

# Automotive QMS IATF 16949 Solution

Presented by  
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# AGENDA

## ENTERPRISE AUTOMOTIVE QMS SOLUTION



**BUSINESS CHALLENGES**



**ENTERPRISE APQP  
SOLUTION OVERVIEW**



**FEATURES, BENEFITS, SOLUTION**



**INTEGRATIONS**

# OMNEX SYSTEMS



## About Us

*Omnex Systems is part of Omnex Inc, specialized in Development & Implementation of **Enterprise Quality Management Solutions** across the Globe. Inspired by pioneers of Quality Experts at Omnex, Omnex Systems solutions help customers realize their business & quality objectives through Best in Class software and first time right implementation process.*

### Headquarter

Michigan, USA

### Development Centers

- Michigan USA
- Shanghai, China
- Chennai, India

### Enterprise Solutions

- APQP/NPD Solution
- **APQP & Functional Safety Solution**
- IMS / QHSE Solution
- Supplier Quality Solution
- Audit & Compliance Solution
- Enterprise Quality Solution

### Industry 4.0 Solution

- IIOT 4.0 Solution
- PPAP Reviewer using AI (O-BOTS)

### Customers

500 +Customers Worldwide including Many Fortune 50 Companies



# History of Omnex

Founded in 1985

Headquartered in Ann Arbor, Michigan with offices in major global markets

In 1995-97 provided global roll out supplier training and development for Ford Motor Company establishing offices in Latin America and Asia

Headquartered in Ann Arbor, Michigan with offices in major global markets

Former Delegation Leader of the International Automotive Task Force (IATF)

Served on committees that wrote QOS, ISO/TS16949, ISO9001:2000, QS-9000 and it's Semiconductor Supplement, ISO IWA 1 (ISO9000 for healthcare)

Member of AIAG manual writing committees for FMEA, SPC, MSA, Sub-tier Supplier Development, Error Proofing, and Effective Problem Solving (EPS)

On the ISO writing committees for ISO 9001, ISO 14001, ISO 45001, and ISO 13485

SME for AQP and PPAP to International Aerospace Quality Group (IAQG)

One of the first to fully integrate Lean and Six Sigma

ISO 9001-certified for training development, training delivery and consulting





# WORLDWIDE OPERATIONS



EMPLOYEES  
FROM 26  
NATIONALITIES

WORKING IN  
OVER 30  
COUNTRIES

24X7 FOR  
30 YEARS  
& COUNTING

SERVING  
35,000  
CLIENTS

 International Headquarters

 Regional Offices

 SPID, Korea

 Delivery Associates [www.omnexsystems.com](http://www.omnexsystems.com)  
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## AMERICAS

USA - Ann Arbor, MI, San Jose, California

CANADA - Mississauga

MEXICO - Oaxaca

COLOMBIA - Bogota DC

BRAZIL - Sao Paulo

## EUROPE

GERMANY - Berlin, Gosheim

FRANCE/ ITALY - Paris

## EASTERN EUROPE

POLAND, RUSSIA, HOLLAND,  
CZECH REPUBLIC, HUNGARY,

## ASIA-PACIFIC

INDIA - Chennai (Asia Pac HQ),  
Pune, Delhi, Vadodara Bangalore

CHINA - Shanghai (Far East HQ),  
Guangzhou, Wuhan, Chongqing, Suzhou

THAILAND - Bangkok

UAE - Dubai

SINGAPORE - Singapore

MALAYSIA - Kuala Lumpur (Rep)

## SPID - Korea

#1803, 145 Gasan digital 1-ro, Geumcheon-gu,  
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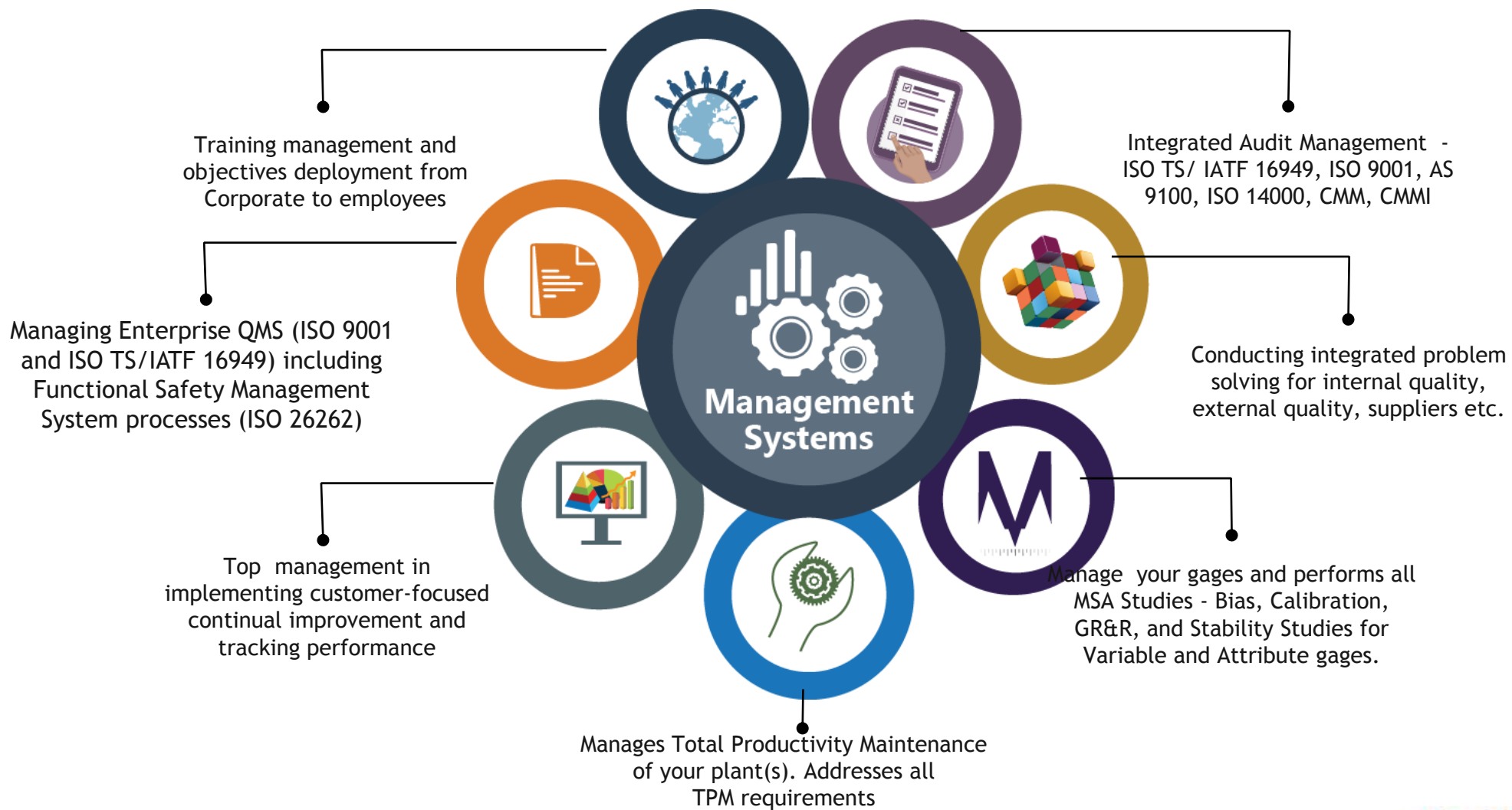


# Solution 1 : Enterprise APQP & Functional Safety Solution





# Solution 2: Enterprise Integrated Management Solution



# Enterprise APQP Solution



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## Solution 3 : Supplier Quality Management Solution





## Challenges using Spreadsheets & Silo systems

- × Lack of linkages of documents from Design to Shop-floor.
- × Lack of Re-use of information from previous Launches.
- × Lack of Standardization and Discipline.
- × Unable to Report and Analyse FMEA.
- × Reviewing the changes in the Documents.
- × Manual and tedious process of Revision Control & Management.
- × Distribution Control of Documents.
- × Lack of single window to manage APQP, PPAP Projects & Deliverables.
- × Indirect Challenges like facing Audits, Compliance to Automotive Standards and more...



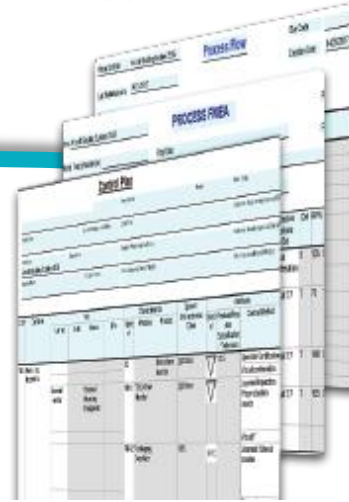
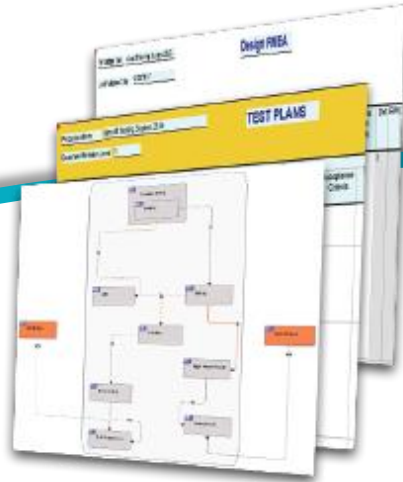
# Enterprise APQP Solution

VOC/Requirements

Block Dia, DFMEA, Test Plans

Process Flow, PFMEA, Control Plan

Inspection, FAI & PPAP

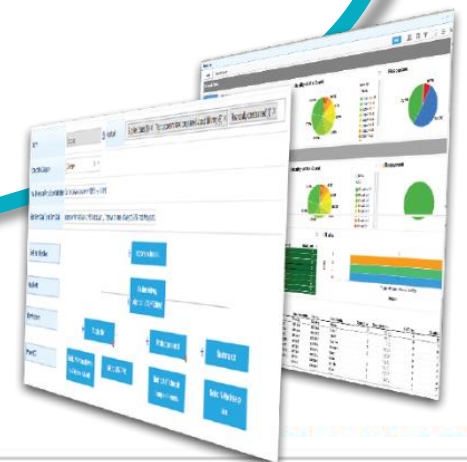
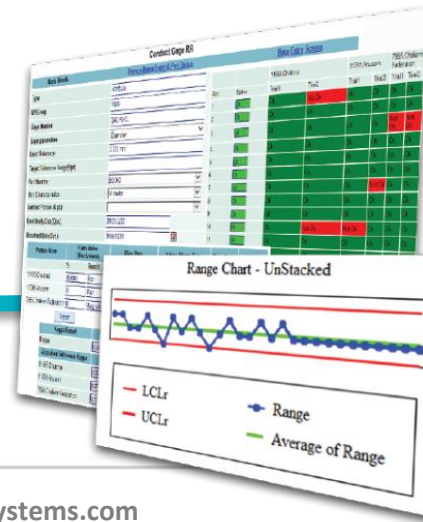
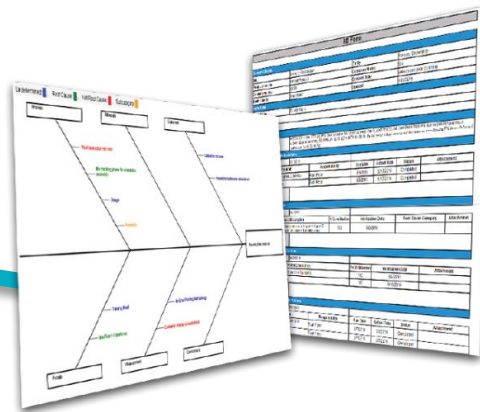


NPD/APQP Program Management

FRACAS / Problem Solving

MSA

Dashboard / Continual Improvement



# Project Summary (Advanced Reports)





# Project Summary Reviews

### Project Information

Project Name	Engine Program Delta Hawk BMX500
Site	Corporate
Pillar	NPD
Project Groups	Default
Priority	Probability*Severity

### Project Details

Approval Required	No	Status	Active
Approvers	NA		

### Deliverable Summary

Search by Deliverables

Deliverable Name	Duration	Percentage	Start Date	End Date	Status	Resources	Budget	Actual Start Date	Actual End Date	BaseLine Start Date
Phase 1 :Plan and Define Program	53.00 Days	91%	10/16/2018	12/07/2018	In Progress		Above Budget	10/17/2018	NA	10/16/2018
Voice of the Customer	4.00 Days	100%	10/16/2018	10/19/2018	Completed		Above Budget	10/17/2018	01/02/2019	10/16/2018
Market Research	1.00 Day	100%	10/16/2018	10/16/2018	Completed	Ryan Peter	Above Budget	01/01/2019	01/02/2019	10/16/2018
Historical Warranty and Quality Information	1.00 Day	100%	10/17/2018	10/17/2018	Completed	Prem Prasad	With in Budget	10/17/2018	10/17/2018	10/17/2018
Team Experience	2.00 Days	100%	10/18/2018	10/19/2018	Completed	Karen williams	With in Budget	10/18/2018	10/19/2018	10/18/2018
Business Plan/Marketing Strategy	3.00 Days	80%	10/20/2018	10/22/2018	In Progress	Ryan Peter	Above Budget	01/04/2019	NA	10/20/2018
Product/Process Benchmark Data	5.00 Days	100%	10/23/2018	10/27/2018	Completed	Karen williams	Above Budget	10/23/2018	10/27/2018	10/23/2018
Product/Process Assumptions	4.00 Days	100%	10/28/2018	10/31/2018	Completed	Ryan Peter	With in Budget	10/28/2018	10/31/2018	10/28/2018

### Forecasted Target

### Progress Bar

Phase	Percentage
Phase 1 :Plan and Define Program	91%
Phase 2: Product Design and Development	62%
Phase 3: Process Design and Development	33%
Phase 4 : Product and Process Validation	25%
Phase 5 : Feedback	15%

### Risk(s) (2)

Search by Risk

Risk Category	Risk	Raised Date	Raised By	Impact
Benefits	The business benefits are not quantifiable		Karen williams	80
Budget	The project exceeds the budget allocated		Brad Smith	80

Showing 1 to 2 of 2 entries

### Meeting(s) (2)

Search by Meeting

Meeting Subject	Deliverable Name	Meeting Date	Meeting Time
Market Research	Market Research	01/02/2019	07:00-08:00
Production Part Approval	Production Part Approval	01/16/2019	09:00-11:00

Showing 1 to 2 of 2 entries

### Action(s) (4)

Search by Action

Action Name	Source	Name	Resources	Status
Communicate widely, consult widely and listen to the responses you get.	Risk	The business benefits are not quantifiable	Karen williams	Not Started



Quick Link

- Actions
- Calendar
- Routes
- More Options

New Risk! (19)

- Engine Program Delta Hawk BMX5....** LOW  
*Schedule*
- Engine Program Delta Hawk BMX5....** MEDIUM  
*Deliverable*
- Engine Program Delta Hawk BMX5....** HIGH  
*Scope*
- PPAP Engine Program Heroic HX5....** HIGH  
*Deliverable*

Requests Needing Approval (3)

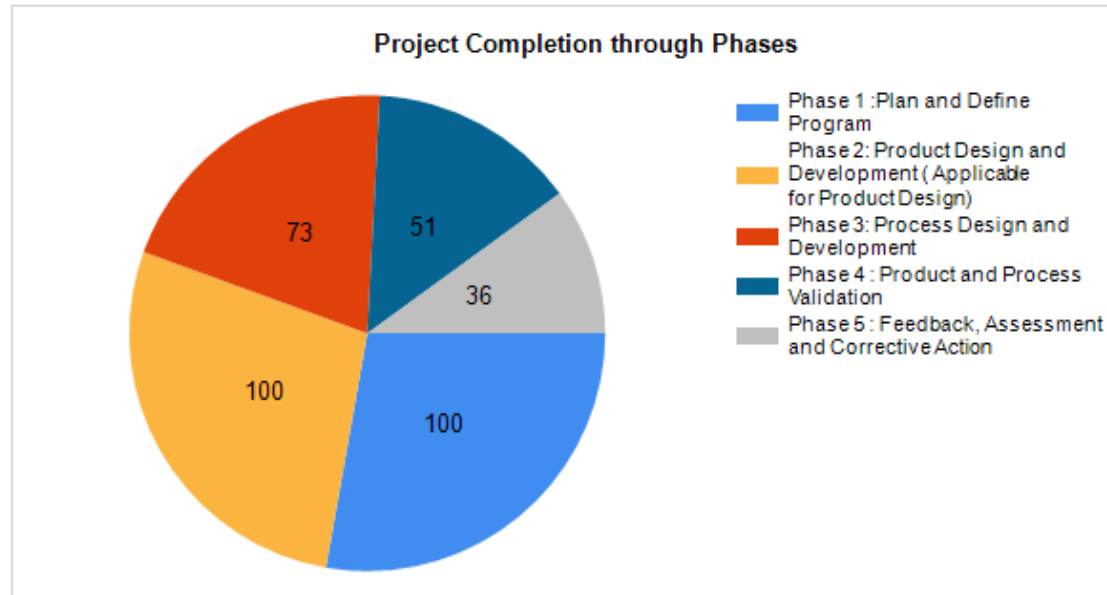
- Sample Product Templ....** PPAP Engin....  
*waiting since 46 days*
- Part Submission Warr....** PPAP Engin....  
*waiting since 45 days*
- Initial Process Stud....** PPAP Engin....  
*waiting since 44 days*

+ New Activities Dashboards

My Dashboard



APQP Tracking Matrix



Site Name	Phase Name	Percentage Completed
-----------	------------	----------------------

Today Task + Overdue Tasks (17)

- Review and Sign-off ....** UPPAP 1509679 ....  
*late by 189 days*
- Closure of all inter....** Engine Program ....  
*late by 45 days*
- ASQR signoff** PPAP Engine Pro....  
*late by 42 days*
- Monitoring and revie....** Engine Program ....  
*late by 39 days*
- Release Production C....** Engine Program ....  
*late by 2 days*

Projects (53)

- Engine Program HOSE X6000 Active
- position route test Active
- Inner Bearing and Race-JBBKS27.... Active
- SIDE COVER-JBBKS2700 Active
- BOTTOM PANEL-JBBKS2700 Active
- FRONT GATE OPEN DOOR-JBBKS2700 Active
- MOUNTING SHAFT-JBBKS2700 Active
- RFAR GATF CAP RINGS-JBBKS2700 Active

Upcoming Meetings (0)

# Track APQ Projects Deadlines, Documents, Quality & Resources

Deliverable Clipboard Format Configure Project : Engine Program Delta Hawk BMX5... Print/Export Navigate

W.B.S.	Notific	Deliverable Name	Sch. Start Date	Sch. Finish Date	
1		▼ Engine Program Delta Hawk BMX500	11/01/2018	11/01/2019	10
1.1	✓	► Phase 1 :Plan and Define Program	11/01/2018	01/04/2019	10
1.2	✓	▼ Phase 2: Product Design and Development ( Applicable for Product Design)	12/27/2018	03/05/2019	10
1.2.1	✓	TGW/TGR in previous designed parts	12/27/2018	12/31/2018	10
1.2.2	✓	Prepare Product design input information sheet	12/31/2018	01/07/2019	10
1.2.3	✓	Identification of Special Characteristics (SC's) includes Customer designated SC's	01/08/2019	01/11/2019	10

WBS	Deliverable Name	Input Document / Output Document	Additional Documents	Number	Resources	Quality	On Time	App
(-) 1.2	Phase 2: Product Design...					15.00	100	
1.2.1	TGW/TGR in previous des...					13.00	100	
1.2.2	Prepare Product design ...					16.00	100	
1.2.3	Identification of Speci...					11.00	100	
1.2.4	Prepare Block diagram a...	Design FMEA Referenc... Design FMEA Template	Design FMEA Out....			16.00	100	
1.2.5	Prepare Initial (Draft)...					18.00	100	
1.2.6	Prototype Build and nar...	Prototype Build and ....	Prototype Build....			12.00	100	



