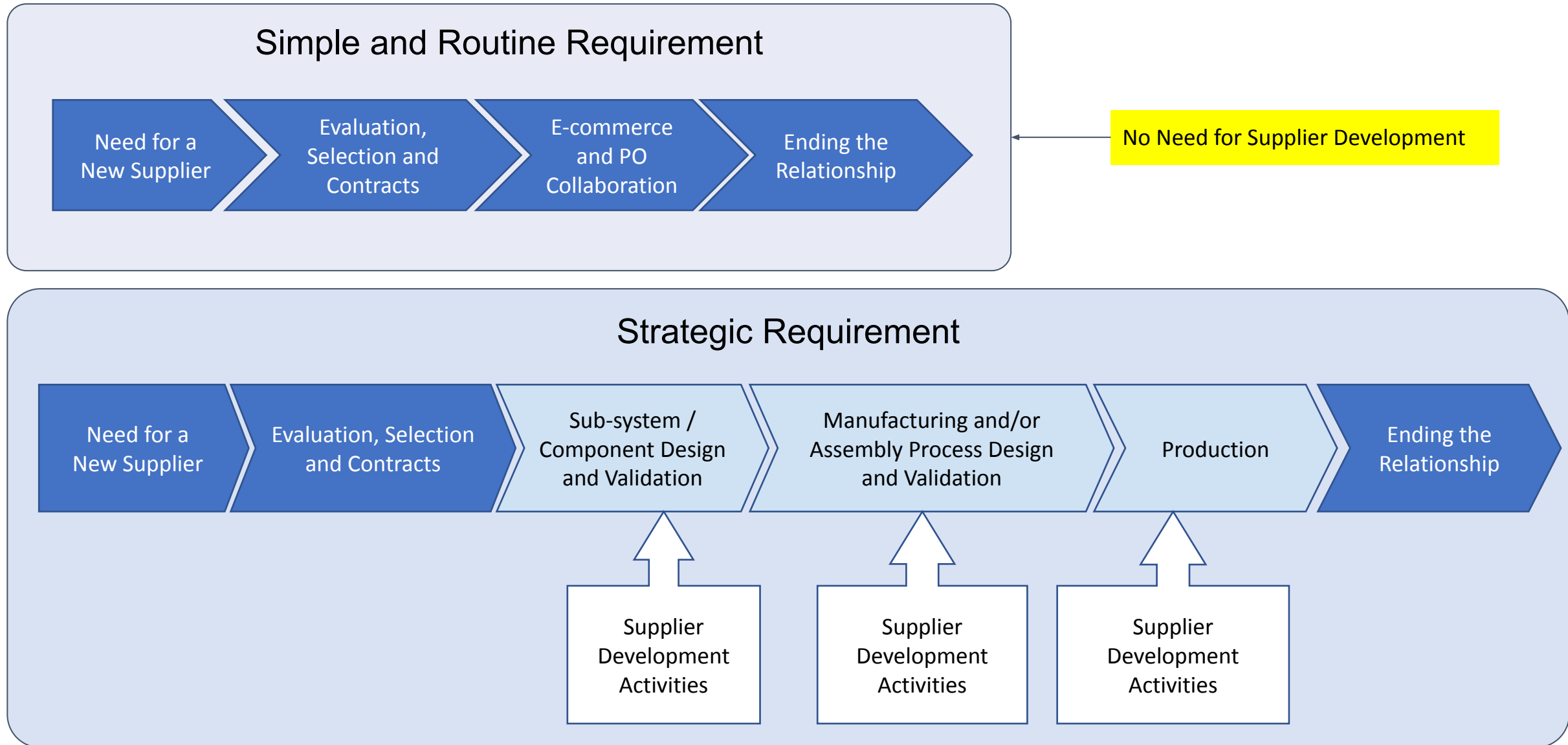
## Evaluation, Audit and Performance Assessment



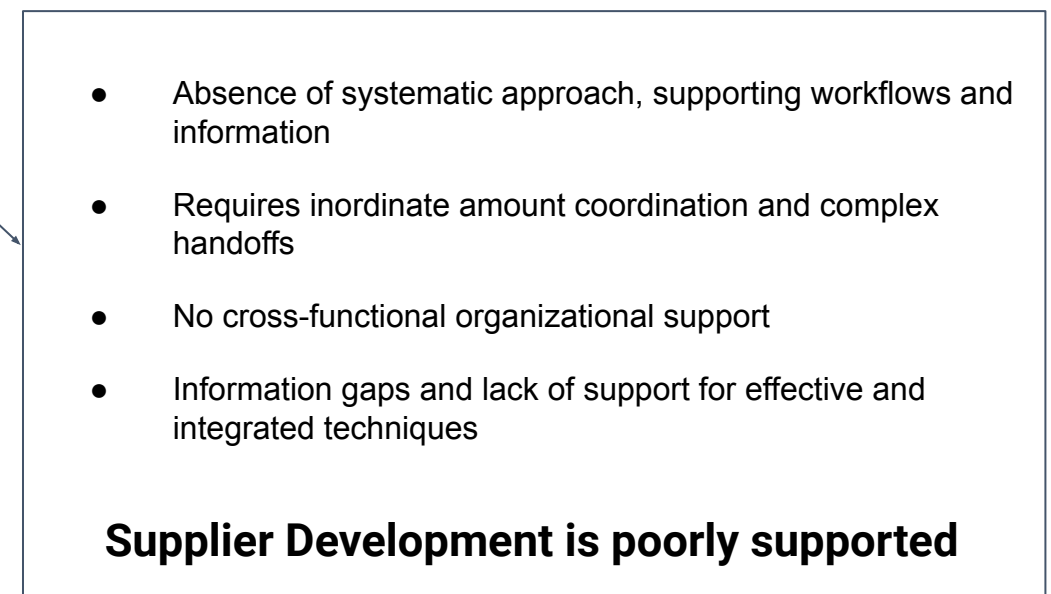
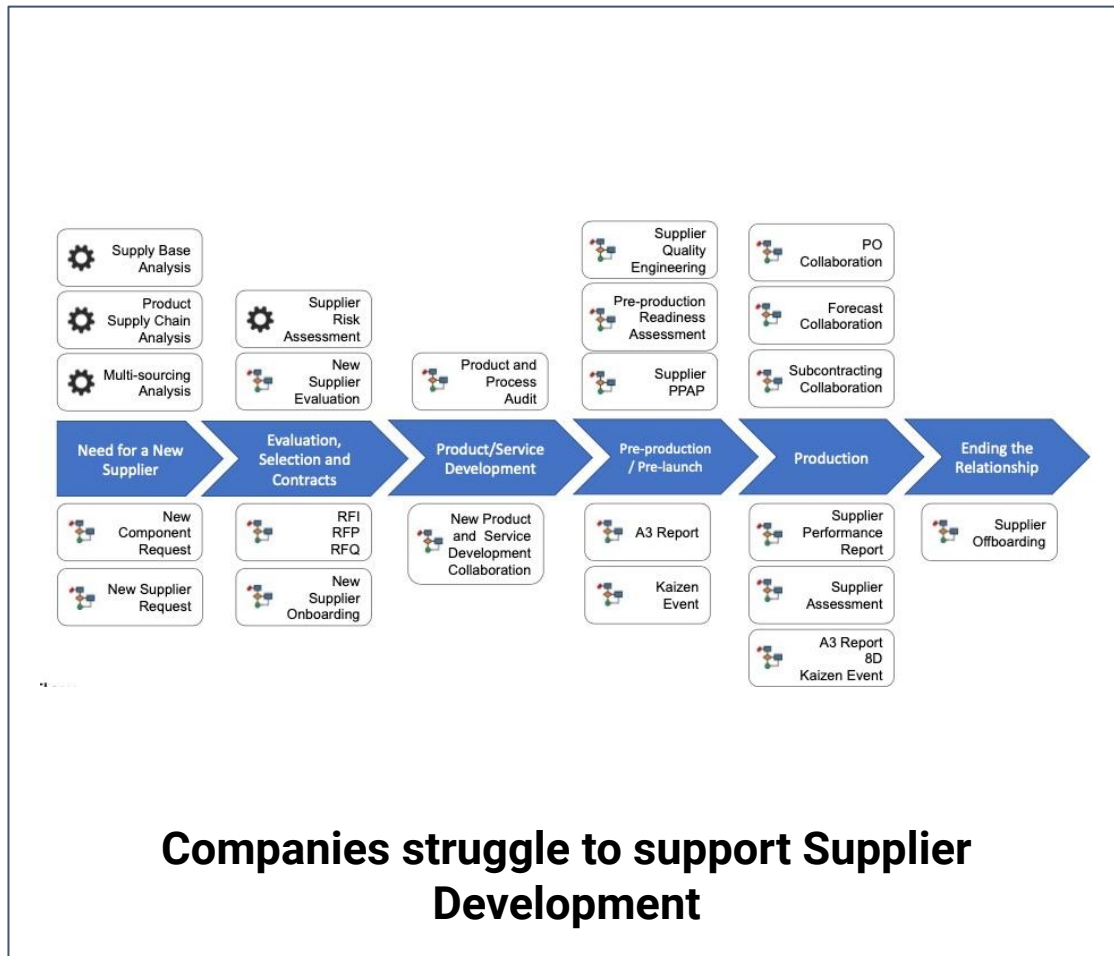
Capability	Area	Performance Criteria	Question	Program	Weighting Factor	Score	WOCS
Quality	Yield	Yield during startup	How long did it take to hit the target yield	ModelZ	0.00000	9	D
				ModelY	0.00000	9	D
	Defects	Number of Defects	Number of observed defects	ModelZ	0.00000	9	D
				ModelY	0.00000	9	D
Product Technology	Hardware	Fit and Finish	Panel gaps	ModelZ	0.00000	7	D
				ModelY	0.00000	7	D
Process Technology	Process Stability	Throughput	How long did it take to hit the target	ModelZ	0.00000	9	D
				ModelY	0.00000	9	D
Cost	Initial Cost	Initial Cost	What is the initial cost	ModelZ	0.00000	8	D
				ModelY	0.00000	7	D
				ModelX	0.00000	7	D