# APQP Project Status

Deliverable					Clipboard		Format		Configure		Project : Engine Program Delta Hawk BMX5...					Print/Export		Navigate	
W.B.S.	Notific	Deliverable Name	Sch. Start Date	Sch. Finish Date	Aug 2019							Sep 2019							
1		Engine Program Delta Hawk BMX500	11/01/2018	11/01/2019															
1.1	✓	Phase 1 :Plan and Define Program	11/01/2018	01/04/2019															
1.2	✓	Phase 2: Product Design and Development ( Applicable for Product Design)	12/27/2018	03/05/2019															
1.3		Phase 3: Process Design and Development	01/11/2019	08/22/2019															
1.4		Phase 4 : Product and Process Validation	08/22/2019	10/04/2019															
1.4.1	✓	Pilot lot trial - High volume production trial as per customer requirements	08/22/2019	08/28/2019	Brad smith														
1.4.2	✓	Tool commissioning and final tool buy off	08/28/2019	09/04/2019	Brad smith														
1.4.3	✓	Product Testing (endurance and life cycle)	09/04/2019	09/11/2019															
1.4.4	✓	Process Validation and release of process documents for production	09/12/2019	09/18/2019															
1.4.5	✓	Measurement Systems Analysis	09/18/2019	09/25/2019															
1.4.6	✓	Preliminary Process Capability Study	08/28/2019	09/04/2019	Jim Johnson														
1.4.7		Packaging Evaluation	09/04/2019	09/11/2019															
1.4.8		Review and updation of all PPAP documents as per Customer requirements	08/28/2019	08/30/2019	Williams Karen														
1.4.9	✗	Update and review of concern matrix / problem follow up sheet	08/30/2019	09/03/2019	Williams Karen														
1.4.10	✗	PSW sign off	09/03/2019	09/11/2019															
1.4.11		Release Production Control Plan for SOP under Initial supply controls	09/25/2019	09/27/2019															
1.4.12		Process verification Sign-Off by CFT	09/28/2019	10/01/2019															
1.4.13		Prepare TGW & TGR for running project	10/02/2019	10/04/2019															

APQP Projects				PPAP Projects		
Deliverable				Deliverable Name	Sch. Start Date	Sch. Finish Date
1			▼ Engine I	▼ UPPAP 1509679 - Ejector Control Valve	12/03/2018	04/05/2019
1.1	✓		► Phase	Released Production Drawings	12/03/2018	12/08/2018
1.2	✓		► Phase	SPD/SMD and SI sheets (Technical data)	12/08/2018	12/18/2018
1.3			► Phase	Production PO and Demand Fulfillment	12/18/2018	12/24/2018
1.4			► Phase	Design Failure Mode and Effects Analysis (DFMEA)	12/24/2018	12/29/2018
1.5			▼ Phase	Process Flow Diagrams	12/29/2018	01/03/2019
1.5.1	✎		Pha	Process FMEA	01/03/2019	01/12/2019
1.5.2			Mor	Process Control Plan	01/12/2019	01/31/2019
1.5.3			Clos	Process Readiness Study	01/03/2019	01/04/2019
1.5.4	✓✎		Prep	Initial Process Studies	01/04/2019	01/11/2019
1.5.5	✓✎		Cus	Measurement System Analysis Studies	01/31/2019	02/08/2019
1.5.6	✓✎		Proj	Engineering Frozen Planning/Source Approval (EFP/ESA)	02/08/2019	02/09/2019
				Dimensional Report (includes AS9102 forms 1, 2, 3)	02/08/2019	02/14/2019
				Production Verification Testing (PVT)	02/14/2019	02/19/2019
				Special Process Approval and Non destructive Test (NDT)	02/19/2019	02/25/2019
				Material Certification Documentation	02/26/2019	03/05/2019

The screenshot displays a CAD environment with a 3D model of a mechanical part. The part has several features: a top surface with a flatness requirement (key 2), a fillet with a radius of 2 mm (key 3), and a bottom surface with a perpendicularity requirement (key 4). There are four holes on the top surface, each with a diameter tolerance of 3.8-4.2 mm and a circular runout requirement of 0.25 mm (key 10). There are three holes on the bottom surface, each with a diameter tolerance of 4.25-4.45 mm and a circular runout requirement of 0.13 mm (key 9). The part also has a length of 70 mm (key 12) and a width of 25.2 mm (key 1). The software interface includes a toolbar at the top, a file browser on the right showing '3830461-6.pdf' and 'PS12308.pdf', and a right-hand pane with technical specifications.

3830461-6.pdf PS12308.pdf  
Page: 2 of 29

1. SCOPE  
1.1 Purpose: This specification covers the process and requirements (GTAW), Gas Metal Arc Welding (GMAW), Plasma Arc Welding (SMAW), and provides for the classification and grading  
1.2 Applicability: This specification applies to manual, semiautomatic welding processes as applied to the following materials as defined

MATERIALS	GROUP
Carbon and low-alloy steels	IA a
Stainless steels	IIA a
Nickel alloys	IIIA a
Aluminum alloys	IV
Magnesium alloys	V
Titanium alloys	VI
Cobalt alloys	VII

1.3 Classification: Fusion arc welds shall be specified as one of the following classes:  
1.3.1 Classes shall be based upon the inspection requirements in Table I.

TABLE I. DEFAULT INSPECTION FOR EACH CLASS

Class	Visual Required	Penetrant or Magnetic Particle Required
Class A	Visual Required	Penetrant or Magnetic Particle Required
Class B	Visual Required	Penetrant or Magnetic Particle Required
Class C	Visual Required	Not Required

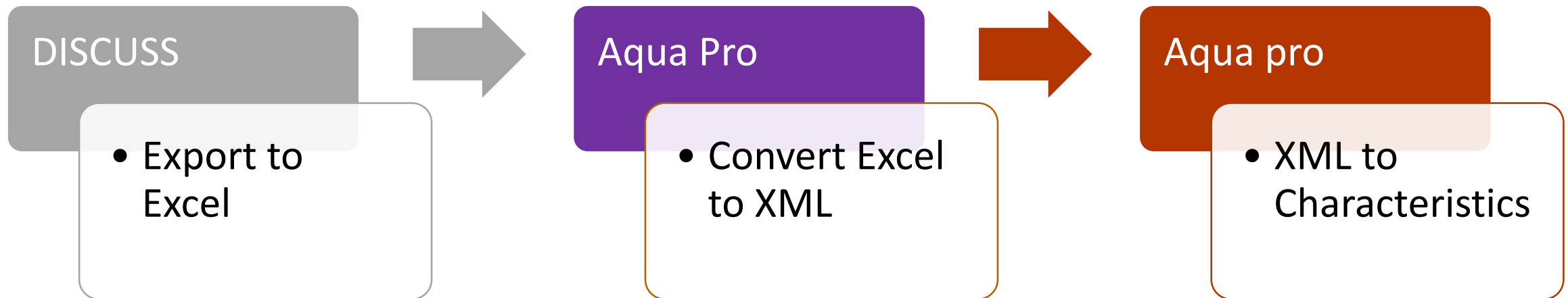
1.3.1.1 Fillet welds shall not be specified Class A.  
1.3.2 Weld end product requirements shall be inspected to the requirements in Table II.  
1.3.2.1 All Class A welds shall be Grade 1.  
1.3.2.2 All Class B welds shall be Grade 1 or 2.

Key	Belongs To	Requirement-Structured	GD&T	Location	Key	Comments	Places	Class	Reportable
1	Part1	Linear Dimension - Basic = 25.2 mm	25.2 BASIC	ScomPart1.CATPart/PMI Illus. 02c	No		1	Minor	<input type="checkbox"/>
2	Part1	Flatness <= 0.1 mm	Z 0.1	ScomPart1.CATPart/PMI Illus. 01d	No		1	Minor	<input checked="" type="checkbox"/>
3	Part1	Radius - Basic = 2 mm	R2 REFERENCE	ScomPart1.CATPart/PMI Illus. 01c	No		1	Minor	<input type="checkbox"/>
4	Part1	Perpendicularity <= 0.15 mm	_ 0.15 A	ScomPart1.CATPart/PMI Illus. 01f	No	Measured in ...	1	Minor	<input checked="" type="checkbox"/>





# Data Import from Drawings

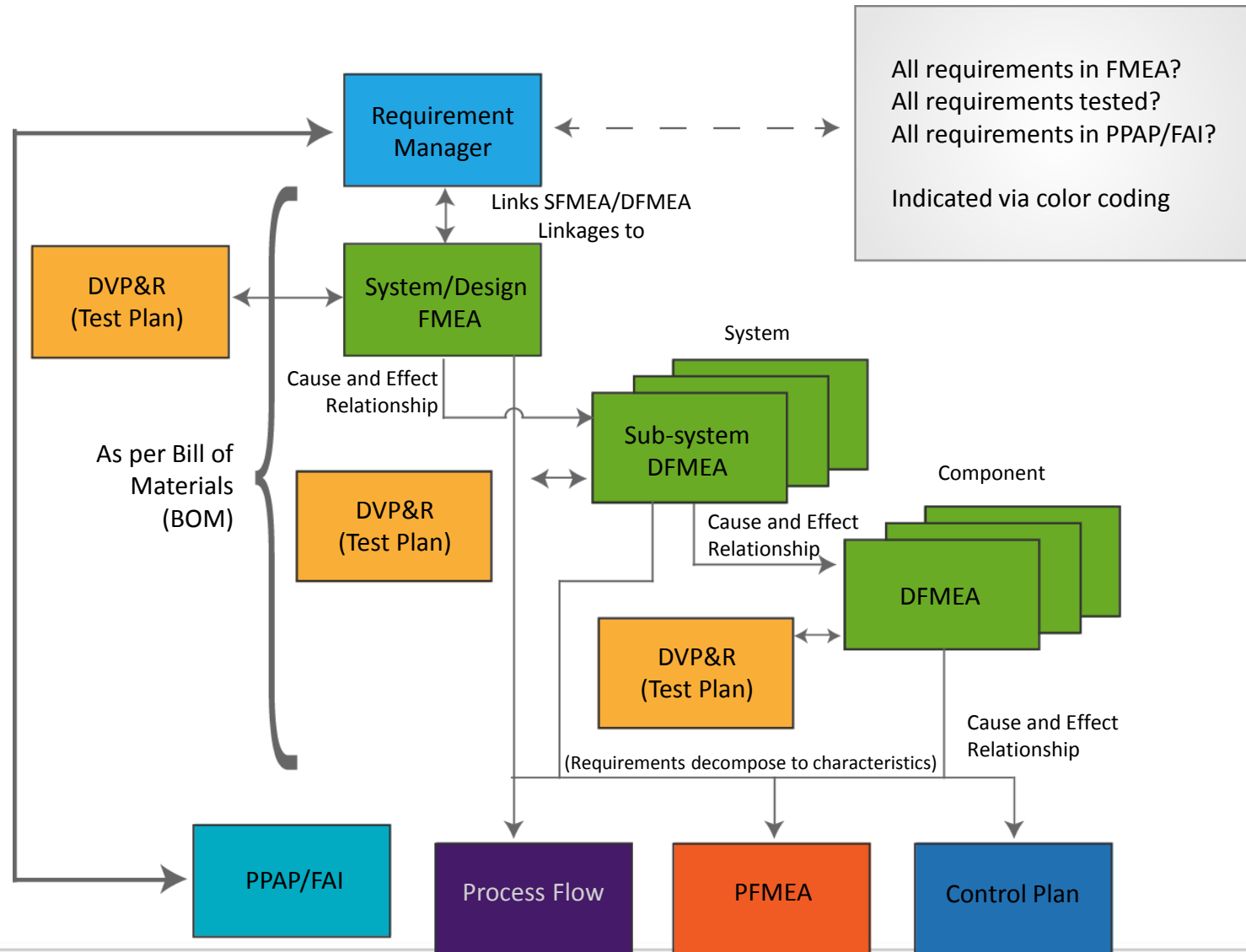


## Centralized Database of Characteristics

Owner	Name	Description	Is Product?	Characteristic Type	Characteristics Class	CRITERION	Tolerance Metric	Include in Prompt
RR Seat Assy	TB-01	TBCA Part Number	X			Per Receiving Process		X
RR Seat Assy	TB-02	Packaging Condition	X			Per receiving process		X
RR Seat Assy	TB-03	As Supplier Inspection Criteria	X			Material Certification		X
RR Seat Assy	TB-04	No felt Attached	X			Not allowed		X
RR Seat Assy	TB-05	Not cover frame edge completely	X			Not allowed		X
RR Seat Assy	TB-06	Missing Bolt	X			Not allowed		X
RR Seat Assy	TB-07	No RB frame on Cushion Frame	X			Not allowed		X
RR Seat Assy	TB-08	No A/B on seat	X			Not allowed		X
RR Seat Assy	TB-09	Cross thread tightening	X			Hand Start 2-3 turns		X
RR Seat Assy	TB-10	Wrong A/B	X					X
RR Seat Assy	TB-11	Missing Nut on A/B	X			Controlled Count		X
RR Seat Assy	TB-12	A/B Module Failure	X					X
RR Seat Assy	TB-13	Damaged A/B W/H	X		FH			X
RR Seat Assy	TB-14	Missing nut on belt retractor	X					X
RR Seat Assy	TB-15	Belt retractor failure	X					X
RR Seat Assy	TB-16	Wrong Target Torque	X			6.00+/-1.2Nm		X
RR Seat Assy	TB-17	Out of standard torque	X			6.00+/-1.2Nm		X
RR Seat Assy	TB-18	DC Tool Broken	X		FH	Red Rabbit		X
RR Seat Assy	TB-19	Missing Damper	X					X
RR Seat Assy	TB-20	Wrong parts (60-40)	X					X
RR Seat Assy	TB-21	Missing nut on buckle	X					X
RR Seat Assy	TB-22	Buckle failure	X			Dropped, not allowed		X
RR Seat Assy	TB-23	Buckle harness damage	X					X
RR Seat Assy	TB-24	Wrong target torque(T40)	Y			6.4+/- .20Nm		Y

# Requirements Manager / Flow Down and Risk Analysis

DASHBOARD





## VOC

### Flow down of VOC, Functions & Requirements

Number	Requirements Tree	Failure Tree	Allocate to Element	
VOC-0010	<p><b>Jet Engine</b></p> <p>Prevent Unintended ignition Provide sensor so engine does not ignite accidentally</p>	<p><b>Jet Engine</b></p> <p>Provide propulsion on Demand Provide a maximum of 1200 thrust on demand Combustion without Demand</p> <p>Prevent Unintended ignition Provide sensor so engine does not ignite accidentally Jet engine Failure</p>	<p>Provide a maximum of 1200N of thrust</p> <p>Burner Assembly</p> <p>Fuel Transfer Assembly</p>	
VOC-0020	<p>Provide enough Airflow Air input between 1000 to 1200 in3/sec</p> <p>Provide heat-resistant material Combustion material should withstand 1200 degree Fahrenheit</p>		<p>Fuel Transfer Assembly</p> <p>Minimum tubing Transfer The FTA will transfer the Fuel Fuel does not transfer Quick enough</p> <p>Transfer Fuel combustion chamber The FTA shall transfer the Fuel to the Engine Fuel Transfer external to Chamber</p> <p>Blades Assembly</p> <p>Blade clearance The blade should clear the housing Blade scrapes housing</p> <p>Blade length consistent The Blade should all be the same Blades out of Balance</p>	<p>0 and 1200 in3/sec</p> <p>should withstand it</p> <p>should withstand it</p> <p>should withstand it</p> <p>engine does not ignite</p> <p>engine powers to</p> <p>Air Inlet System</p> <p>Combustion System</p> <p>Turbine System</p> <p>Compression System</p> <p>Engine Sensors System</p> <p>Engine Sensors System</p>
VOC-0030	Prevent			
VOC-0040	Ensure			

# VOC - System

Topic Element : Aircraft Seating System Z535

Active Document : Voice of the Customer

## VOC Flowdown Functions & Requirements (System to Sub-system)

### VOC - Sub System

Topic Element : Food Table

Active Document : Voice of the Customer

Voice of the Customer

Add Delete

## VOC Flowdown Functions & Requirements (Sub-system to Component)

Number	Description	Function	Requirement	Requirement ID	Status
<input type="checkbox"/>	VOC-FT0001				⊕
<input type="checkbox"/>	VOC-FT0002				⊕
<input type="checkbox"/>	VOC-FT0003				⊕
<input type="checkbox"/>	VOC-FT0004				⊕
<input type="checkbox"/>	VOC-FT0005				⊕
<input type="checkbox"/>	VOC-FT0006				⊕
<input type="checkbox"/>	VOC-FT0006	Description of VOC-FT0006	Should be able to assemble very easily.	Requirement of Shall be able to assemble very easily.	▶ ◀ Foam Assy

Voice of the Customer

#### Requirement Flows Down

<input type="checkbox"/>	Element	Food Table
<input type="checkbox"/>	Function	Pull and Push the food table
<input type="checkbox"/>	Requirement	Requirement of Pull and Push the food table.

+ F + R - D

- Cup Holder Assy
- Foam Assy
- Table Latch Assy
  - F To deploy or engage the table.
  - R Should withstand 16 G and work for 35K cycles.

# Requirements Tree / Function Net

Failure Tree

EFC (Effect-Failure-Cause) Tree

- Jet Engine
- Prevent Unintended ignition
- Provide sensor so engine does not accidentally
- Provide enough Airflow
- Air input between 1000 to 12
- Provide heat-resistant material
- Combustion material should not exceed 1200 degree Fahrenheit
- Provide propulsion on Demand
- Provide a maximum of 1200 lbf demand

Topic Element : Aircraft Seating System Z535

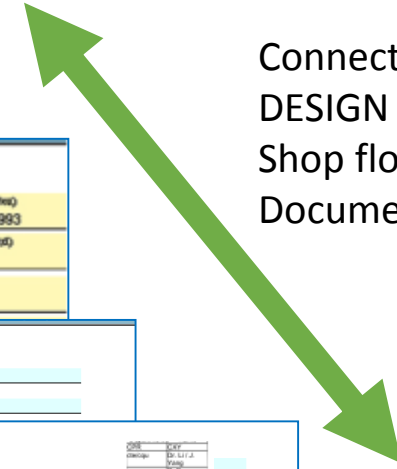
Product: Aircraft Seating System Z535																
Design FMEA																
Function Group	Function	Function Additional	Requirement	Potential Failure Mode	Failure Mode Additional	Potential Effects of Failure: Sev	Sev	Action Det Description	Class	Potential Cause (s)/Mechanism(s) of Failure	Occ	Preventive Design Controls	Detective Design Controls: Det	Det	RPN	Recommended Actions
Functional Requirements From Requirements Flowdown and ISO 26262	Each seat, berth, safety belt, harness and adjacent part of the aeroplane at each station designated as occupiable during taxi, take-off and landing must be designed so that a person making proper use of these facilities will not suffer serious injury in any emergency landing as a result of the inertia forces specified in CS 25.561 and CS 25.562.			The seat cannot qualify the Head Impact Criterion (HIC) Test		Seat is not airworthy:9	9			In consistency in the composite of Seat Back and too much deflection( 6 to 8 inches) of seat back. Not robust enough				10		

# Design to Shop floor automation

## Dynamic Linkage of Documents

The diagram illustrates the dynamic linkage of documents in a manufacturing process. It shows how a central 'Operation' table is linked to various documents, including Design FMEA, DVP&R, Product Integrated Process Flow, and a detailed Control Plan. The Control Plan includes a table for Work Sequences and Work Pictures Explanation, detailing steps like 'Receiving Inspection', 'Storage', 'Cold Form', 'Inspection', 'Transfer b Hi-Lo', 'Spine Punch', and 'CNC Turning Center'.