# Different Levels of Supplier Development for Different Requirements



# Supplier Development is Usually not a Systematic Process nor Supported Well



# ZFlow – The Swiss Army Knife of Digital Supply Chain Workflows

Systematic approach  
(framework and workflows)  
to Supplier Development

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

Zero-code



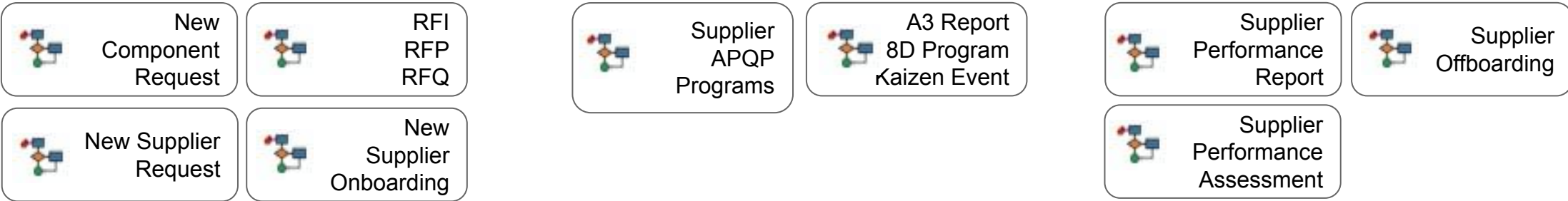
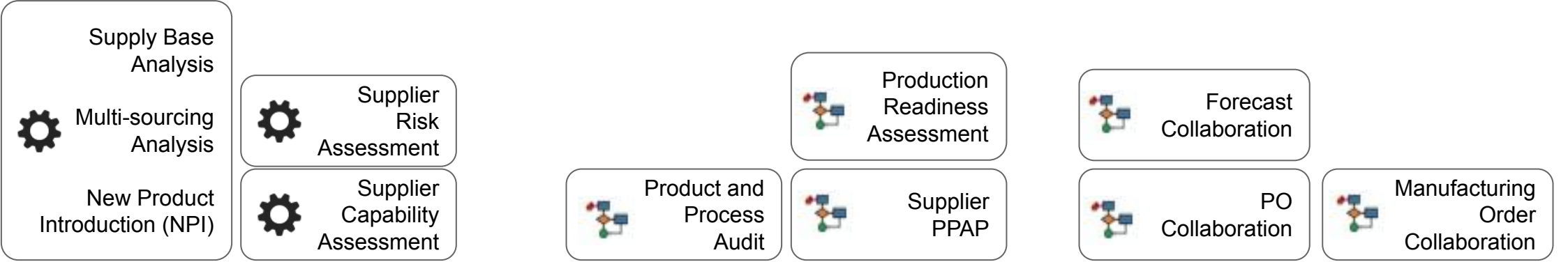
Cross-functional - Involves  
Right People at the Right  
Time

***Supply Chain Ready***

Integrated and effective  
assessments

# Supplier Development with ZFlow

*Making Supplier Development Systematic and Simple*



## Supplier Quality Engineering and Continuous Improvement



# Easy and Secure Cross-functional Engagement with Existing and Prospective Suppliers

  
**Supplier Development Portal**  
Digital Workflow for the Modern Supply Chain

English ▾


Email Address  
kris.gorrepati@cambrianlab.net

Password  
Enter password

Remember me [Forgot Password?](#)

[Login](#)

[Sign in with Microsoft](#)

 [Supplier Launch Pad](#) [Group Home](#) [Manage Users](#) Kris Gorrepati ▾

### Supplier Portal

**Account Management**

- Manage Profile
- Add Supplier Profile
- Submit Profile Change

**Performance Reporting**

- Performance Reports
- Supplier Performance

**Supplier Development**

- NPI Review
- RFP Response
- RFQ Response
- Supplier Audit

**Supplier Collaboration**

- Supplier Initiated PPAP
- Supplier PPAP
- Forecast Collaboration
- Purchase Order Collaboration
- Subcontract Purchase Order
- Supplier Batch Manufacturing Record

# ZFlow for Supplier Development

**Z** [Home](#) [Launch Pad](#) [Administration](#) [Data Maintenance](#) [New Process](#) [Repository](#) [Reports](#) [My Profile](#) [New Search](#)

### Launch Pad for Administrator

<b>Product Supply Chain Risk Analysis</b> Active(1)   Find   New	<b>Supplier Performance</b> Active(6)   Find   New	<b>Supplier Risk Assessment</b> Active(6)   Find   New	<b>Supply Chain Risk Assessment</b> Active(1)   Find   New	<b>New Supplier Evaluation</b> Active(1)   Find   Insights   New
<b>New Supplier Request</b> Active(4)   Find   Insights	<b>RFP</b> Active(1)   Find   Insights   New	<b>RFP Response</b> Active(2)   Find   Insights   New	<b>RFQ</b> Active(0)   Find   Insights   New	<b>RFQ Response</b> Active(0)   Find   Insights   New
<b>Supplier Audit</b> Active(2)   Find   Insights   New	<b>Supplier Corrective Action</b> Active(7)   Find   Insights   New	<b>Supplier Initiated PPAP</b> Active(0)   Find   Insights   New	<b>Supplier PPAP</b> Active(3)   Find   Insights	<b>Supplier Performance Report</b> Active(1)   Find   Insights   New
<b>Vendor Assessment</b> Active(2)   Find   Insights   New	<b>Voice of Supplier Survey</b> Active(1)   Find   Insights   New	<b>Supplier Profile</b> List(22)   Find   Insights	<b>Supplier</b> List(36)   Find   Insights	

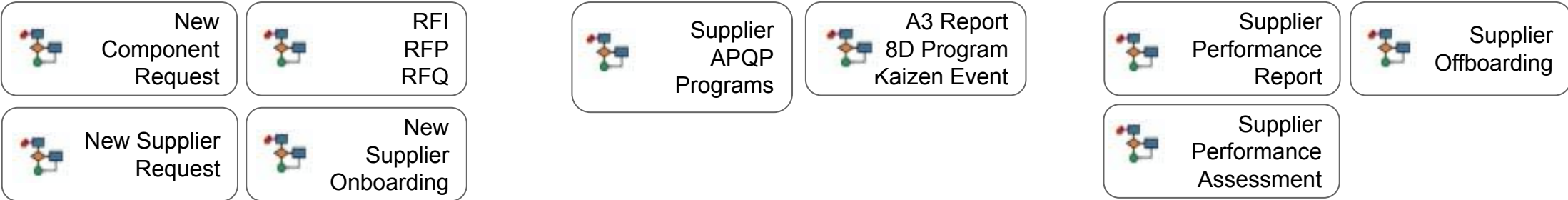
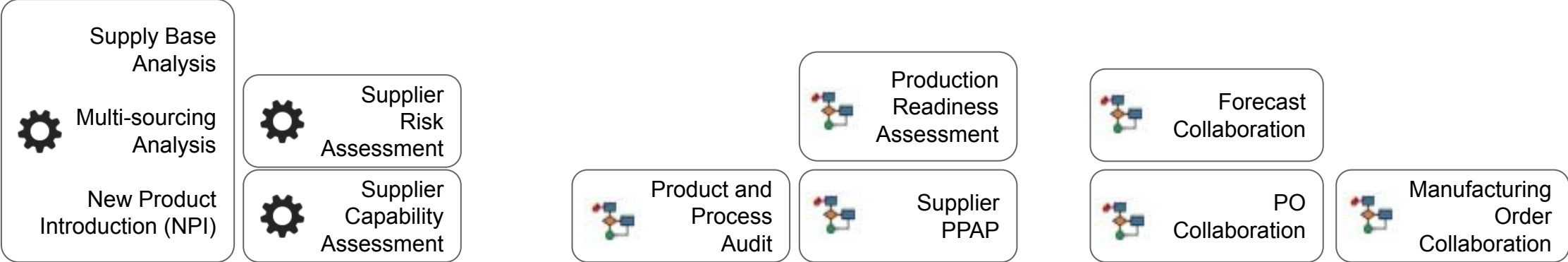
#### Supplier Collaboration

<b>Forecast Collaboration</b> Active(0)   Find   Insights   New	<b>Purchase Order Collaboration</b> Active(6)   Find   Insights	<b>Subcontract Purchase Order</b> Active(4)   Find   Insights   New	<b>Supplier Batch Manufacturing Record</b> Active(1)   Find   Insights   New	<b>Supplier Product Development</b> Active(2)   Find   Insights   New
<b>Vendor Managed Inventory</b> Active(0)   Find   Insights   New				

#### Crossfunctional Quality

<b>Corrective Action Request</b> Active(4)   Find   Insights	<b>Failure Report</b> Active(2)   Find   Insights   New	<b>Custom Corrective Action Report</b> Active(1)   Find   Insights   New	<b>Nonconformance Report</b> Active(2)   Find   Insights	<b>Quality Issue</b> Active(12)   Find   Insights   New
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# Supplier Development - Demo



## Supplier Quality Engineering and Continuous Improvement





# Innovative Supply Base, Product Supply Chain and Multi-sourcing Assessments

**Supplier Risk Assessment - 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

Part Number	Source	Supplier Name	Supplier Relationship Status	Supplier Maturity Level
ZPhoneX	ExternalManufacturing			
User Interface	ExternalSource			
Cameras	ExternalSource	LG Innotek	Preferred	Integrated
Mechanical	ExternalManufacturing			
A10X	ExternalSource	Intel	Preferred	
Memory	ExternalManufacturing	Micron	Preferred	Integrated
Power Management	ExternalSource			
Communications-module	ExternalManufacturing			
Display	ExternalSource	Huizhou Desay	Qualified	
Glue Logic	InternalSource			
Electromechanicals	ExternalSource			
Battery	ExternalSource	Honcell	Qualified	Basic
Box Contents	ExternalManufacturing			
Cameras	ExternalSource			
Camera-Lens	ExternalSource	Yujingguang Kantatsu Largan	Qualified Qualified Qualified	Basic Advanced Advanced
Communications-module	ExternalManufacturing			
GN-Receiver	Procured	Qorvo	Qualified	
Baseband	Procured	Skyworks Broadcom	Preferred Preferred	
BT-WLAN-Module	Procured	Broadcom	Preferred	
BT-GNSS-Frontend	ExternalSource	Broadcom	Preferred	
RF Frontend	Procured	Analog	Active	Advanced
RF Transceiver	Procured	Qualcomm	Qualified	
RF Frontend	Procured			
Envelope Tracking IC	Procured	Texas Instruments	Preferred	Integrated

ZFlow-Digital Workflow for the Modern Supply Chain

View site information //zflow/nui/main.jsp?external\_win=true&link=.../servlet/zapp%3Fcommand%3Dview%26cls%3DProductSupplyChainRiskAnalysis%26scope%3DR...