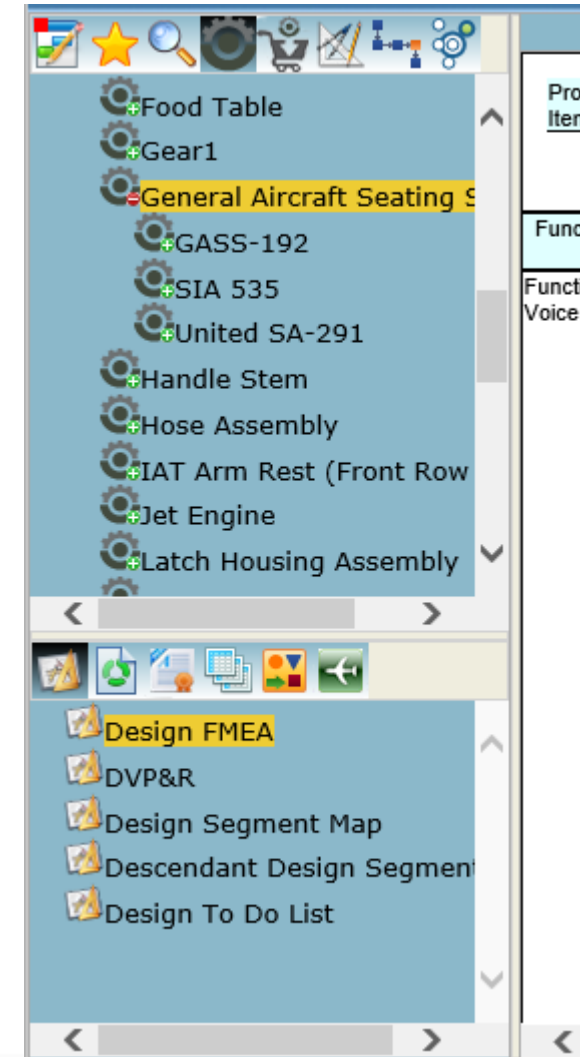
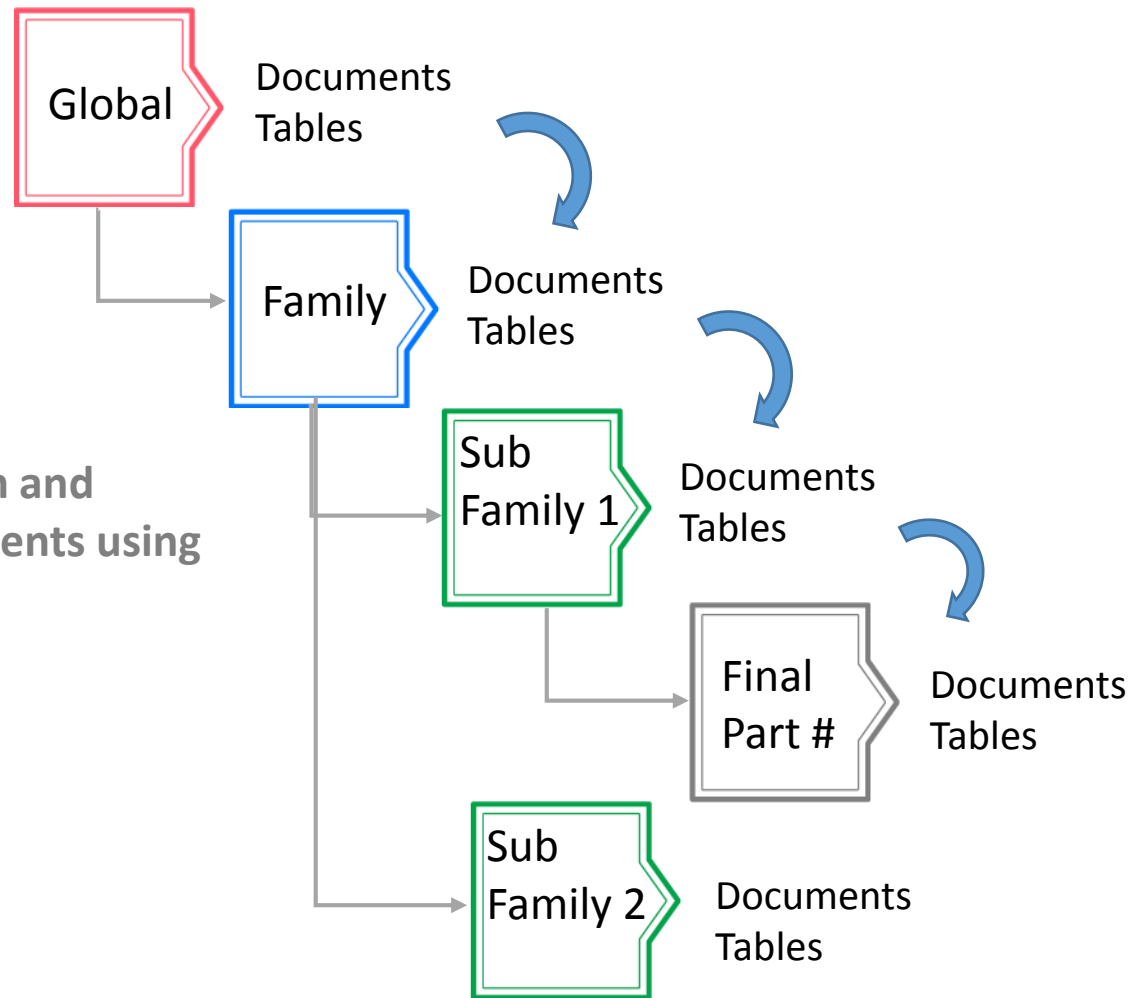
Connects DESIGN to Shop floor Documents





# Process & Design reuse – using Product Families

Creating Design and Process Documents using Inheritance



# Family of Parts - Inheritance

## FAMILY

Production Item RR Seat Assy

PROCESS		Process Flow Symbol
#	Description	
10-5	Receiving Inspection	Decision (diamond)
10-10	Put felt sticker on frame	Operation
10-20	Pre-Tighten 60% RC x RB	Operation
10-30	Pre-tighten A/B bolt LH Only	Operation

## SUB-FAMILY

Production Item RR - Seat Assy 700

PROCESS		Process Flow Symbol
#	Description	
10-5	Receiving Inspection	Decision (diamond)
10-10	Put felt sticker on frame - Family - 700 Specific Changes	Operation
10-20	Pre-Tighten 60% RC x RB - 700 Specific Changes	Operation
10-30	Pre-tighten A/B bolt LH Only	Operation
10-40	Pre-tighten A/B bolt LH Only	Operation

Override Level Legend -- Webpage Dialog

Production Item RR - Seat Assy 700 Process Flow

Ok

## PART #

Production Item 700-X-100

PROCESS		Process Flow Symbol
#	Description	
10-5	Receiving Inspection	Decision (diamond)
10-10	Put felt sticker on frame - Family - 700 Specific Changes	Operation
10-15	Part 700-X-100 SPECIFIC OPERATION	Operation with Auto Inspection
10-20	Pre-Tighten 60% RC x RB - 700-X-100	Operation
10-30	Pre-tighten A/B bolt LH Only	Operation

Process Flow

Override Level Legend -- Webpage Dialog

Production Item 700-X-100 Process Flow

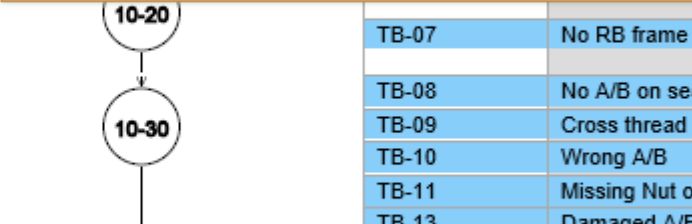
700-X-100

RR - Seat Assy 700

RR Seat Assy

Global

Trusted sites | Protected Mode: Off

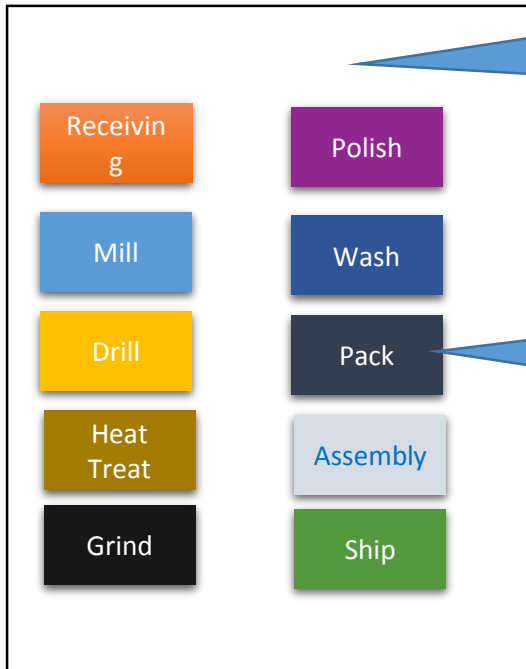


Sub-Family specific Changes

Changes specific to Family, Sub-Family & Part # highlighted

# Design & Process Reuse – using Segments (Libraries)

## PROCESS EXAMPLE



1

Manufacturing Process Libraries

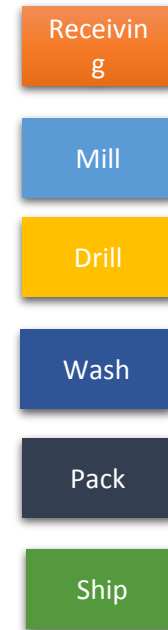
2

For each Process, create PFD, PFMEA, Control Plan

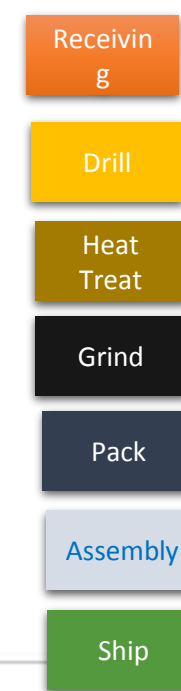
3

Pick the Process you need from the Library

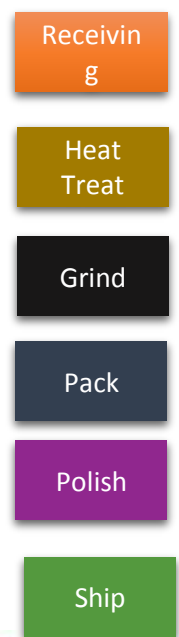
### Product A



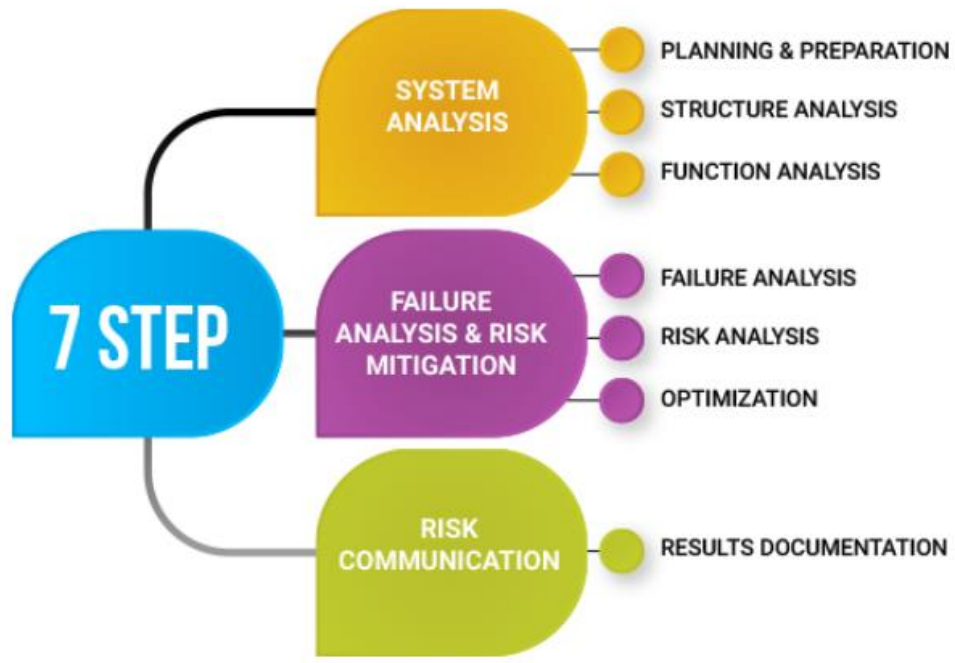
### Product B



### Product C



# AIAG VDA FMEA SOFTWARE



**DESIGN FAILURE AND EFFECTS ANALYSIS (DFMEA)**

Company Name: _____		Subject: _____		DFMEA ID Number: _____		FMEA Task: Use FMEA checklist to review the analysis	
Engineering Location: _____		DFMEA Start Date: _____		Design Responsibility: _____			
Customer Name: _____		DFMEA Revision Date: 2/7/2019		Security Classification: _____		FMEA Tool: EvrQMS/Aquapro	
Model / Year / Platform: _____		FMEA Due Date: 9/7/2019		FMEA In/Tent: Addresses all elements of Design Failure Modes and Effect Analysis			
FMEA Team: Design Team, Mark Sebastian, Jason Hicks							

STRUCTURE ANALYSIS			FUNCTION ANALYSIS			REQUIREMENT ANALYSIS			FAILURE ANALYSIS			RISK ANALYSIS			Revision Date	Prevention Action	Detection Action	Responsibility	Target Completion Date	Status (Untouched, In Progress, Completed (active), Completed (inactive), Rejected)	Completion Date	Sev (S)	Occ (O)	Det (D)	AP					
1. System (Item)	2. System Element / Interface	3. Component (Item / Interface)	1. Function of System or Intended Output	2. Function of Component or Intended Output	3. Function of Component or Intended Output	1. Requirement of System or Intended Output	2. Requirement of Component Element or Characteristic	3. Requirement of Component Element or Characteristic	1. Failure Effects (FE)	Sev (S) of FE	2. Failure Mode (FM)	3. Failure Cause (FC)	Current Prevention Control (PC) of FC	Occ (O) of FC	Current Detection Control (DC) of FC or FM	Det (D) of FC or FM	AP (Opt.)	Filter Code (Opt.)												
Wheel Chair System	Brake System	Fixed Component: Pressing Lever Assembly, Passenger Lever, Connecting Link, Pressure Plate, Tensile Member	Provides safe controlled transportation for patients	Disengage on demand	Connecting Link: Maintain auto Fixed Component: Less than xx lbs. Fixed Component: Provide attaching member: Pressing Lever Assembly: Maintain frictional force	No excessive force required	Both safety catches (passenger and attendant) must be released	Connecting Link: Maintain auto safety catch Fixed Component: Provide attaching member to frame Pressing Lever Assembly: Maintain frictional force of xx lbs.	Excessive Force required: Unable to stop	10	Not Released	Connecting Link: Does not maintain safety catch	Resistance testing	1	Detective testing: 2 Fault Testing: 1	1			3/11/2019	Testing method validation	Anthony John	4/2/2019	completed-active	4/19/2019	10	2				
			No excessive hazards Prevent unwanted motion		Clearance of engagement bar from wheel > yy mm	No injuries allowed	No rotation of wheel															Validation actions 2	Anthony John	3/25/2019	completed-active	3/25/2019		2		

**POTENTIAL FAILURE MODE AND EFFECTS ANALYSIS (PROCESS FMEA)**

Item: XJ-770		Process Responsibility: _____		FMEA Number: _____	
Model Year(s)/Vehicle(s): _____		Key Date: _____		Prepared By: _____	
Core Team: _____				FMEA Date (Orig): _____ (Rev): _____	

STRUCTURE ANALYSIS			FUNCTION ANALYSIS			FAILURE ANALYSIS			RISK ANALYSIS			Revision Date	Prevention Action	Detection Action	Responsible Person	Target Completion Date	Status (Untouched, In Progress, Completed (active), Completed (inactive), Rejected)	Action Taken with Pointer to Evidence	Completion Date	Sev (S)	Occ (O)	Det (D)	AP										
Op. Seq. No.	2a. Process Step Station No. of Focus Element	2b. Process Station Name of Focus Element	3. Process Work Element	Process Function	1. Function of the Process Element	2a. Function of the Process Step and Prod. Char. - Id	2b. Function of the Process Step and Prod. Char. - Desc	3. Function of the Process Work Element and Proc. Char.	1. Failure Effects (FE)	Sev (S) of FE	2. Failure Mode (FM)	3. Failure Cause (FC)	Current Prevention Control (PC) of FC	Occ (O) of FC	Current Detection Control (DC) of FC or FM	Det (D) of FC or FM	AP (Opt.)	Filter Code (Opt.)															
1	20	Cold Form	Tool	Transform 4140/4130 bar to customer specification of XJ-770	B.001	Body OD	Creating form product to correct specifications	Problem Locating & Clamping in subsequent step 3	3	Diameter Exceeds USL	Build Up on Tooling	Control method 001	4	Detective control method 002: 5	5	M			Action 02	Del 03:3 Action example 2	Anthony John		untouched		10	3							
							Supplier conforming the Material																										
							Supplier																										
			Setup	Perform Setup to proceed to work instructions to 252			Perform Setup to proceed to work instructions to 252			Wrong Material From Supplier	Supplier Certification From Control Chart	2	In Station Var Gaging: 5	5	M			3/2/2019	Include as part of first sample approval	Mark Brown	2/26/2019	in progress	2/29/2019	7	3								
				Transform			Assembly	8	Diameter										Written and first sample approved modification implemented 4	Brad Smith	3/1/2019	in progress	3/1/2019		4								



AIAG VDA Design



Step 1 : Planning and Preparation

ST 's

Block Diagram

P-Diagram

Step 2 : Structure Analysis

Step 3 : Functional Analysis

Functional Analysis

Interface Function Matrix

Interface Matrix

Step 4 : Failure Analysis

Step 5 : Risk Analysis

Step 6 : Optimization

Step 7 : Results Documentation

Design FMEA

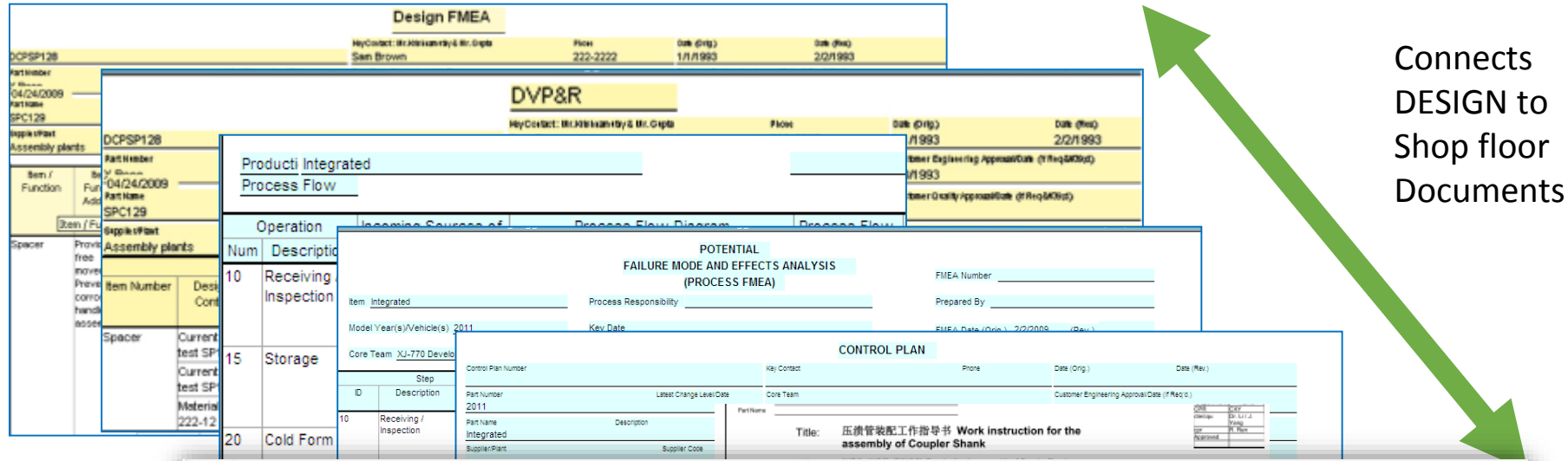


AIAG VDA DFMEA  
7 STEPS

AIAG VDA Process	
📄	Step 1 : ST 's
🔧	Step 2 : Structure Analysis
📊	Step 3 : Functional Analysis
🚫	Step 4 : Failure Analysis
🔥	Step 5 : Risk Analysis
🔧	Step 6 : Optimization
📄	Step 7 : Results Documentation
🔄	Process FMEA