**Product Supply Chain Risk Analysis - ZPhoneX**

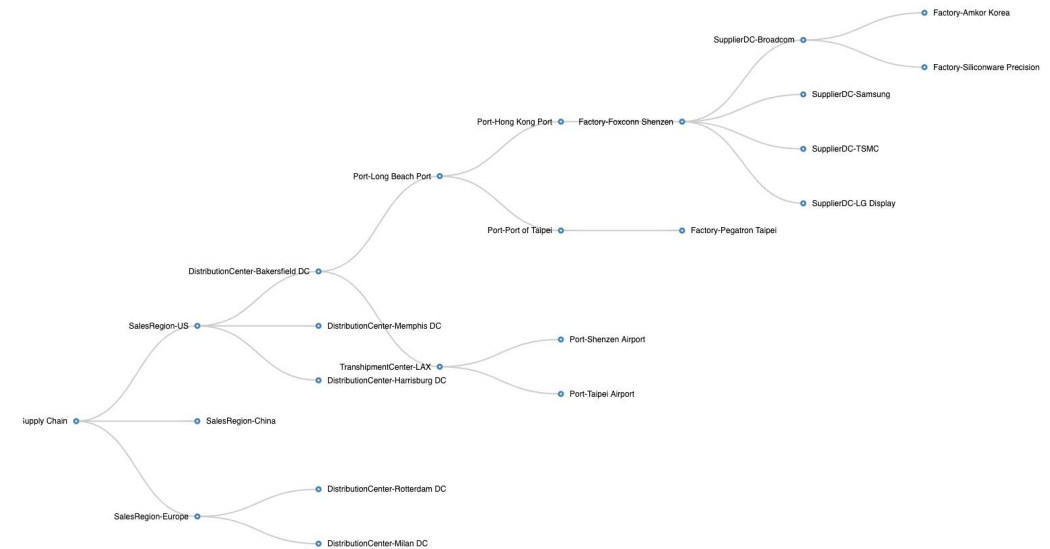
App ID: PSRA00001

**Part Info**  
Part Number: ZPhoneX Part Name: ZPhoneX

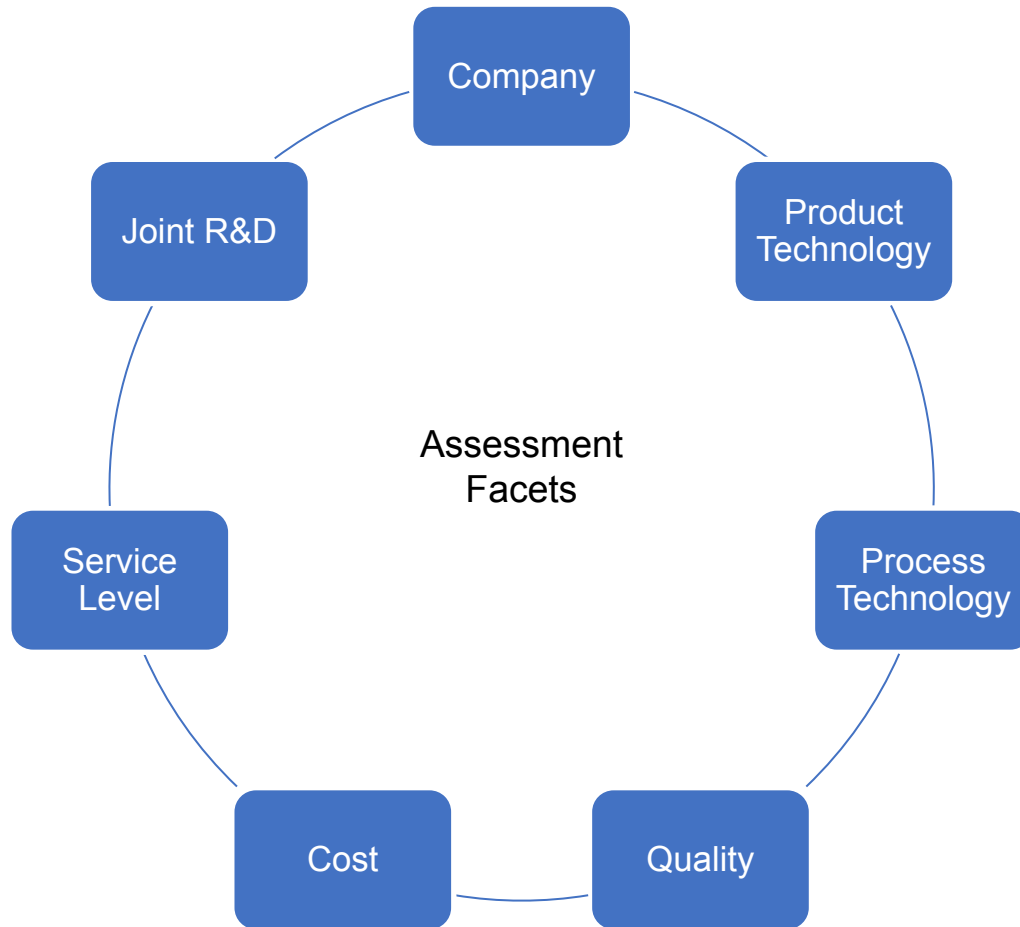
**Sourcing Risk**  
Overall Sourcing Risk: Low  
Single Sourcing Risk: Low  
Component Availability Risk: Low  
End Of Life Risk: Low

**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:



# Evaluating and Selecting New Suppliers



**New Supplier Evaluation - NPD000008-Prototype D**

Process Info | **Current Step** | Process Projects | Process Data | Members | Roles | Workflow | Rel

Current Activity: **New Supplier Eval Set Up** | Current Status: **You are a Performer**

Instructions: Please enter data in the form below and save or add files to the process then click to continue pr

Program Name:

Supplier Name:

Requirement Type:

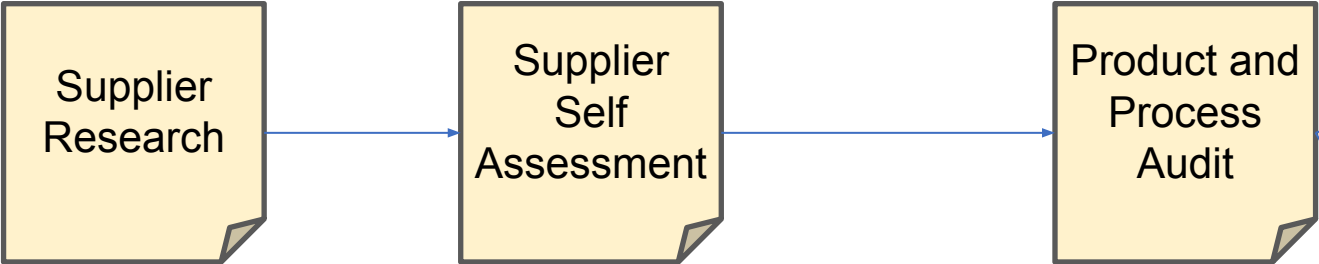
Notes:

**New Supplier Eval Crit** (Add New Supplier Eval Crit Delete All New Supplier Eval Crits Paste Data)

#	Seq No.	Area Of Concern	Eval Criteria	Eval Crit Score	Supplier A	Supplier B	
1	1	Cost	Total Cost	1			
2	2	Cost	Initial Cost	3			
3	3	Quality	Certifications	4			
4	4	Delivery	Lead time	4	2	4	
5	5	Product	Ease of	5	4	2	
					2	1	
Delivery and payment terms					1	2	4
Service level and delivery reliability					4	2	4
Short lead times in flow of goods					2	4	2
Capability for custom production					1	4	2
Capability for joint R&D					2	2	4
Financial stability					4	4	2
Importance of buyer rather low					2	4	1
International support					2	4	2
Total score (number of points) Max. = 104 (= 26·4)					78	70	
100% minus gap Max. = 100%					75%	67%	

degree of fulfillment low, 2=medium, 4=high

# Research, Assessment and Audits for Evaluating and Selecting New Suppliers



IATF, VDA, ISO 13485..