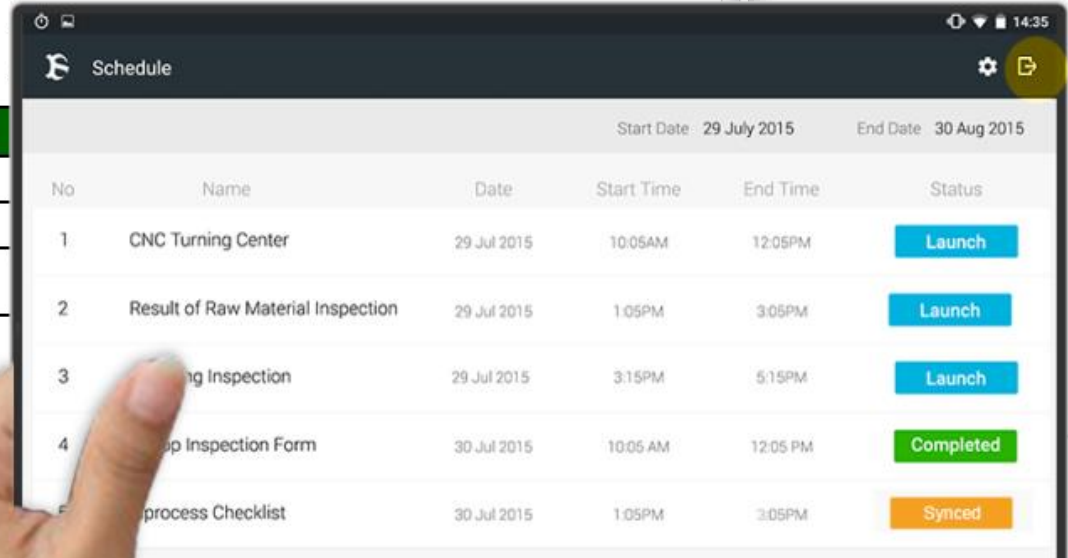


# Design to Inspection Sheet linkage



Connects DESIGN to Shop floor Documents

Inprocess Inspection Worksheet							
Part Number:	241247	Operation Number:	40	Shift:	Default Shift	W.O No:	WO201407005
Part Name:	m560P LW - Report Test	Operation Name:	Grinding	Prepared By:			
Date:	7/24/2014	Department:	Shaft Floor	Acceptance Criteria:			
Characteristics No	Characteristic Description	Characteristics Class	Tolerance/Specification	Low Value	High Value	Gage	
8	Finished surface		40	3	3	P-001	
10	Finished diameter		0.4875	0.002	0.002	23-453BV	
C002	Machine speeds and feeds		1760	100	100	G027	
11	Correct resin loaded	V	ETS RHD Panel Lower Assist is3114m16, Glove Box Inner is ETS-3115m72 and Glove Box Outer is ETS-3116m77 Motan Procedures			G038	
10	Resin Color	⊗	Per Excel Data Notes Color Masters				
18	Sink marks		none Visual				



No	Name	Date	Start Time	End Time	Status
1	CNC Turning Center	29 Jul 2015	10:05AM	12:05PM	Launch
2	Result of Raw Material Inspection	29 Jul 2015	1:05PM	3:05PM	Launch
3	ing Inspection	29 Jul 2015	3:15PM	5:15PM	Launch
4	op Inspection Form	30 Jul 2015	10:05 AM	12:05 PM	Completed
5	process Checklist	30 Jul 2015	1:05PM	3:05PM	Synced





**Concern Details**

Category: **Form Team**

Sub Category: [Redacted]

Show:  All Causes  Active Causes

**Root cause action item linkage**

Viewing: All Root Causes

- +Cooling System
- +Engine
- +Final Products
- +Fuel Transfer Asser
- +Fuel Tubing
- +Handle Stem
- +Hose Assembly
- +Hose Suction Asser
- +Jet Engine
- +JE-100 Series
- +JE-200 Series
- +JE-300 Series

Include Failures from Problem Solver -- Webpage Dialog

http://192.168.100.46/EwlMS\_Demo/common/AQuAPro/DlgSelToDoFromPS.asp

**Include Failures added as ToDo items by Problem Solver, under Characteristic IP0001/Correct Decision**

The current Production Item is JE-200 Series and the Characteristic branch was created under Production Item Global. Included Failures can be created up to and including Production Item Global. Please select the Production Item under which included Failures will be created.

		Failure	Effect	Cause	Action
<input type="checkbox"/>	Assembling work instruction updated with the photograph of orientation-QU18	Diameter Oversize		Work instruction did not clearly describe the requirement	Assembling work instruction updated with the photograph of orientation
<input type="checkbox"/>	Design and application team should be involved during the initiation of PFMEA and Review-QU18	Diameter Oversize		Customer requirement is not explicit	Design and application team should be involved during the initiation of PFMEA and Review
<input type="checkbox"/>	OPL for orientation provided on assembling work station and same will be interlinked with stage II and final inspection traceability system to display at the beginning of process as a check point-QU18	Diameter Oversize		No checking phase for orientation after assembly	OPL for orientation provided on assembling work station and same will be interlinked with stage II and final inspection traceability system to display at the beginning of process as a check point
<input type="checkbox"/>	Orientation check point will be added in the traceability program at	Diameter Oversize		PFMEA core team does not have a member from design or application	Orientation check point will be added in the traceability program at



Unit: mm

No. of Reference values: 5

Number of Trials: 5

Method of Calibration: MOC

Master Instrument: Mstr 048

Master Parameter to be referred: Master for oal for hand

Calibrated by (Opt.): Select

Contact Person (Opt.): Select

Last Calibration Date (Opt.): 06/25/2018

Date Received (Opt.): 01/24/2019

Calibration Date: 01/24/2019

Frequency: 1 Months

Next Calibration due on: 02/23/2019

Number of Decimal (Opt.):

Temperature:

Humidity:

Import all values from Previous Study

Work Instruction Ref.

Master Work Instruction

Ref.Val/Trial No.	Reference Value	1	2	3	4	5	Average	Bias	Standard Deviation	Upper Confidence Line	Lower Confidence Line
1	2	2.01	2	2.02	1.99	1.98	2	0	0.016	0.045	-0.054
2	4	4.01	4.01	4.01	4.02	4	4.01	0.01	0.007	0.029	-0.041
3	6	6.01	5.9	5.9	5.9	6.01	5.944	-0.056	0.06	0.021	-0.037
4	8	8	8.1	8.2	7.9	7.9	8.02	0.02	0.13	0.025	-0.045
5	10	10.01	10.02	10	10	9.9	9.986	-0.014	0.049	0.038	-0.061

**⚠ This analysis is suspect since the repeatability is greater than 10% of the least tolerance. The Repeatability is 16.65%**

User-defined criteria

Confidence Level: 95

Maximum Bias: 0.056

Uncertainty: 2.154

Result: Statistically Acceptable

Least Tolerance: 2.5

Status: Active

Appraiser Remarks:

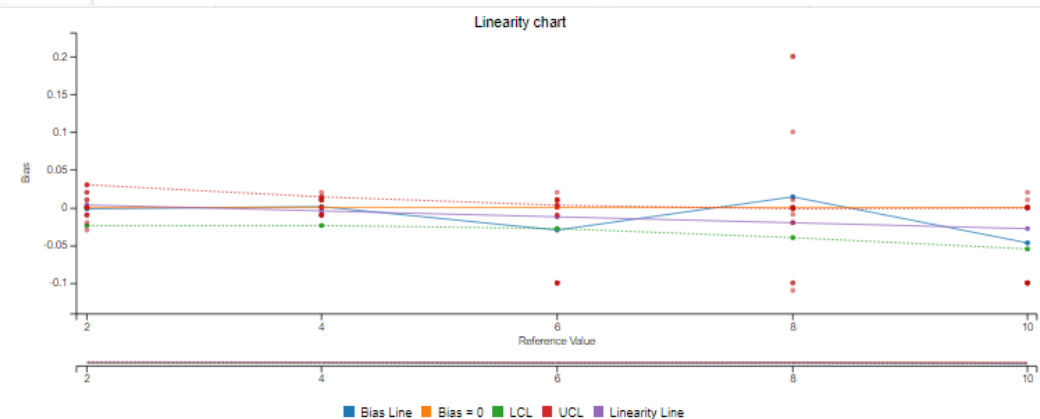
Approver Remarks:

**Acceptance Criteria (Only For Linearity)**

\* For the measurement system linearity to be acceptable, the 'bias = 0' line must be within the confidence bands of the fitted line.

\* t statistic calculated using slope and intercept should be less than T critical.

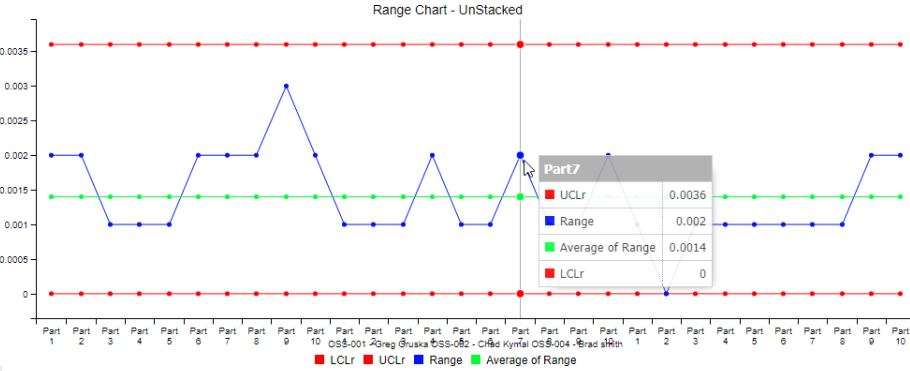
Note: As Per MSA Manual 4th Edition.



# GRR - Variable

Least Tolerance	
Target Tolerance Range(Opt)	
Last Study Date(Opt.)	
Received Date(Opt.)	01/24/2019
Study Date	01/24/2019
Frequency	12 Months
Due Date	01/23/2020
Contact Person (Opt.)	Select
Part Number	X85325
Part Characteristics	MM:893294
Number of Appraisers	2
Appraisers	OSS-005 - Lynda Brown x OSS-006 - Cecilia Gomez x
Number of Parts	3
Number of Trials	3
Number of Decimal(Opt)	
Include with in Part Variation	<input type="radio"/> Yes <input checked="" type="radio"/> No

Person	Trials	Part 1	Part 2	Part 3	Average
OSS-005 - Lynda Brown	Trial 1	1.132	1.2	1.3	1.2107
	Trial 2	1.4	1.5	1.6	1.5
	Trial 3	1.42	1.43	1.46	1.4367
	Average	1.3173	1.3767	1.4533	1.3824
OSS-006 - Cecilia Gomez	Trial 1	1.55	1.58	1.98	1.7033
	Trial 2	1.65	1.75	1.20	1.5333
	Trial 3	1.75	1.8	1.958	1.836
	Average	1.65	1.71	1.7127	1.6909
Range	0.288	0.3	0.3	0.296	
Part Average	1.4837	1.5433	1.583	1.5367	



Target Cp 1.33

Intermediate Results						
Rp	0.0993	X Double Bar	1.5367	R Double Bar	0.348	
UCLr	0.8961	LCLr	0	UCLx	1.8927	
<input checked="" type="radio"/> Average and Range <input type="radio"/> Show Crossed GRR Analysis <input type="radio"/> Show Nested GRR Analysis						
Average and Range Display Fields						
<input checked="" type="checkbox"/> % w.r.t Total Variation <input checked="" type="checkbox"/> % Using Variances <input checked="" type="checkbox"/> % w.r.t Least Tolerance <input checked="" type="checkbox"/> % w.r.t Target Cp = 1.33						
Average and Range	Value	% w.r.t Total Variation	% Using Variances	% w.r.t Least Tolerance	% w.r.t Target Cp = 1.33	
Equipment Variation EV	0.201	68.48	46.9	0	0	
Appraiser Variation AV	0.2075	70.69	49.97	0	0	
GRR RR	0.2889	98.42	96.87	0	0	
Part Variation PV	0.052	17.7	3.13	0	0	
Total Variation TV	0.2936	100	100	0	0	
Index 5D		0.2936	0.0009	0	0	
No. of Distinct Data Categories	0				Status	Active
GRR Result	Comments: Every effort should be made to improve the measurement system. This condition may be addressed by the use of an appropriate measurement strategy; for example, using the average result of several readings of the same part characteristic in order to reduce final measurement variation.					
Remarks(Opt)						
Graphical Analysis	Analysis of Results - Graphical				Show Chart	

# Gage RR -Attribute

Least Tolerance	1.6 mm
Target Tolerance Range(Opt)	
Part Number	X85325
Part Characteristics	Thickness
Last Study Date(Opt.)	08/09/2018
Received Date(Opt.)	08/17/2018
Study Date	08/17/2018
Frequency	5 Months
Due Date	01/16/2019
Contact Person (Opt.)	Greg Gruska_OSS-001
Number of Appraisers	3
Appraisers	OSS-003 - Williams Karen OSS-006 - Cecilia Gomez QA-295 - Amanda Caroline
Number of Parts	10
Number of Trials	3
Number of Decimal(Opt)	4

Part	Status	Defect Type	OSS-003 - Williams Karen			OSS-006 - Cecilia Gomez			QA-295 - Amanda Caroline		
			Trial1	Trial2	Trial3	Trial1	Trial2	Trial3	Trial1	Trial2	Trial3
1	Ok	Low	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok
2	Ok	high	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok
3	Not Ok	medium	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok
4	Not Ok	Low	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok
5	Not Ok	high	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok
6	Ok	medium	Ok	Ok	Not Ok	Ok	Ok	Not Ok	Ok	Not Ok	Not Ok
7	Ok	Low	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Not Ok	Ok
8	Ok	high	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok
9	Not Ok	medium	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok
10	Ok	Low	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok

Person Name	Cumulative Effectiveness		Miss Rate		False Alarm Rate		Bias Ratio	Result
	%	Result	%	Result	%	Result	Value	
OSS-003 - Williams Karen	90	Good	0	Good	5.6	Marginally Ok	undefined	Marginally Ok
OSS-006 - Cecilia Gomez	90	Good	0	Good	5.6	Marginally Ok	undefined	Marginally Ok
QA-295 - Amanda Caroline	80	Marginally Ok	0	Good	16.7	Poor	undefined	Poor

Kappa Result		Value	Result
Kappa		0.8869	Good
Appraiser-Reference Kappa		Value	Result
OSS-003 - Williams Karen		0.9315	Good
OSS-006 - Cecilia Gomez		0.9315	Good
QA-295 - Amanda Caroline		0.8	Substantial

Remarks(Opt)





Search

Documents

DWG

ECD

CEA

DFMEA

PFD

PFMEA

CP

Setting

Attachments

1. Design Record

Output Document 24262279\_REV011\_BP1.jpg

Remarks

Submitted By Chad Kymal

Submitted On 05/16/2019

2. Engineering Change Documents

Output Document

Remarks Not Applicable

Submitted By Chad Kymal

Submitted On 05/16/2019

3. Customer Engineering Approval

Output Document

Remarks Not Applicable

Submitted By Chad Kymal

Submitted On 05/16/2019

4. Design FMEA

Output Document

Remarks Not Applicable

Submitted By Chad Kymal

Submitted On 05/16/2019

5. Process Flow Diagram

Output Document 24262221\_REV009\_PFD.xlsx

Remarks

Submitted By Chad Kymal

Submitted On 05/28/2019

6. Process FMEA

Output Document 24262279\_REV011\_PFMEA.xlsx

Remarks

Submitted By Chad Kymal

Submitted On 05/16/2019

7. Control Plan

Output Document 24262279\_REV011\_CP.xlsx

Remarks

Submitted By Chad Kymal

Submitted On 05/28/2019

8. Measurement System Analysis Studies

Output Document 8\_24262221\_REV009\_MSA.xlsx

Remarks

Submitted By Chad Kymal

Submitted On 05/16/2019

9. Dimensional Results

Output Document 24262279\_REV011\_Dimensional Test

Remarks

Submitted By Chad Kymal

Submitted On 05/16/2019

10. IMDS

Output Document 10\_24262279\_REV011\_IMDS.pdf

Remarks

Submitted By Chad Kymal

Submitted On 05/16/2019

11. Material, Performance Test Results

Output Document 11\_2MAT\_PER\_TEST\_RESULTS.xlsx

Remarks

Submitted By Chad Kymal

Submitted On 05/16/2019

12. Initial Process Studies

Output Document 24262279\_R011\_Process Capability :

Remarks

Submitted By Chad Kymal

Submitted On 05/16/2019

13. Qualified Laboratory Documentation

Output Document 13\_Lab.pdf

Remarks

Submitted By Chad Kymal

Submitted On 05/16/2019

14. Appearance Approval Report

Output Document 14\_24262279\_REV011\_Appearance /

Remarks

Submitted By Chad Kymal

Submitted On 05/16/2019

15. Sample Product

Remarks

Submitted By Chad Kymal

Submitted On 05/16/2019

Search

Documents -

DWG

ECD

CEA

DFMEA

PFD

PFMEA

CP

Setting +

Attachments

1. Design Record

Output Document	24262279_REV011_BP1.jpg		
Remarks			
Submitted By	Chad Kymal		
Submitted On	05/16/2019		

2. Engineering Change Documents

Output Document			
Remarks	Not Applicable		
Submitted By	Chad Kymal		
Submitted On	05/16/2019		

3. Customer Engineering Approval

Output Document			
Remarks	Not Applicable		
Submitted By	Chad Kymal		
Submitted On	05/16/2019		

4. Design FMEA

Output Document			
Remarks	Not Applicable		
Submitted By	Chad Kymal		
Submitted On	05/16/2019		

5. Process Flow Diagram

Output Document	24262221_REV009_PFD.xlsx		
Remarks			
Submitted By	Chad Kymal		
Submitted On	05/28/2019		

6. Process FMEA

Output Document	24262279_REV011_PFMEA.xlsx		
Remarks			
Submitted By	Chad Kymal		
Submitted On	05/16/2019		



Stitch & Export

Digital PPAP Review





- Search
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- Setting -
- Document Source Configuration
- Stitch & Export

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 Stitch
 Delete
 Refresh

Selected Documents Size **27.091MB**

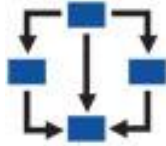
Documents Selected **6**

<input type="checkbox"/>	Document Name	Document #	Revision	Revision Date	File Type	Level	Site	Order
<input checked="" type="checkbox"/>	Ballooned Dwg.	PPAP-5.1	1	09/06/2019	PDF	PPAP Doc	Corporate	
<input checked="" type="checkbox"/>	Dimension Results	PPAP-10	1	09/06/2019	HTML	PPAP Doc	Corporate	
<input checked="" type="checkbox"/>	Design Record	PPAP-5.1	1	09/06/2019	HTML	PPAP Doc	Corporate	
<input type="checkbox"/>	Summary Inspection Result	PPAP-5.1	1	09/06/2019	HTML	PPAP Doc	Corporate	
<input checked="" type="checkbox"/>	Process Flow	PPAP-5.1	1	09/06/2019	TXT	PPAP Doc	Corporate	
<input type="checkbox"/>	FMEA	PPAP-5.1	1	09/06/2019	TXT	PPAP Doc	Corporate	
<input checked="" type="checkbox"/>	Weight Loss Test	PPAP-5.1	1	09/06/2019	XLS	PPAP Doc	Corporate	
<input checked="" type="checkbox"/>	Dimension 200 2hr Cav1	PPAP-5.1	1	09/06/2019	XLS	PPAP Doc	Corporate	

# APQP SOLUTION : SUMMARY



Manage Voice of Customer (VOC) Requirements



Build Block Diagrams, P-Diagram, DFMEA and Test Plans



Automate Process Flow, PFMEA and Control Plan, Check sheets & Work Instructions

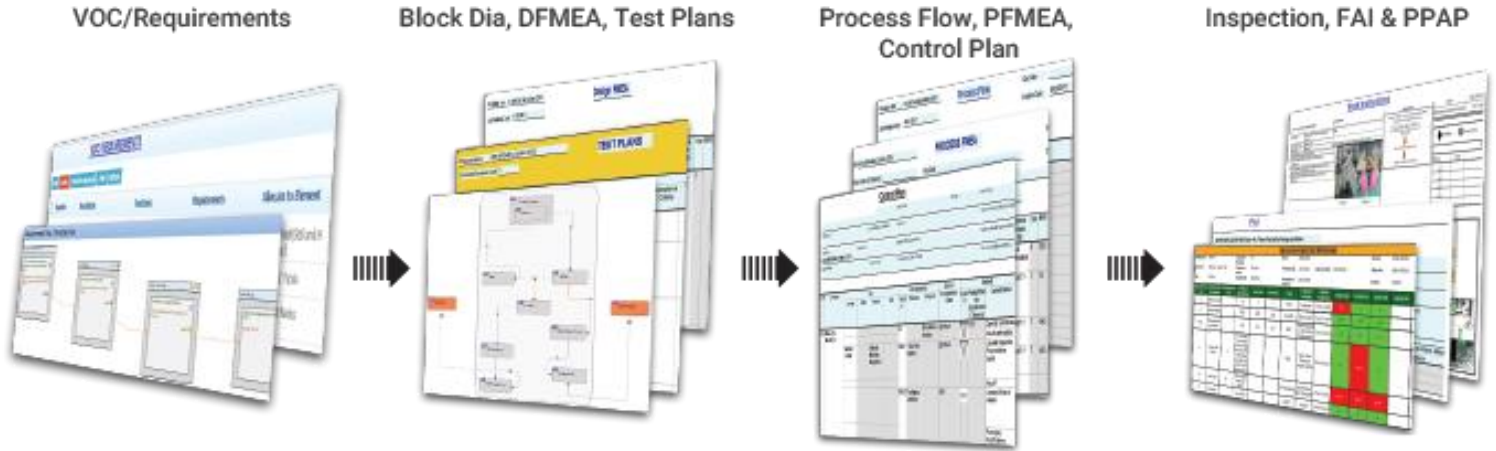


Link to Inspection, First Article and PPAP Documents



Drive effective problem solving, failure analysis and feedback at all stages of development.

Effectively Track Entire Lifecycle VOC to FAI & PPAP



Manage New Product Introduction with a structured approach, concept to problem solving

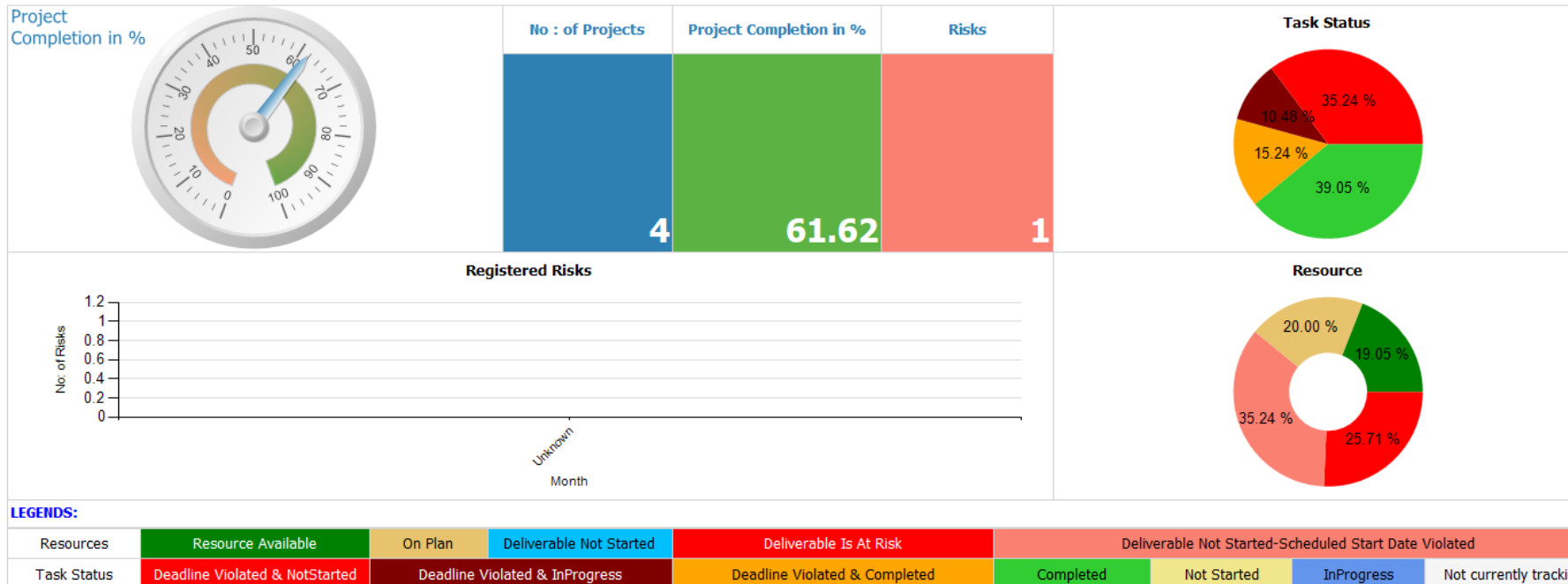




# Reporting- Standard SSRS Reporting

# Overall Project Dashboard

## Project Summary Report from 1/21/2015 to 7/21/2019



Project Name	Days to Target	Percentage Completed	Resource Availability	On Time	Planned Finish Date
<a href="#">Vibrant NXT Q1 2016-17</a>	-837	60.85 %	100 %	●	Oct 6 2016
<a href="#">Proceed Q1 2016-17</a>	-825	62.00 %	100 %	●	Oct 18 2016
<a href="#">Team-up Q2 2016-17</a>	-825	61.73 %	100 %	●	Oct 18 2016
<a href="#">2 Seater SDCB Performer Q2 2016-17</a>	-823	61.92 %	100 %	●	Oct 20 2016

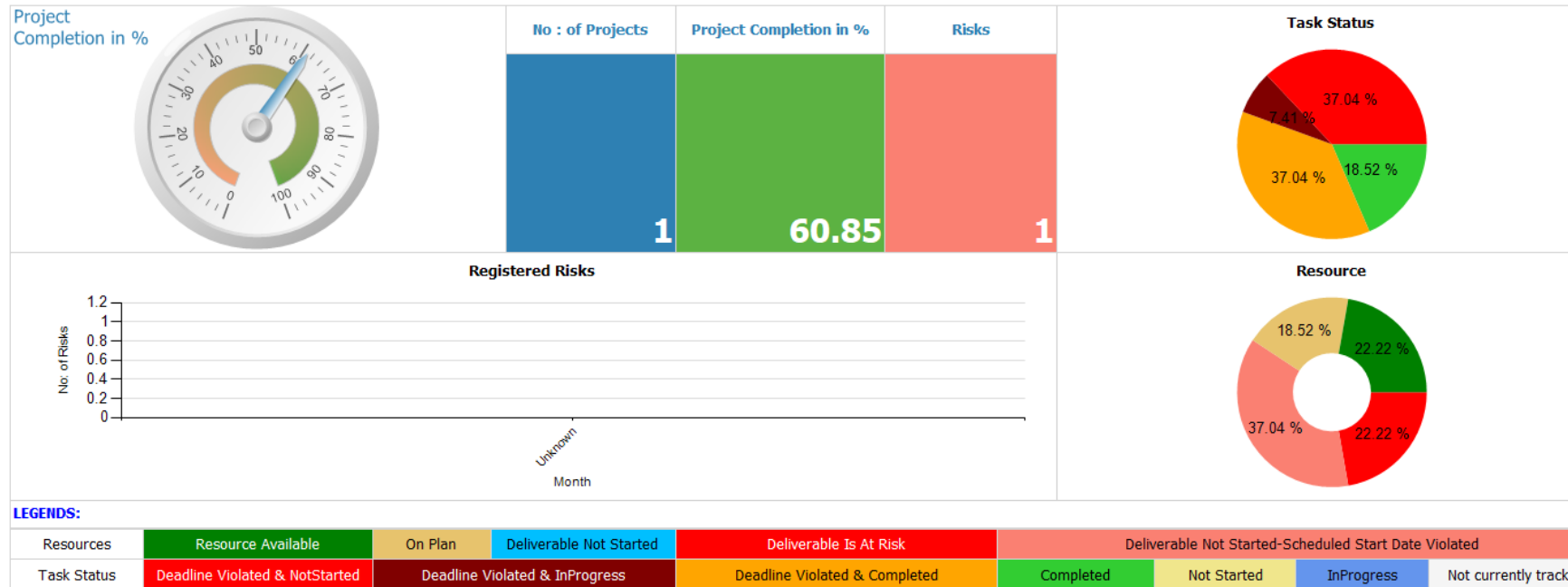
[Click to reset task details...](#)

Clicking the Project name leads to the specific Project dashboard Shown in next Slide



# Individual Project Dashboard

**Project Summary Report** from 1/21/2015 to 7/21/2019

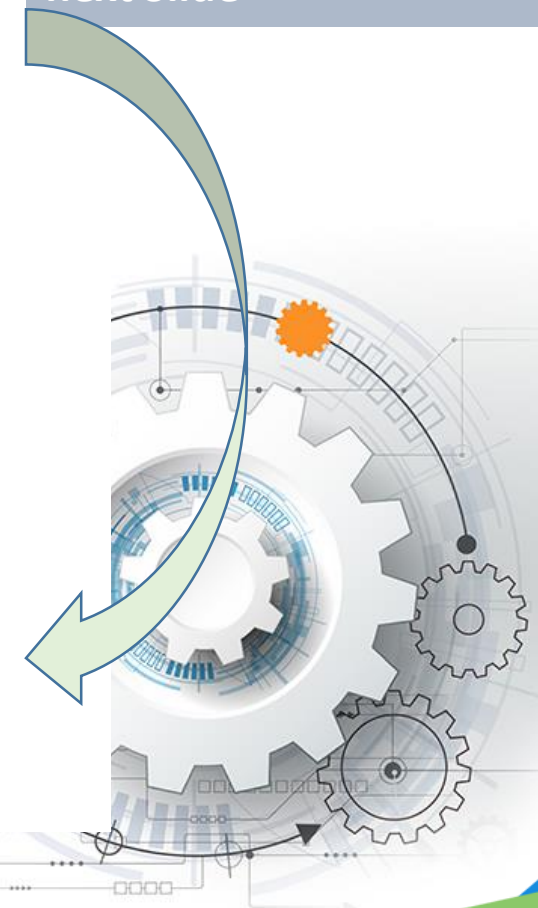


Clicking the Pie Cart leads to the Information on Specific Tasks Shown in the next Slide

Project Name	Days to Target	Percentage Completed	Resource Availability	On Time	Planned Finish Date
<a href="#">Vibrant NXT Q1 2016-17</a>	-837	60.85 %	100 %	<span style="color: green;">●</span> <span style="color: red;">●</span>	Oct 6 2016

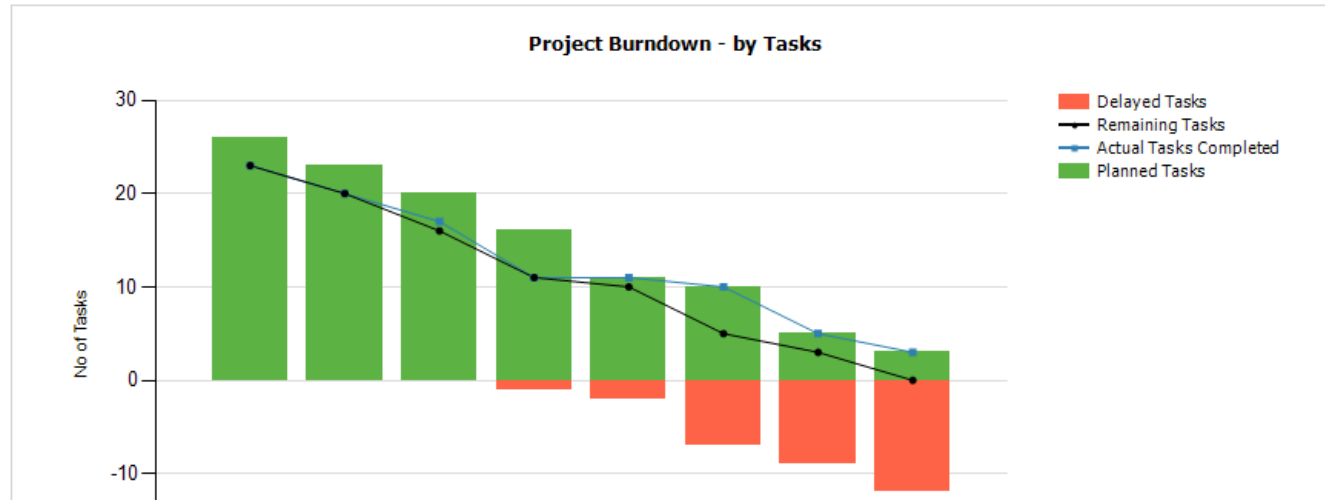
[Click to reset task details...](#)

Project Name	Project Start Date	Project Finish Date	Project Actual Start Date	Project Actual Finish Date	Task	Start Date	Finish Date	Actual Start Date	Actual Finish Date	On Time
Vibrant NXT Q1 2016-17	15 Mar 2016	06 Oct 2016	15 Mar 2016		CFT Formation	15 Mar 2016	15 Mar 2016	15 Mar 2016	15 Mar 2016	0
Vibrant NXT Q1 2016-17	15 Mar 2016	06 Oct 2016	15 Mar 2016		Design Review CFT Sign-off	15 Mar 2016	17 Mar 2016	24 Mar 2016	26 Mar 2016	0
Vibrant NXT Q1 2016-17	15 Mar 2016	06 Oct 2016	15 Mar 2016		Design Refinement	18 Mar 2016	27 Mar 2016	24 Mar 2016	06 Apr 2016	0

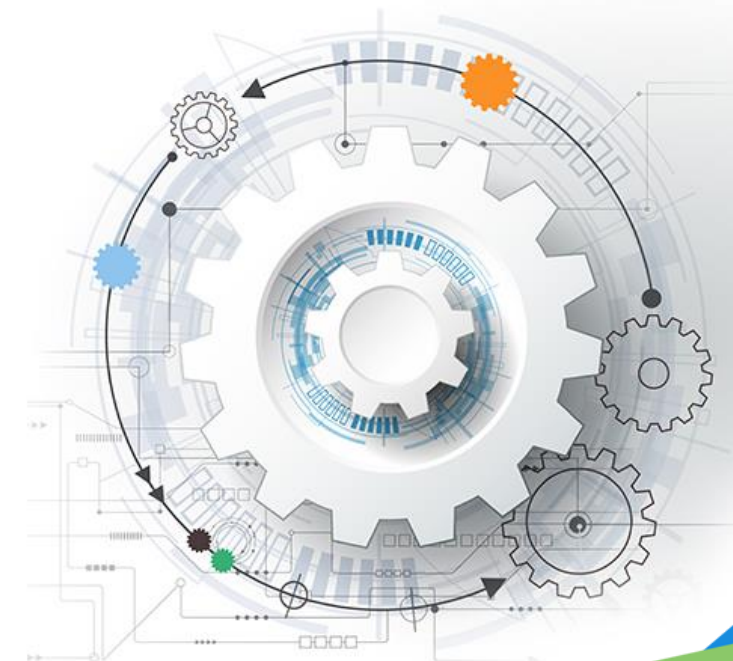


# Project Burn down Reports

## Project Burndown



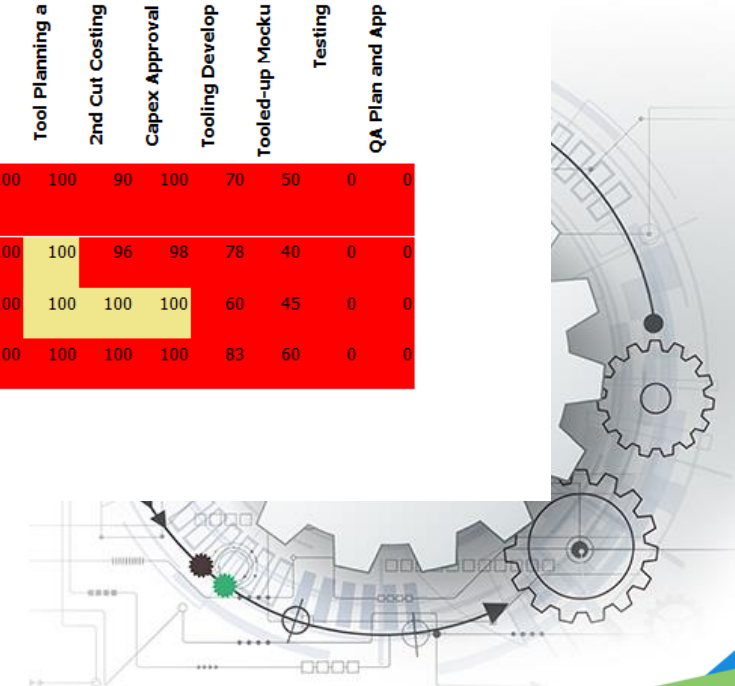
[http://gsenthil/ReportServer\\_MSSQLSERVER2012/Pages/ReportViewer.aspx?/APQPReports/APQP\\_BurndownChart&UserID=8#](http://gsenthil/ReportServer_MSSQLSERVER2012/Pages/ReportViewer.aspx?/APQPReports/APQP_BurndownChart&UserID=8#)



# Project Tracking Matrix

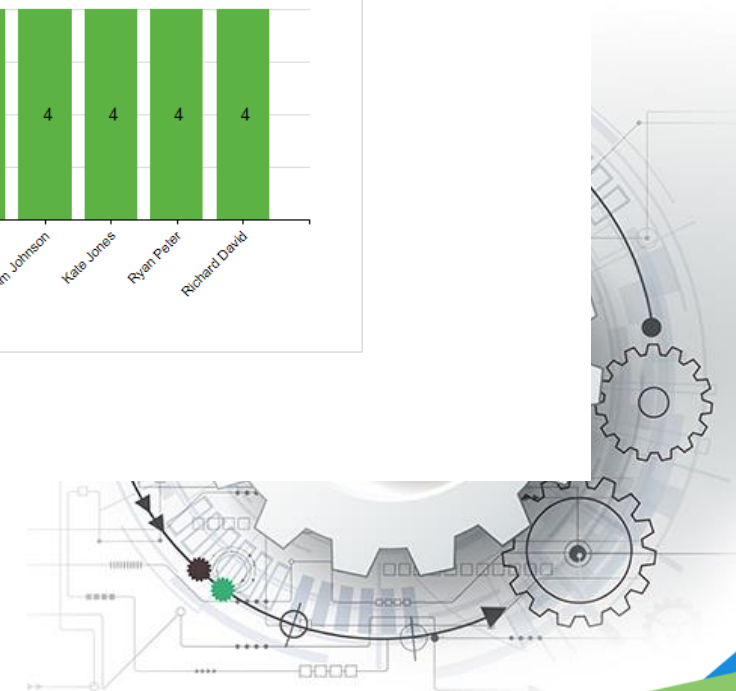
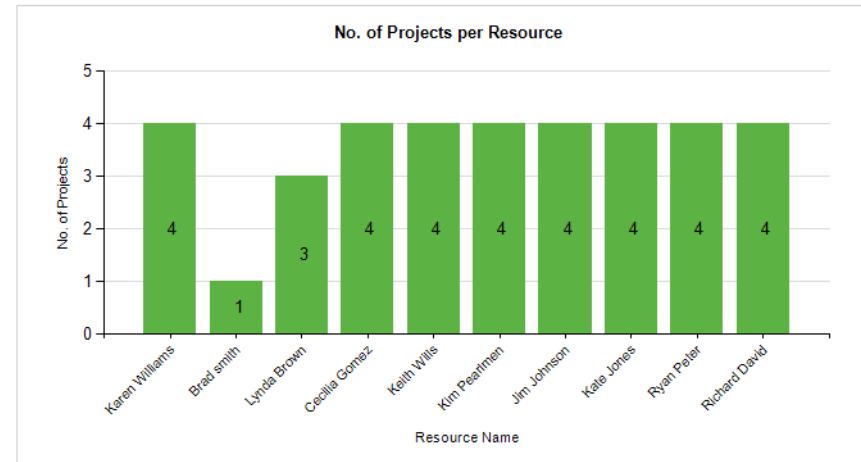
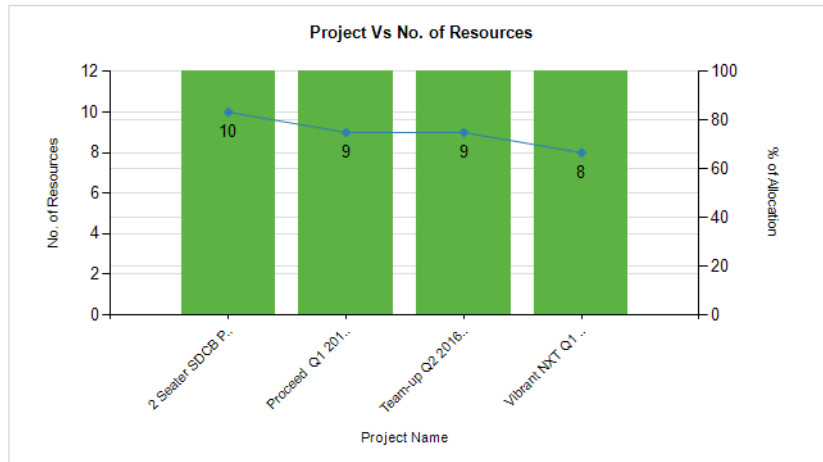
## Project Tracking Matrix