<b>P2</b>	<b>Project management</b>
2.1	Is the project organisation (project management) established and are tasks & authorities specified for the team leader and team members?
2.2*	Are the resources required for the project development planned and available and are all changes displayed?
2.3	Is there a project plan and has this been agreed with the customer?
2.4	Is change management in the project ensured by the project organisation ?
2.5*	Are the responsible personnel within the organisation and in the customer's company involved in the change control system ?
2.6	Is there a QM plan for the project ? is this implemented and monitored regularly for compliance ?
2.7*	Is there an established escalation process and is this implemented effectively ?
<b>P3</b>	<b>Planning the product and process development</b>
3.1	Are the product and process-specific requirements laid down ?
3.2*	Has manufacturing feasibility been assessed in a cross-functional manner, based on the requirements which have been determined for product & process?
3.3	Are there plans for the product and process development ?
3.4	Have the necessary resources been taken into account for the product and process development ?
3.5	Is QM planning arranged for sourcing bought-in products and services ?

Supplier Audit - Supplier Audit for Intel - At Supplier

Process Info | Current Step | Process Projects | Process Data | Members | Roles | Workflow | Related Processes | Process Log | Process Graph | Process Report

Current Activity: Review Supplier Response | Current Status: started | Performers: ZFlow Admin

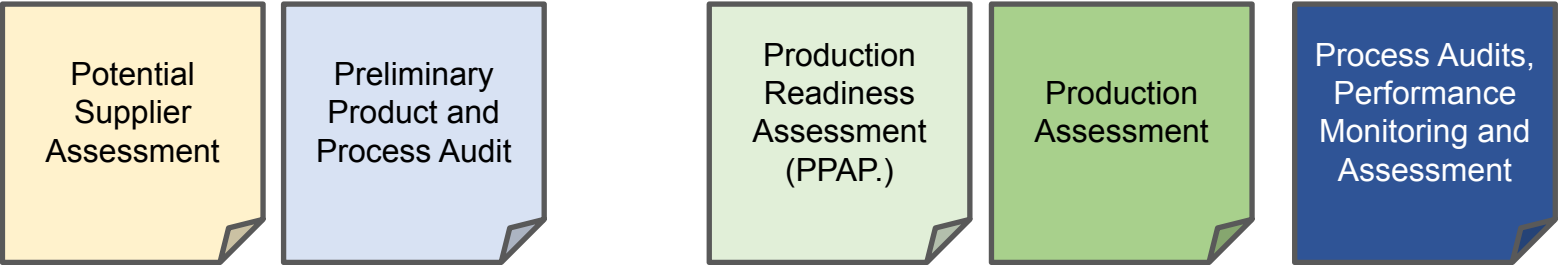
Instructions: Please review the data in the form below or in the files section then click to continue process

Design control and risk management procedures are established and applied? (ISO 13485:2016: 7.3)	✓
Audit Answer: Yes	
Design and development stages are identified? (ISO 13485:2016: 7.3.2)	✓
Review, verification, validation, and design transfer activities at each stage are appropriate? (ISO 13485:2016: 7.3.2)	✓
Responsibilities for design and development are defined? (ISO 13485:2016: 7.3.2)	✓
Management Controls -	
★ Quality Manual defines scope of QMS, procedures (or reference to) within QMS, and description of the interaction of processes within QMS? (ISO 13485:2016: 4.1, 4.2.2)	✓
★ Firm has established and conducts Management Reviews, at least annually? (ISO 13485:2016: 5.1(d), 5.6)	✓

FOOD AND DRUG ADMINISTRATION

GUIDE TO INSPECTIONS OF QUALITY SYSTEMS

# Different Evaluation Techniques at Different Stages



Supplier PPAP - SPPAF

Process Info | Current Step | Process Projects | Process Data | Members | Roles | Workflow | P

Current Activity: PPAP Phase 1 Review Current Status: You are a Performer

Accept

Instructions: Please review the data in the form below or in the files section then click to continue process

Supplier Name:  Initial  Fa

Part Number:  A10X  Pa

Part Description:  A10X SOC

Submission Level:  Level 3

PPAP Due Date:  2021/06/30

Sup PPAP Check List Item (Add Sup PPAP Check List Item Delete All Sup PPAP Check List Items Paste Data)