Site Name	Group	Pillar	Project Name	2 Seater SDCB Performer Q2 2016-17	VIBRANT Q1	Proceed Q1	Team-UP Q2	Product Planning				Cocept Prototype				Final Prototype & Release			Vendor and Tooling			Development release for Pilot				
				Seater SDCB P.2	VIBRANT NXT Q1	Proceed Q1	Team-UP Q2	Product Brief	Research and An	Design Brief	CFT Formation	?? Deliverable	Conceptualizati	Design detailin	1st Cut Costing	Design Review C	Prototyping	Design Refineme	Final Prototype	Development Dra	Tool Planning a	2nd Cut Costing	Capex Approval	Tooling Develop	Tooled-up Mocku	Testing
Production	Default	NPI Product Management	<a href="#">2 Seater SDCB Performer Q2 2016-17</a>	58	0	0	0	100	100	100	100	0	100	100	100	100	100	100	100	100	90	100	70	50	0	0
			<a href="#">Proceed Q1 2016-17</a>	0	0	58	0	100	100	100	100	0	100	100	100	100	100	100	100	100	96	98	78	40	0	0
			<a href="#">Team-up Q2 2016-17</a>	0	0	0	57	100	100	100	100	0	100	100	100	100	100	100	100	100	100	100	60	45	0	0
			<a href="#">Vibrant NXT Q1 2016-17</a>	0	60	0	0	100	100	100	100	0	100	100	100	100	100	100	100	100	100	100	83	60	0	0





## Resource Tracking



# Configurable Dashboard View for all Users

Brad smith  
09/09/2016 7:01:12 PM

**Quick Link**

- Actions
- Calendar
- Routes
- More Options

+ New ✎ Activities 🗄 Dashboards

Today Task + Overdue Tasks (17)

**New Risk! (19)**

- ⚠ Engine Program Delta Hawk BMX5.... LOW  
*Schedule*
- ⚠ Engine Program Delta Hawk BMX5.... MEDIUM  
*Deliverable*
- ⚠ Engine Program Delta Hawk BMX5.... HIGH  
*Scope*
- ⚠ PPAP Engine Program Heroic HX5.... HIGH  
*Deliverable*

**My Dashboard**

- Review and Sign-off .... UPPAP 1509679 ....  
*late by 189 days*
- Closure of all inter.... Engine Program ....  
*late by 45 days*
- ASQR signoff PPAP Engine Pro...  
*late by 42 days*
- Monitoring and revie.... Engine Program ....  
*late by 39 days*
- Release Production C.... Engine Program ....  
*late by 2 days*

**Requests Needing Approval (3)**

- Sample Product Templ.... PPAP Engin....  
*waiting since 46 days*
- Part Submission Warr.... PPAP Engin....  
*waiting since 45 days*
- Initial Process Stud.... PPAP Engin....  
*waiting since 44 days*

**APQP Tracking Matrix**

**Project Completion through Phases**

Phase	Percentage
Phase 1: Plan and Define Program	100%
Phase 2: Product Design and Development (Applicable for Product Design)	100%
Phase 3: Process Design and Development	73%
Phase 4: Product and Process Validation	51%
Phase 5: Feedback, Assessment and Corrective Action	36%

**Projects (53)**

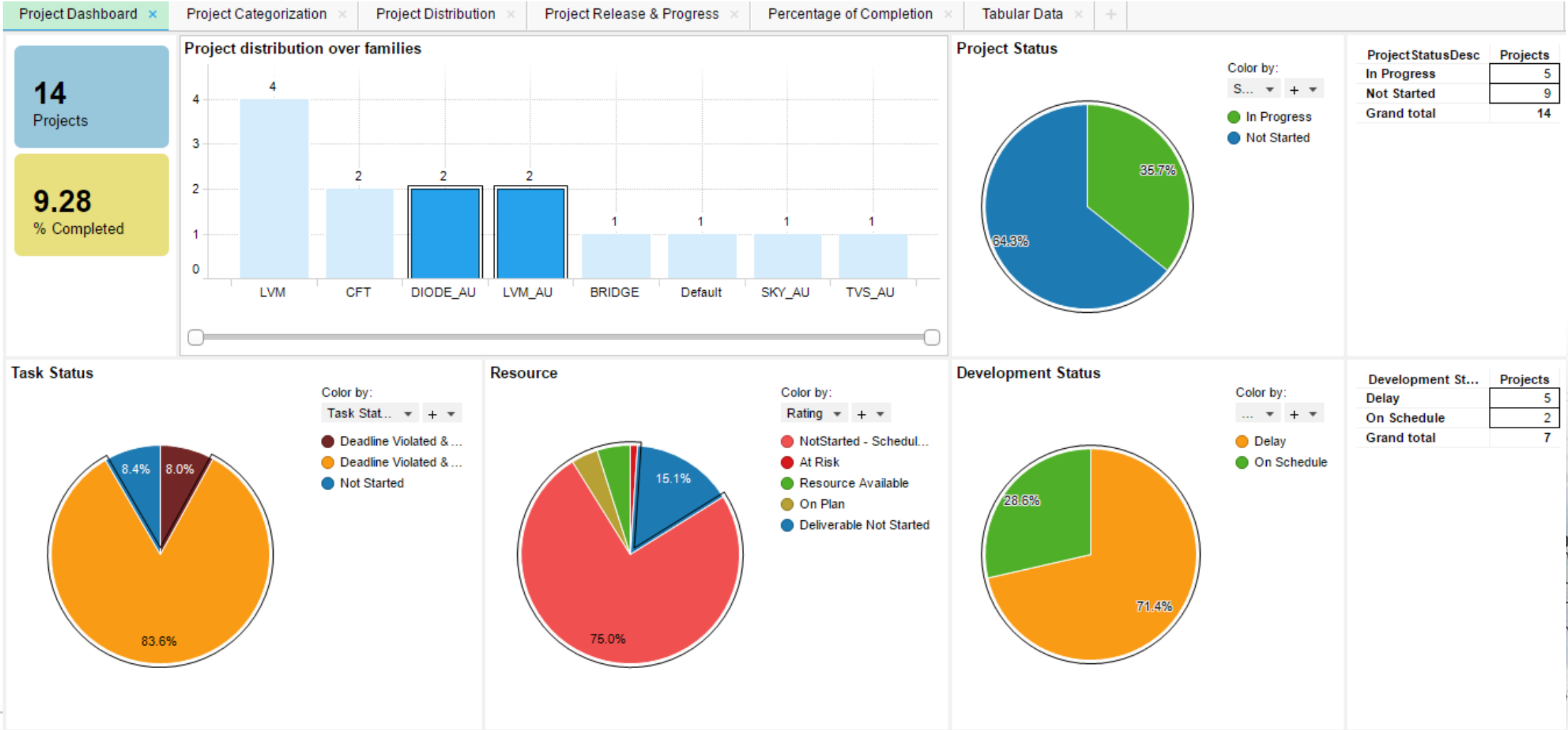
- Engine Program HOSE X6000 Active
- position route test Active
- Inner Bearing and Race-JBBKS27.... Active
- SIDE COVER-JBBKS2700 Active
- BOTTOM PANEL-JBBKS2700 Active
- FRONT GATE OPEN DOOR-JBBKS2700 Active
- MOUNTING SHAFT-JBBKS2700 Active
- REAR GATE CAP RINGS-JBBKS2700 Active

Site Name	Phase Name	Percentage Completed
Mercurv	Phase 1 - Plan and Define Program	

**Upcoming Meetings (0)**

# Advanced Reporting ( Should be opted additionally)

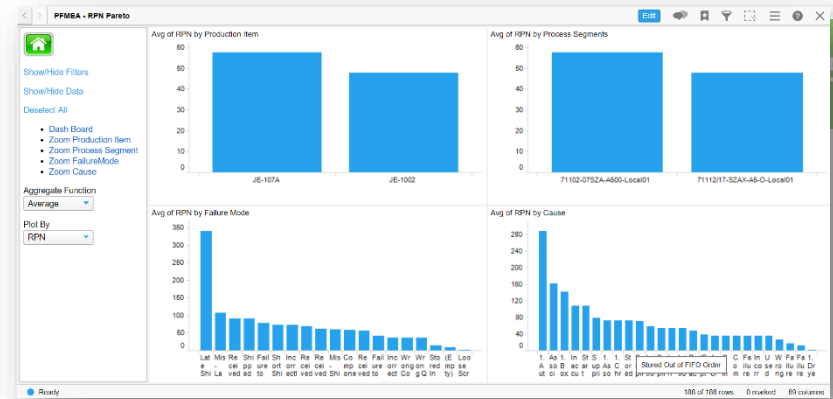
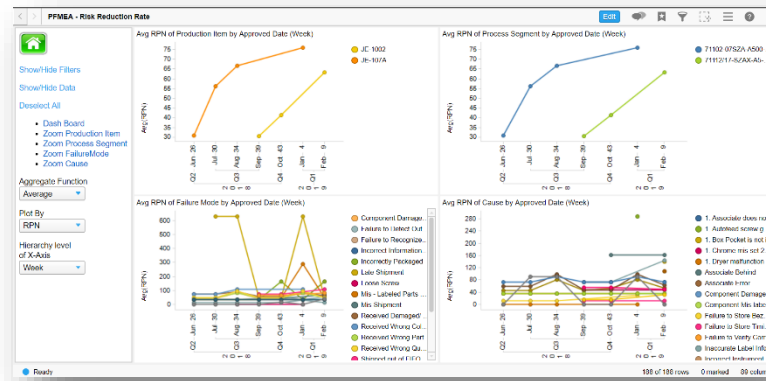
# APQP Dashboard





# FMEA Analysis (Advanced Reports)

- Risk Reduction Rate
- RPN Pareto
- Current vs Original RPN/SOD
- New Failures overtime
- Compliance to Due Dates
- Top Failure Modes.
- SOD Matrix

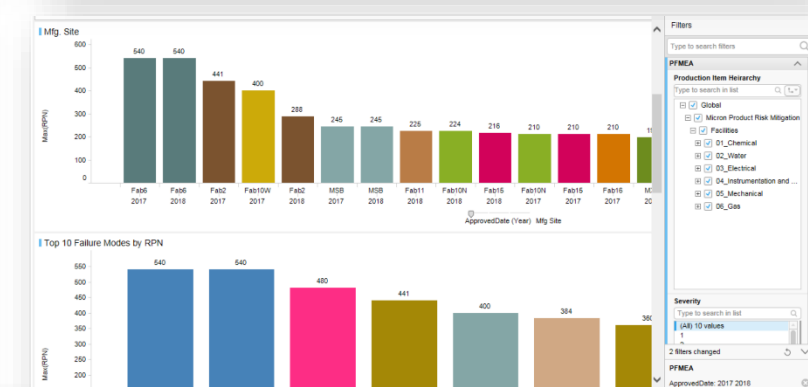
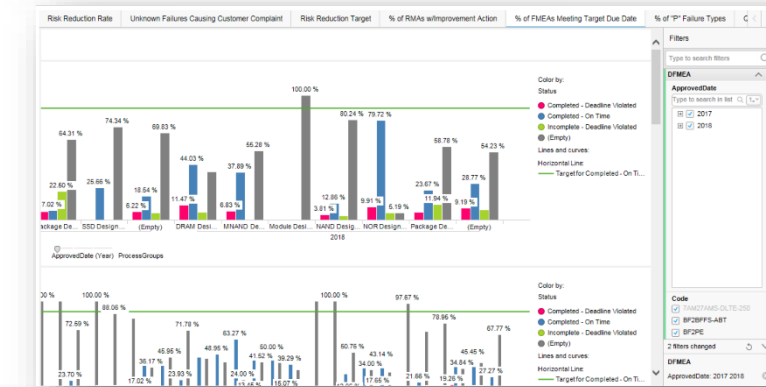


CURRENT				
	SEVERITY 10-9	SEVERITY 8-7	SEVERITY 6	SEVERITY 4
10	0	0	0	2
8	0	0	0	0
6	0	0	0	0
3	11	45	0	0
1	83	24	0	0
	1	3	6	8
	10	6	8	10
	10	0	0	12
8	0	0	0	0
6	2	0	0	0
3	118	90	26	0
1	178	23	46	1
	1	3	6	8
	10	6	8	10
	10	0	0	0
8	0	0	0	0
6	0	24	1	2
3	8	23	44	1
1	7	3	5	0
	1	3	6	8
	10	6	8	10
	10	0	0	0
8	0	0	0	0
6	0	0	0	0
3	0	0	1	0
1	4	0	0	0
	1	3	6	8
	10	6	8	10

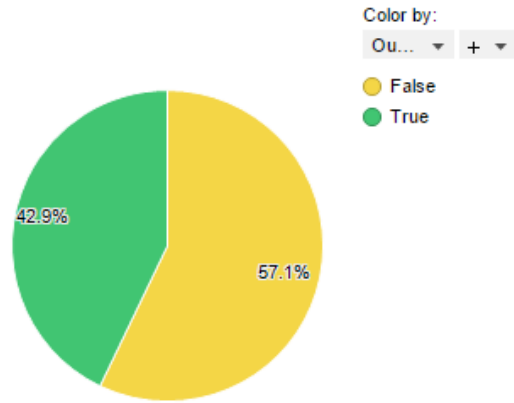
Total of risk		ACTION STATUS For Unacceptable & SPPC	
Acceptable	492	Finished	18
SPPC	172	In Progress	0
Unacceptable	25	To be Done	0
Not Applicable	105	Abandoned	1
		<b>TOTAL</b>	<b>19</b>

**NOTE**  
If Prevention action is not implemented then Occurrence -> 10  
If Detection action is not implemented then Detection -> 10



# Project Categorisation

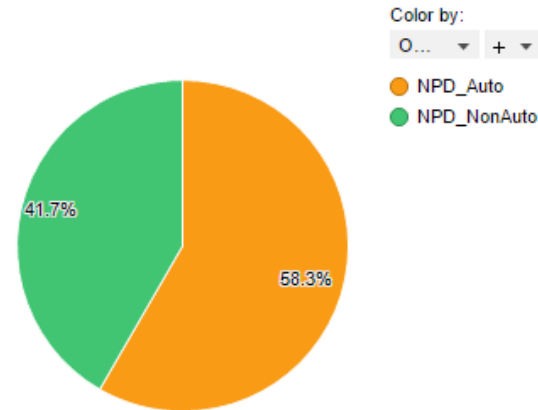
Outsource FG



Outsource FG

Outsource FG	Projects
False	8
True	6
Grand total	14

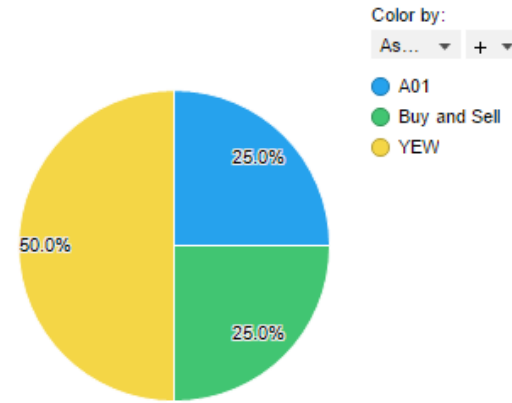
AECQ



AECQ

Pillar	Projects
NPD_Auto	7
NPD_NonAuto	5
Grand total	12

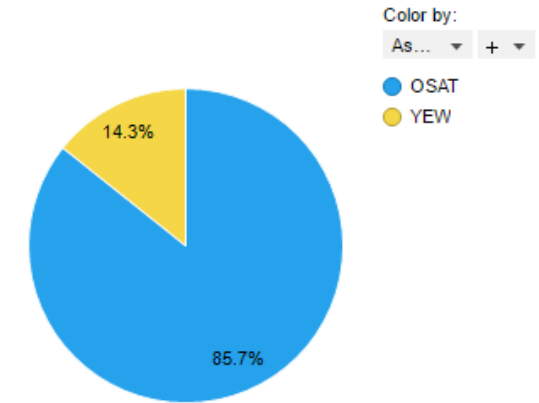
Assembly



Assembly

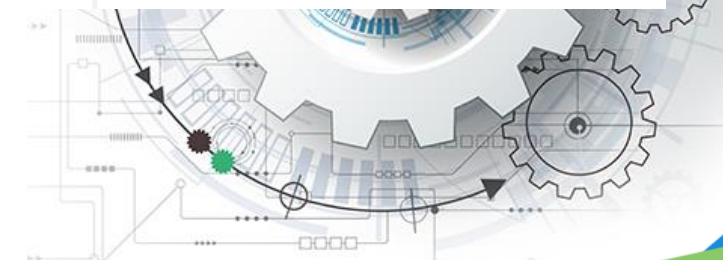
Assembly	Projects
A01	1
Buy and Sell	1
YEW	2
Grand total	4

Foundry



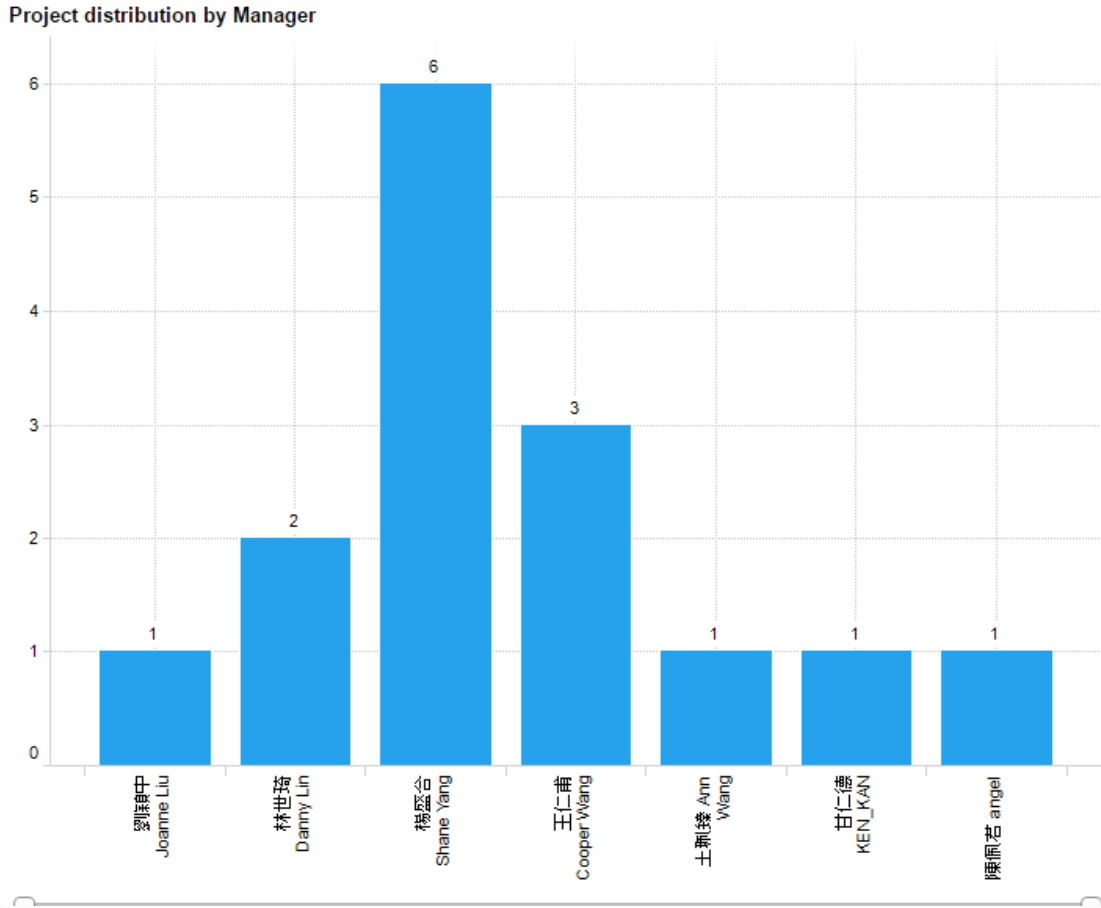
Foundry

Assembly	Projects
OSAT	6
YEW	1
Grand total	7



# Project Distribution

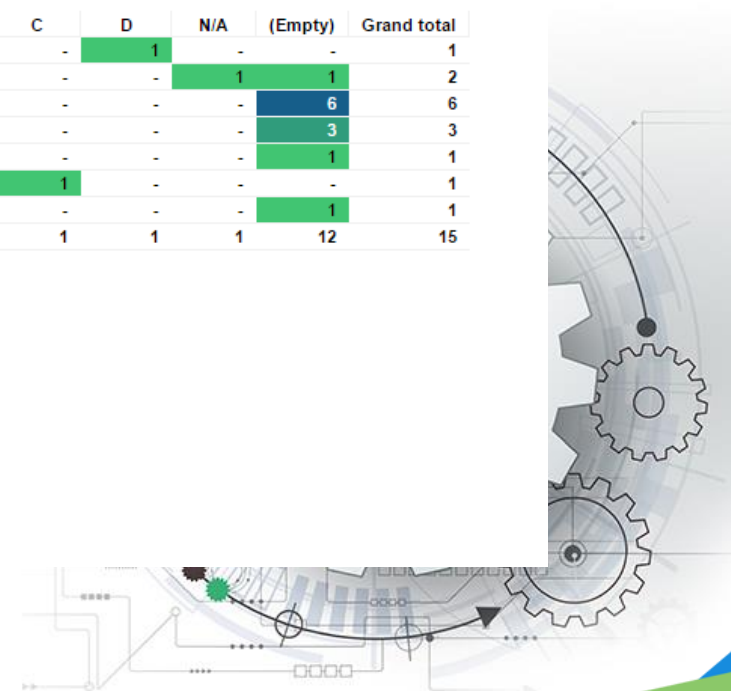
Project Dashboard × Project Categorization × **Project Distribution** × Project Release & Progress × Percentage of Completion × Tabular Data × +



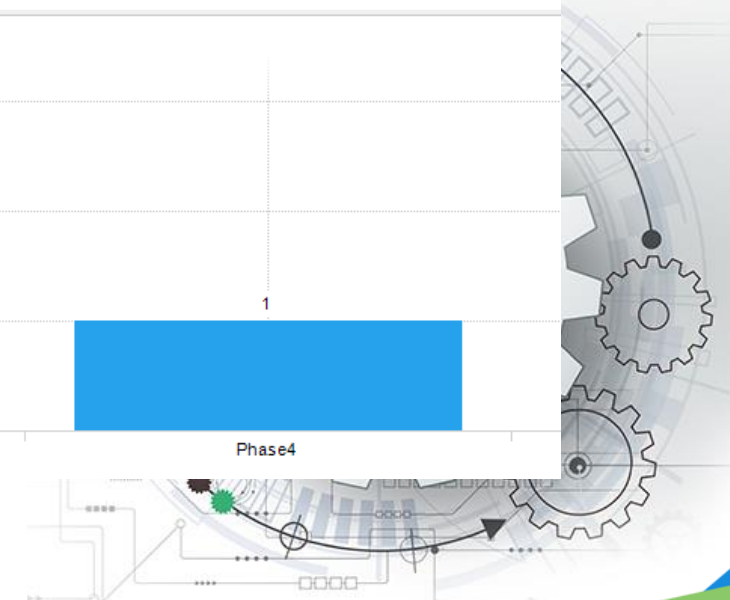
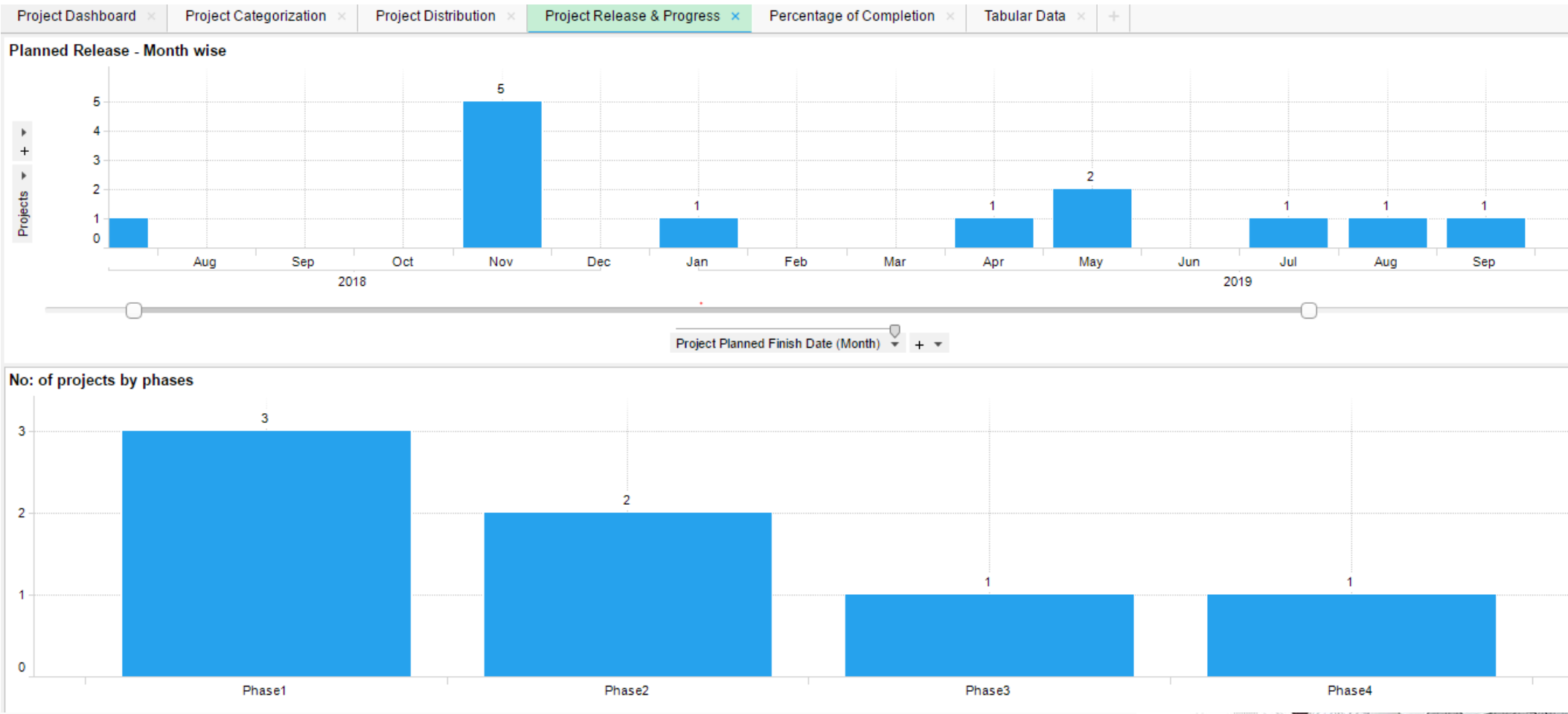
Projects by Manager

FullName	Projects
劉穎中 Joanne Liu	1
林世琦 Danny Lin	2
楊盛合 Shane Yang	6
王仁甫 Cooper Wang	3
王鳳珠 Ann Wang	1
甘仁德 KEN_KAN	1
陳佩君 angel	1
Grand total	15

FullName	C	D	N/A	(Empty)	Grand total
劉穎中 Joanne Liu	-	1	-	-	1
林世琦 Danny Lin	-	-	1	1	2
楊盛合 Shane Yang	-	-	-	6	6
王仁甫 Cooper Wang	-	-	-	3	3
王鳳珠 Ann Wang	-	-	-	1	1
甘仁德 KEN_KAN	1	-	-	-	1
陳佩君 angel	-	-	-	1	1
Grand total	1	1	1	12	15



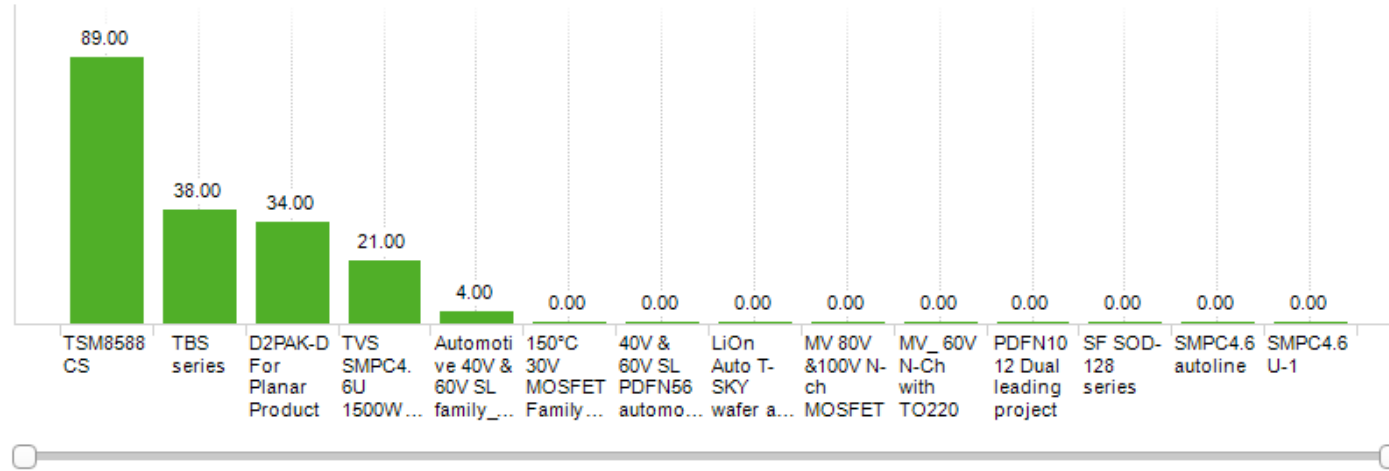
# Project Release



# % Of Completion

Project Dashboard x Project Categorization x Project Distribution x Project Release & Progress x **Percentage of Completion** x Tabular Data x +

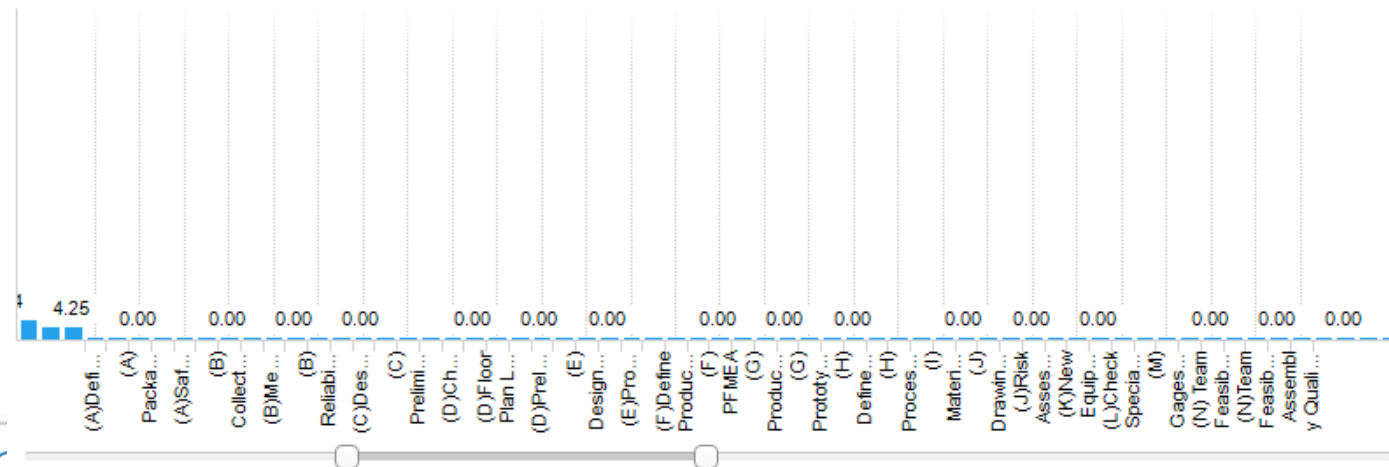
Project Completion in %



Project Completion in %

Project Name	Percentage of Completion
150°C 30V MOSFET Family Project	0.00
40V & 60V SL PDFN56 automotive MOSFET	0.00
Automotive 40V & 60V SL family_GEM	4.00
D2PAK-D For Planar Product	34.00
LiOn Auto T-SKY wafer and YEW	0.00
MV 80V & 100V N-ch MOSFET	0.00
MV_60V N-Ch with TO220	0.00
PDFN1012 Dual leading project	0.00
SF SOD-128 series	0.00
SMPC4.6 autoline	0.00
SMPC4.6U-1	0.00
TBS series	38.00
TSM8588CS	89.00
TVS SMPC4.6U 1500W 1K5SMPCxxPH	21.00

Task Completion in %



Task Completion in %

TaskDesc	Percentage of Completion
(A)Define Design Goals	0.00
(A)DFMEA	0.00
(A)Packaging Standards and Specifications	0.00
(A)Production Production Run	0.00
(A)Safe Launch Plan	0.00
(A)VOC	0.00
(B)Collect Business Plan/Marketing Strategy	0.00
(B)Design For Manufacturability and Assembly	0.00
(B)Measurement Systems Evaluation	0.00
(B)Product/Process Quality System Review	0.00
(B)Reliability and Quality Goals	0.00
(C)Collect Product/Process Benchmark Data	0.00
(C)Design Verification	0.00
(C)Initial process study	0.00
(C)Preliminary BOM	0.00



# \$avings & Benefits

- 70% reduction in time and effort for APQP PPAP Documentation
- 90% reduction in time and effort by the reuse of best-in-class Design & Process documentation
- 50% reduction in managing change Control Process
- Knowledge Management and Best practises sharing across
- 20% savings on Communication management



## \$avings & Benefits...

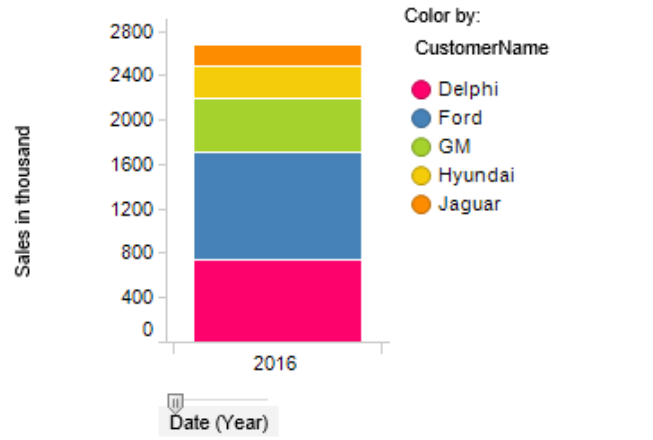
- Software makes processes to be followed in a disciplined fashion.
- Increases Operational Efficiency
- Eliminates Paper Documentation
- Reduces Product Development Lead Time
- Improves Product Quality and Reduces Cost
- Contributes to Continuous Improvement Methodologies
- Easy to Use, Available with Security (rights assignment) anywhere using a browser across the organization



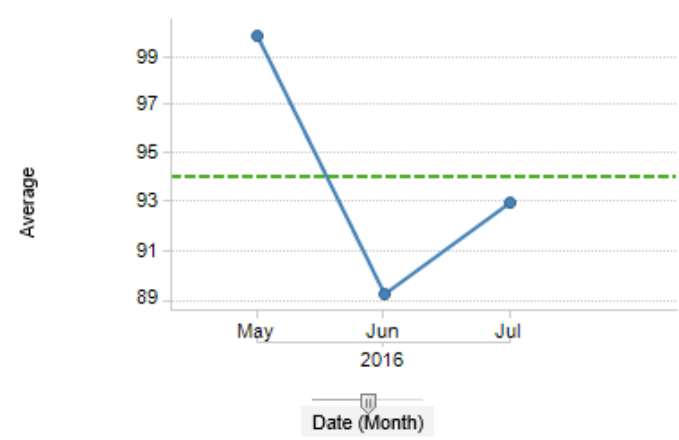
# QMS/QHSE KPI Dashboard for MRM

Management Dashboard | Downtime Bar Chart | Downtime trend | Delivery | Quality | Sales | Co2 emissions | Health & Safety

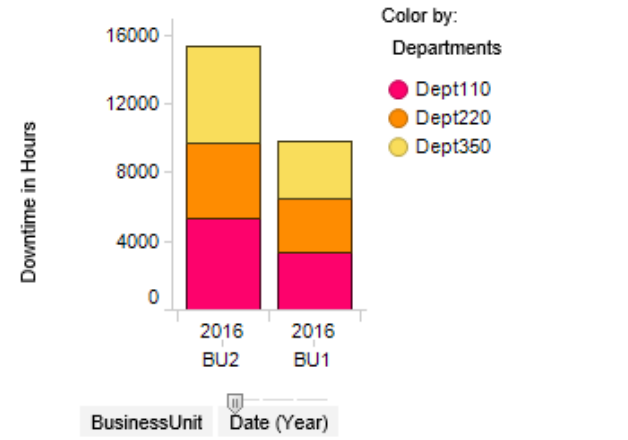
## Sales (Revenue) [More](#)



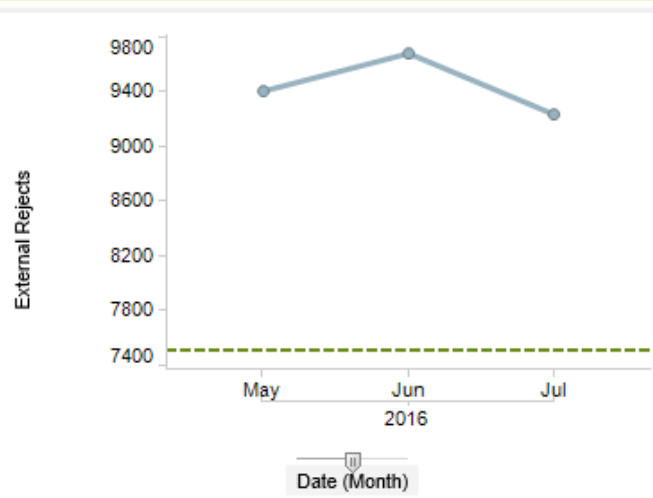
## Delivery (On Time) [More](#)



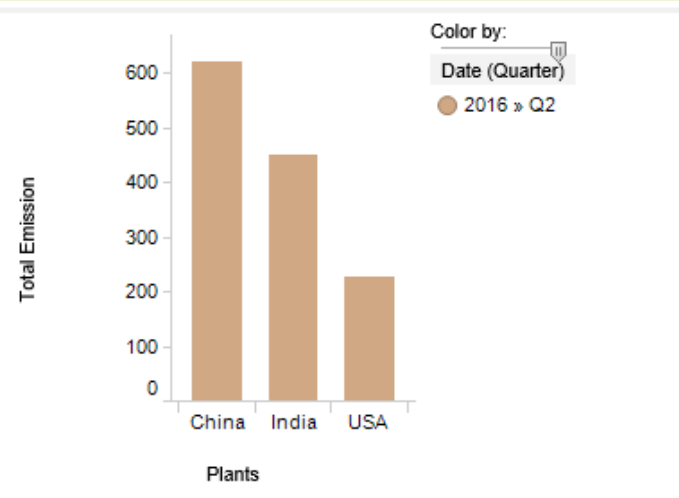
## Delivery (Downtime) [More](#)



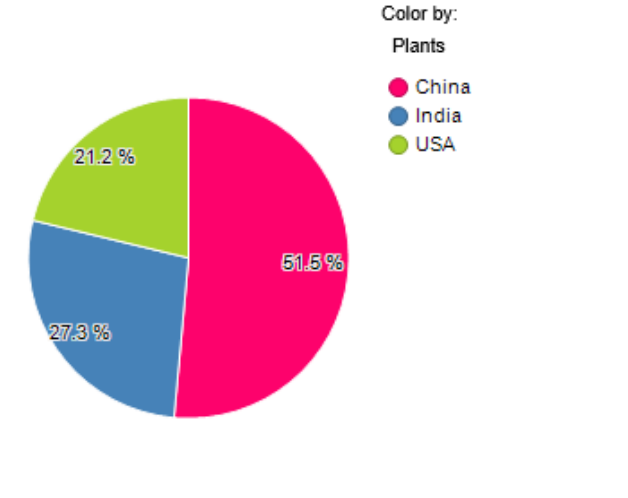
## Quality (Rejects) [More](#)