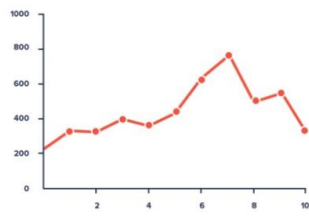
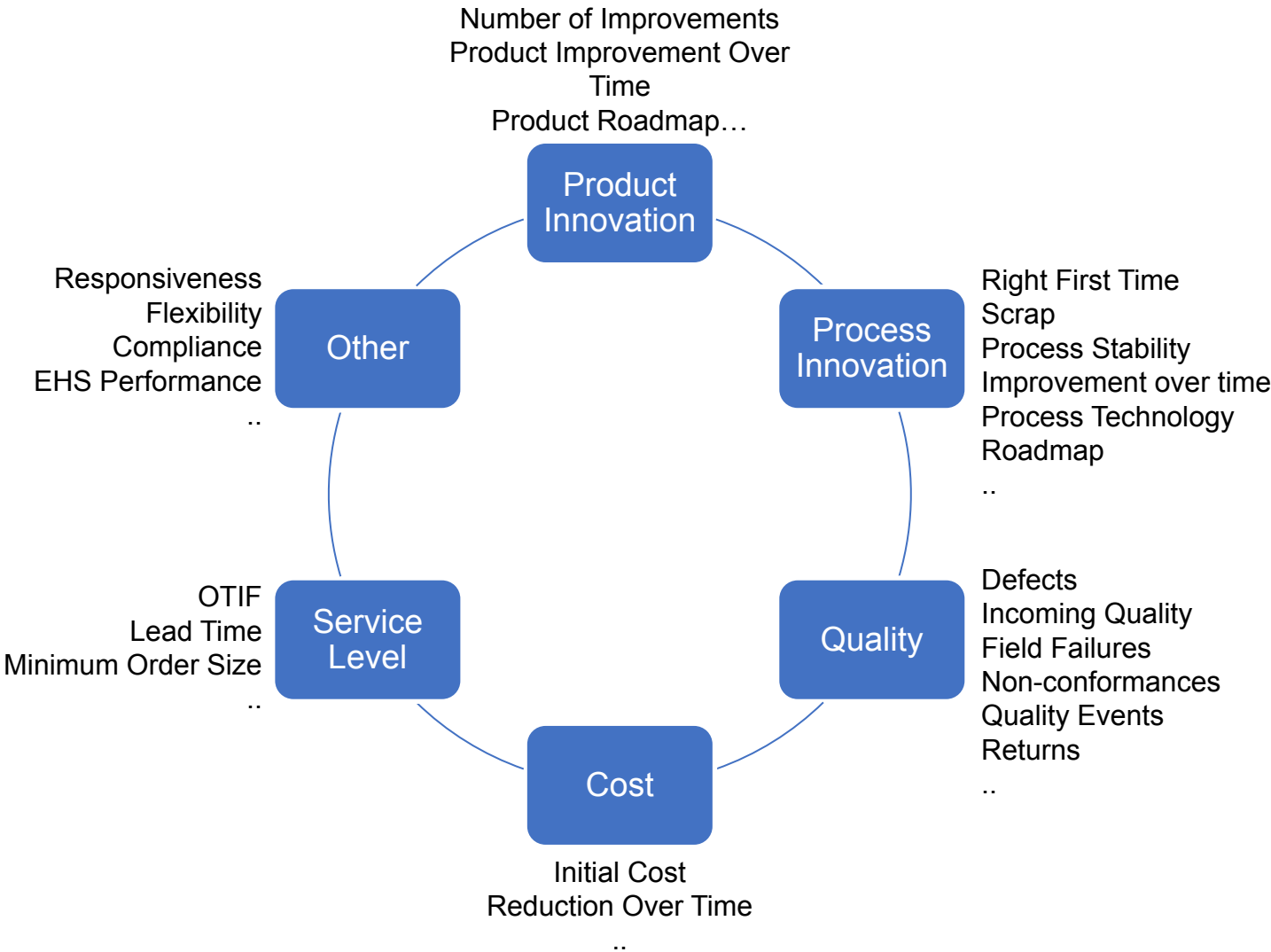
#	Seq No.	Item Name	Item Need	Supplier Comment	Com
1	1	Part Specific Requirement	Required	<input type="text"/>	<input type="checkbox"/>
2	2	Part Submission Warrant	Required	<input type="text"/>	<input type="checkbox"/>
3	3	Design Records	Required	<input type="text"/>	<input type="checkbox"/>
4	4	Design FMEA	Requested	<input type="text"/>	<input type="checkbox"/>
5	5	Process Flow	Required	<input type="text"/>	<input type="checkbox"/>

# Supplier Quality Engineering

Key Aspect of Supplier Development



# Supplier Performance Reporting and Assessment



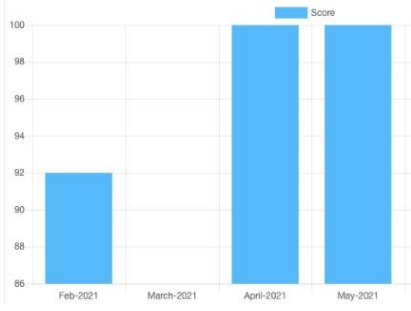
- A3 Report
- 8D
- Kaizen Event

Rating Period July, 2021

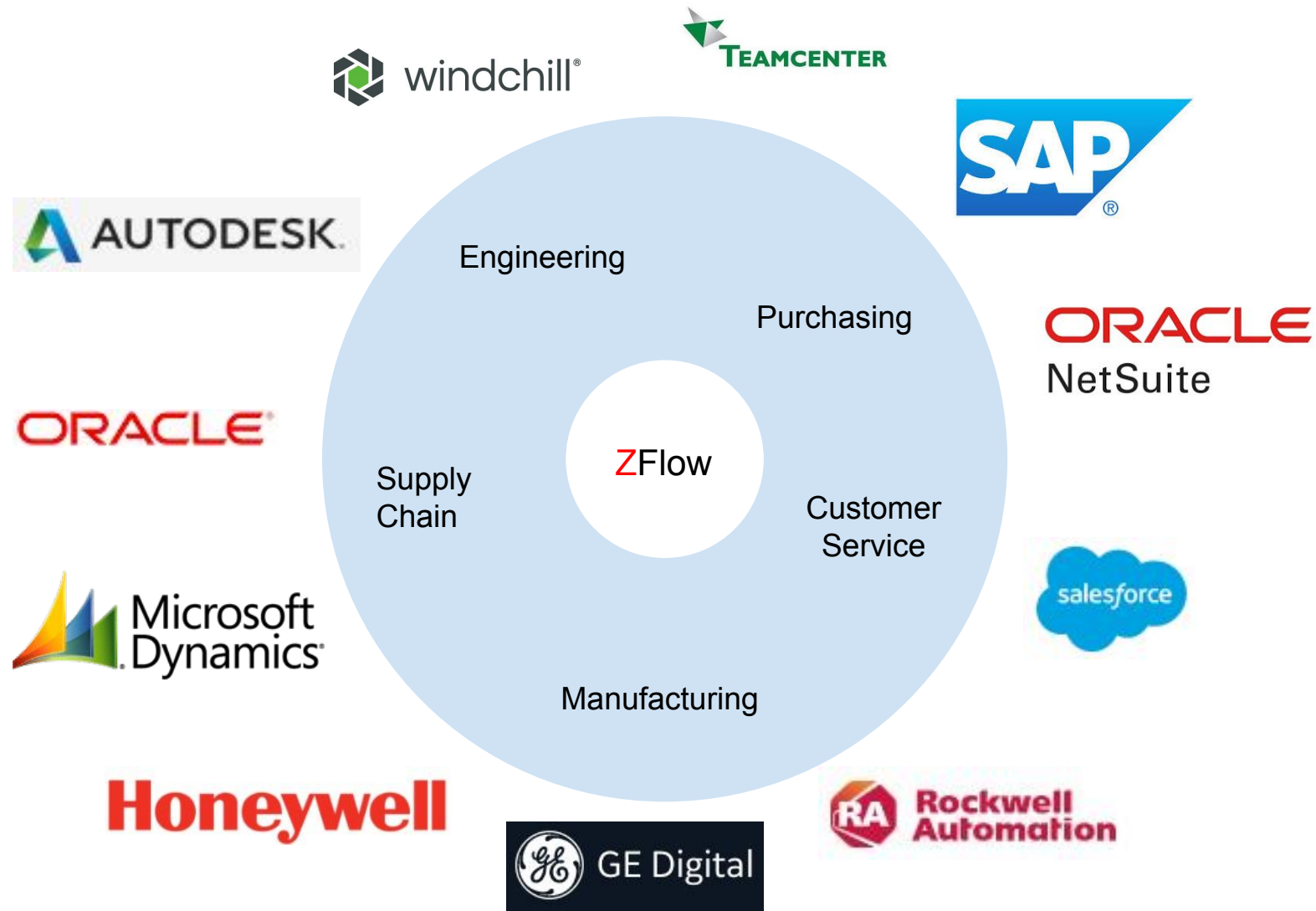
Score	Ranking	Percentile
88	Average	45

Analogy of Supply Base Performance

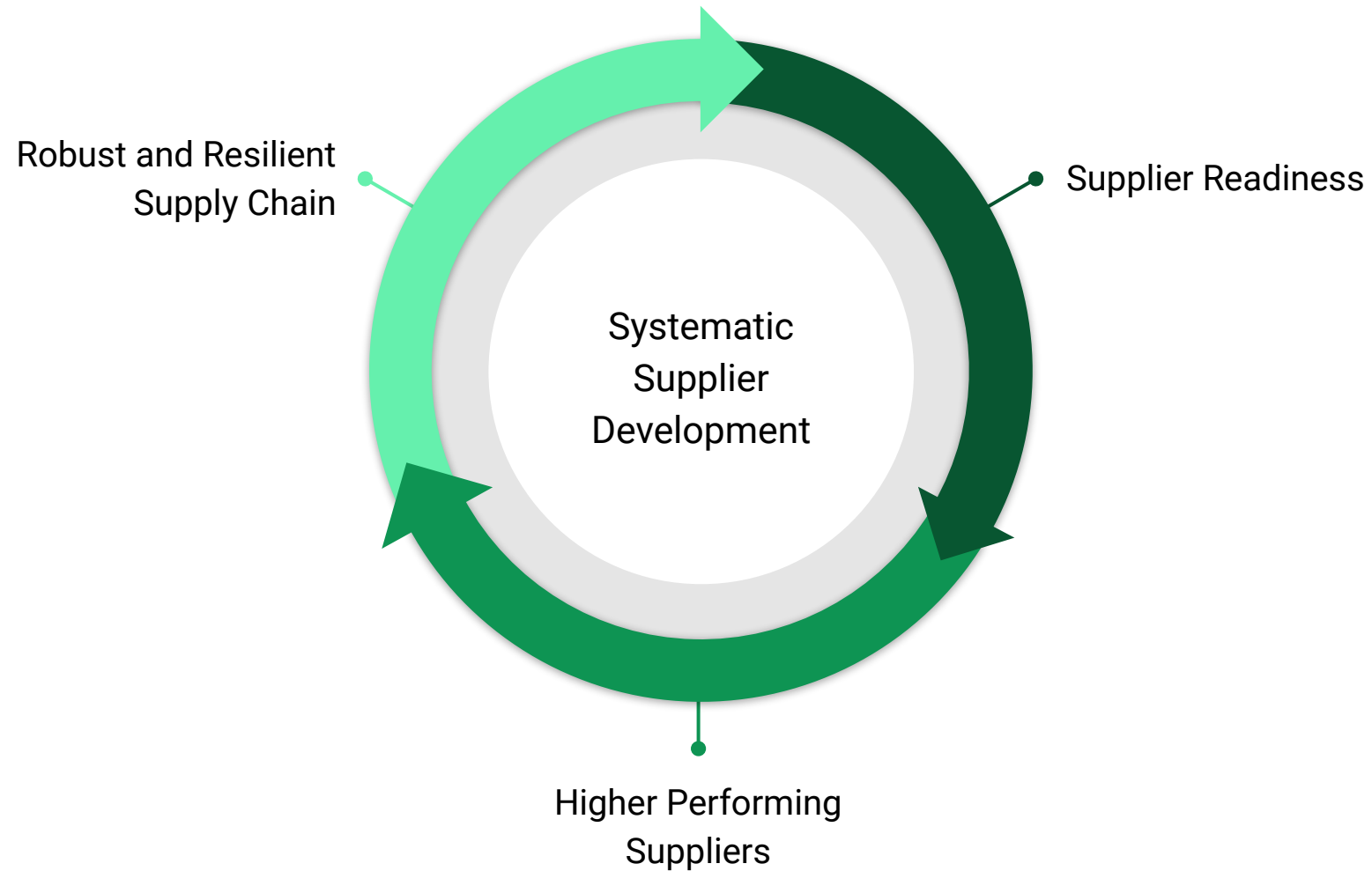
Score	Percentile
100	100
98	90
96	80
94	60
88	40



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



# 3 Reasons for Systematic Supplier Development





# Summary

- ZFlow supports Supplier Development in a holistic manner
- Easy to adopt Internally as well as with the Supply Chain
- Easy to get started

[Test Drive ZFlow](#)

[Free Proof-of-concept](#)

[Free Pilot](#)

# Contact Us

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<https://www.zflow.io>