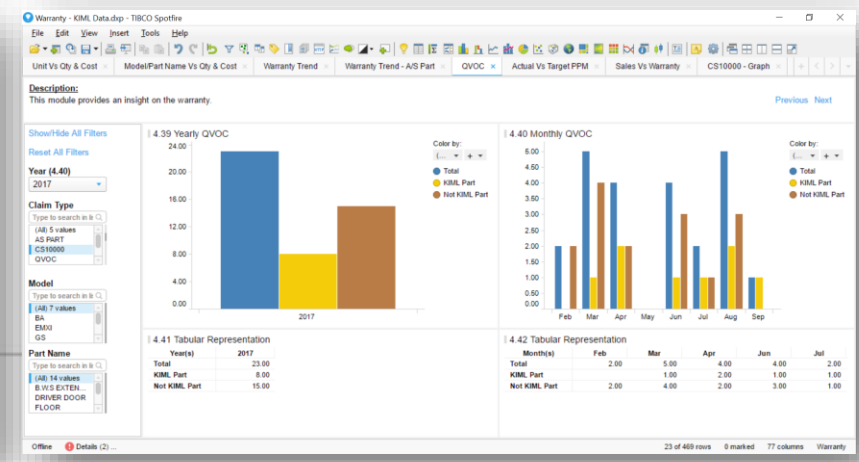
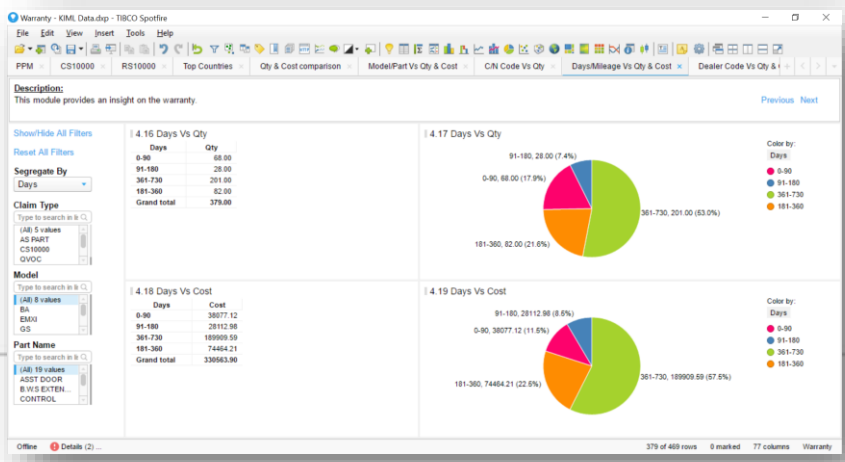
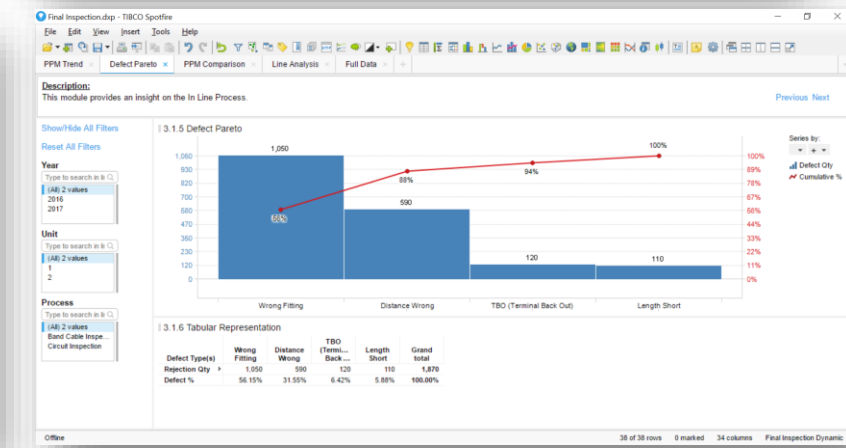
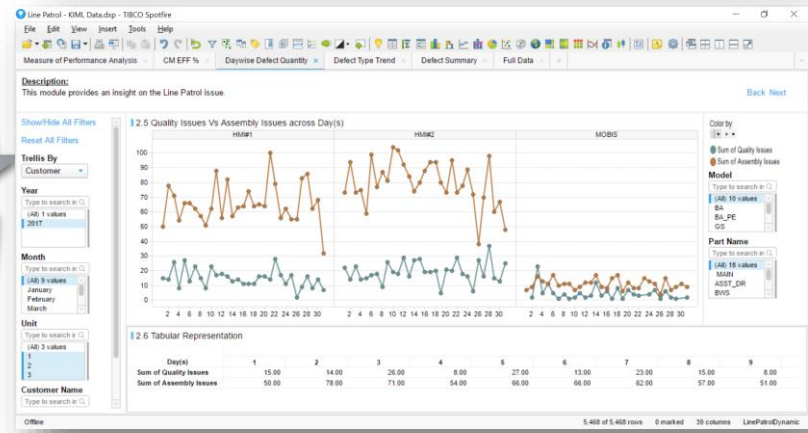
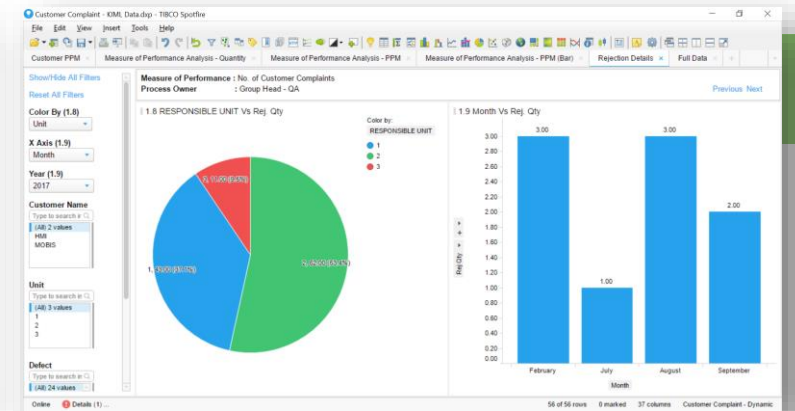
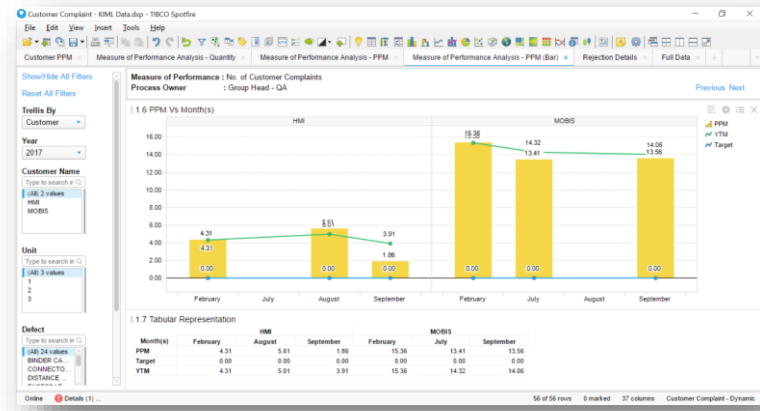
## Environmental (Co2 emissions) [More](#)



## Health & Safety (Accidents) [More](#)

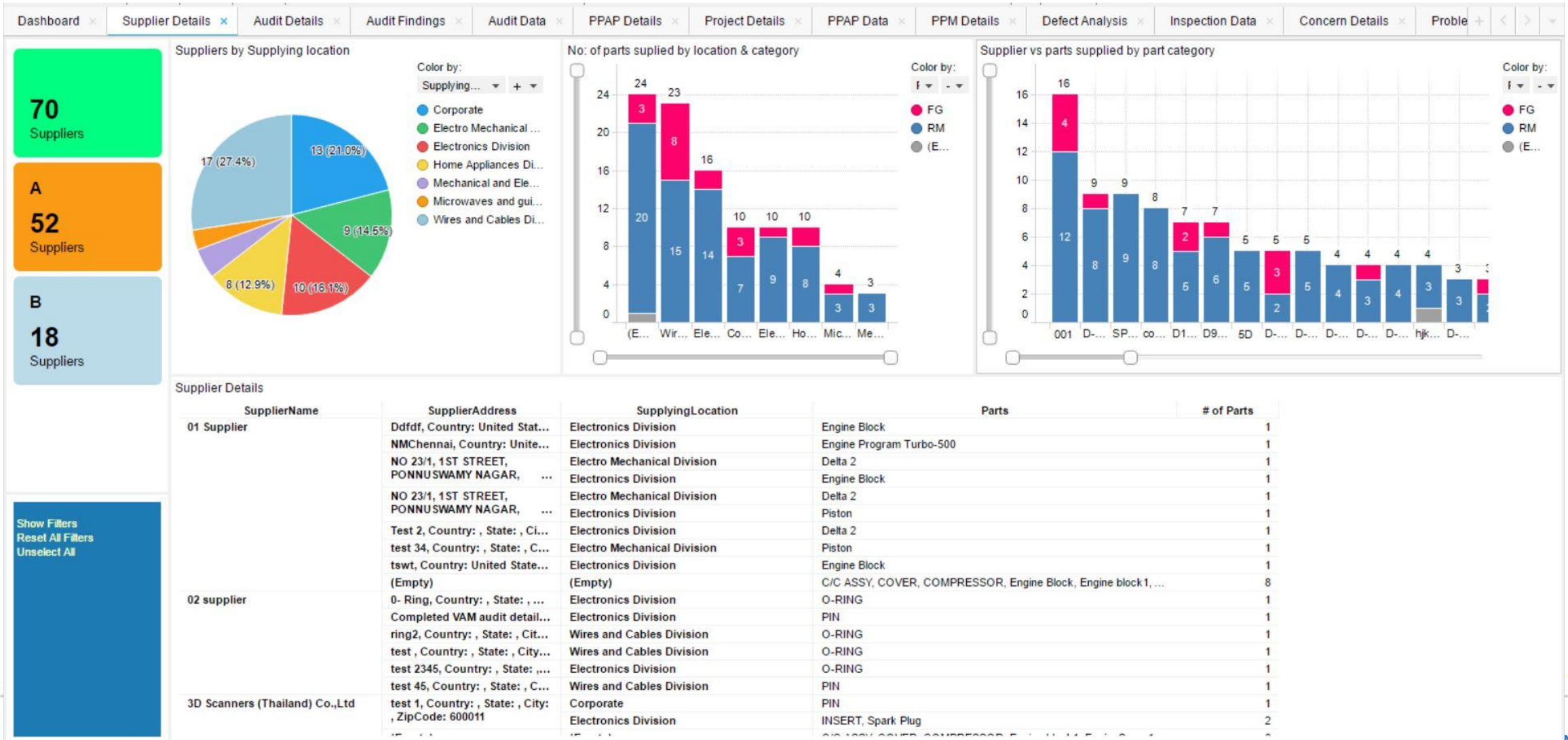


# QMS/QHSE Dashboard Defects Management





# Supplier Management : Dashboard



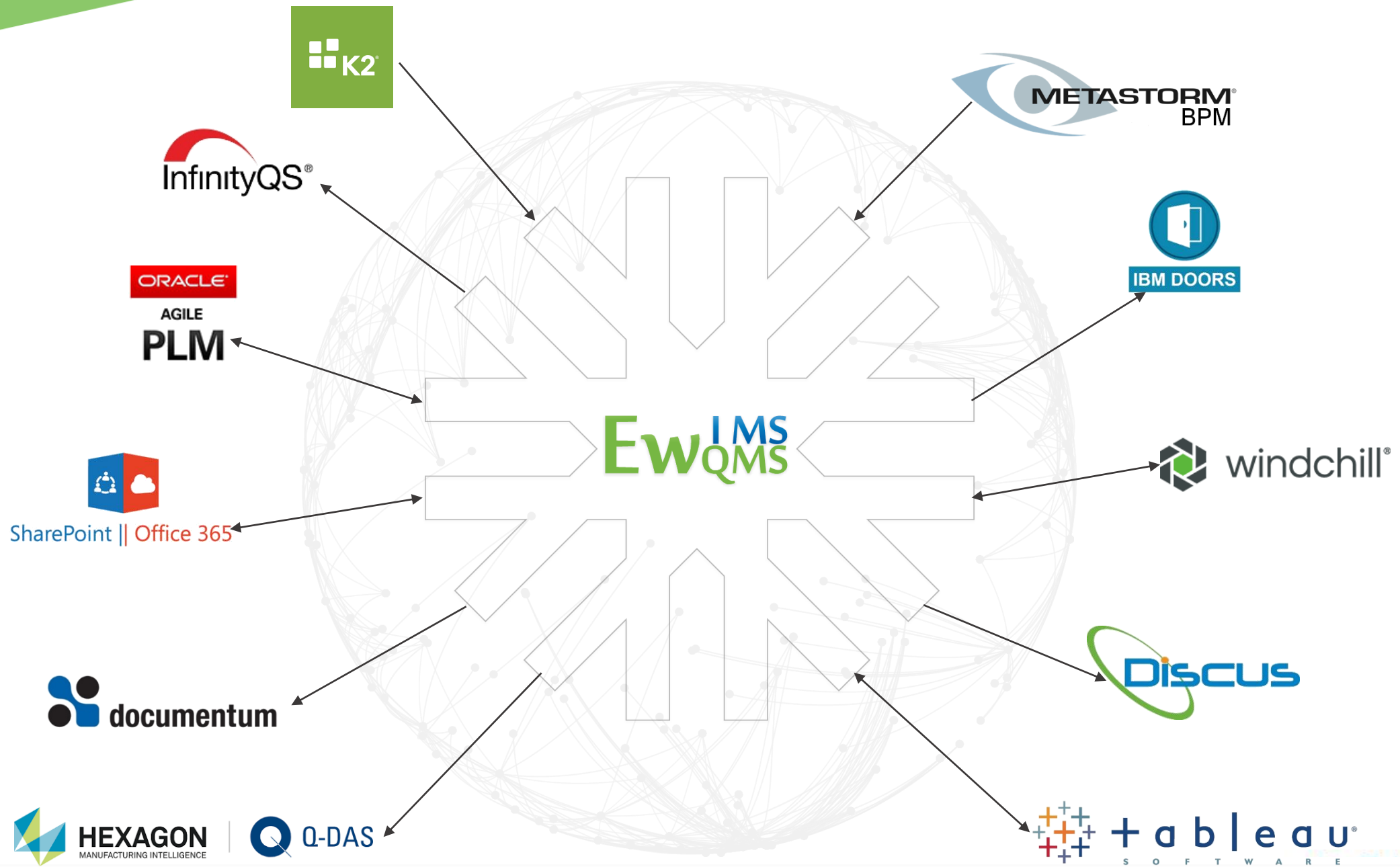


# Integrations

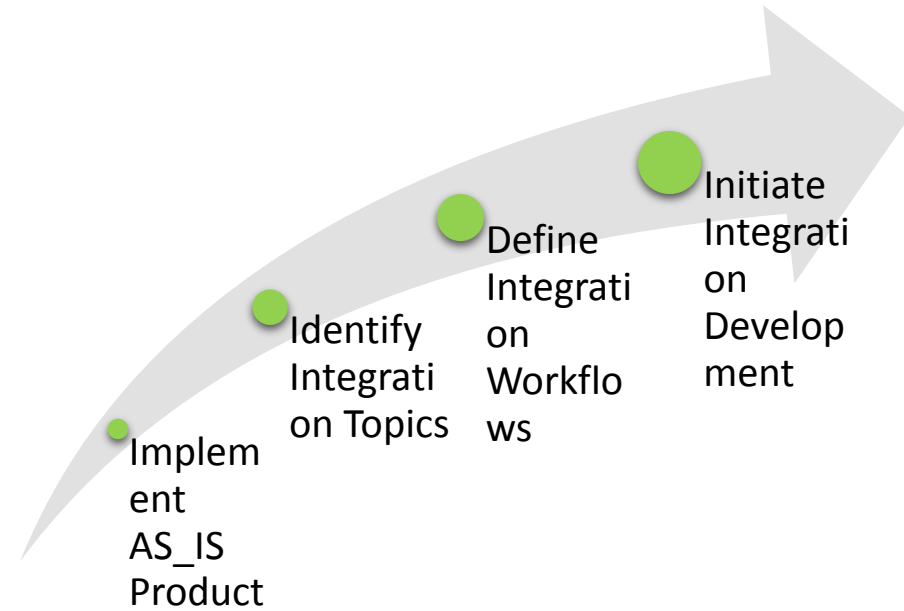
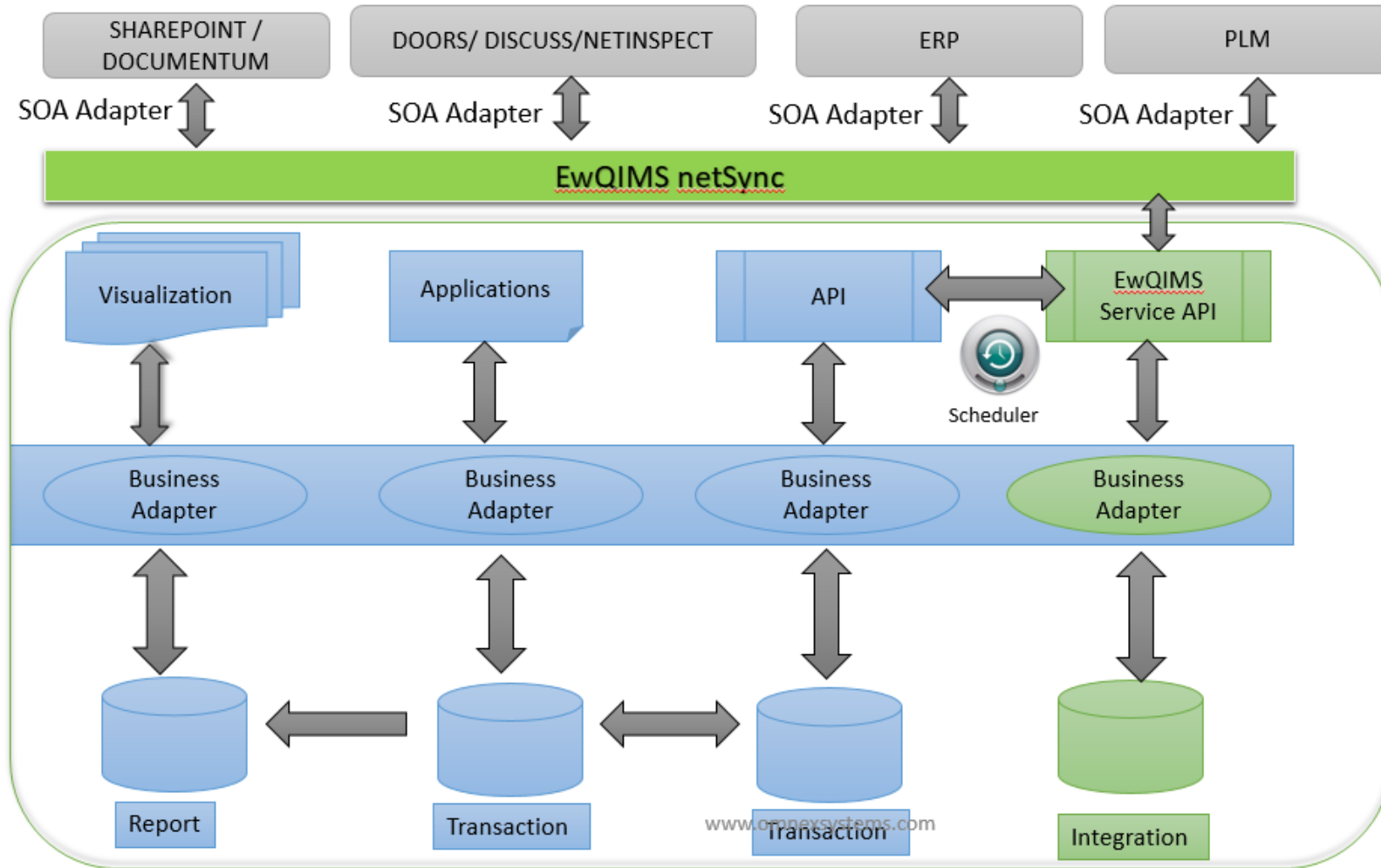


[www.omnexsystems.com](http://www.omnexsystems.com)





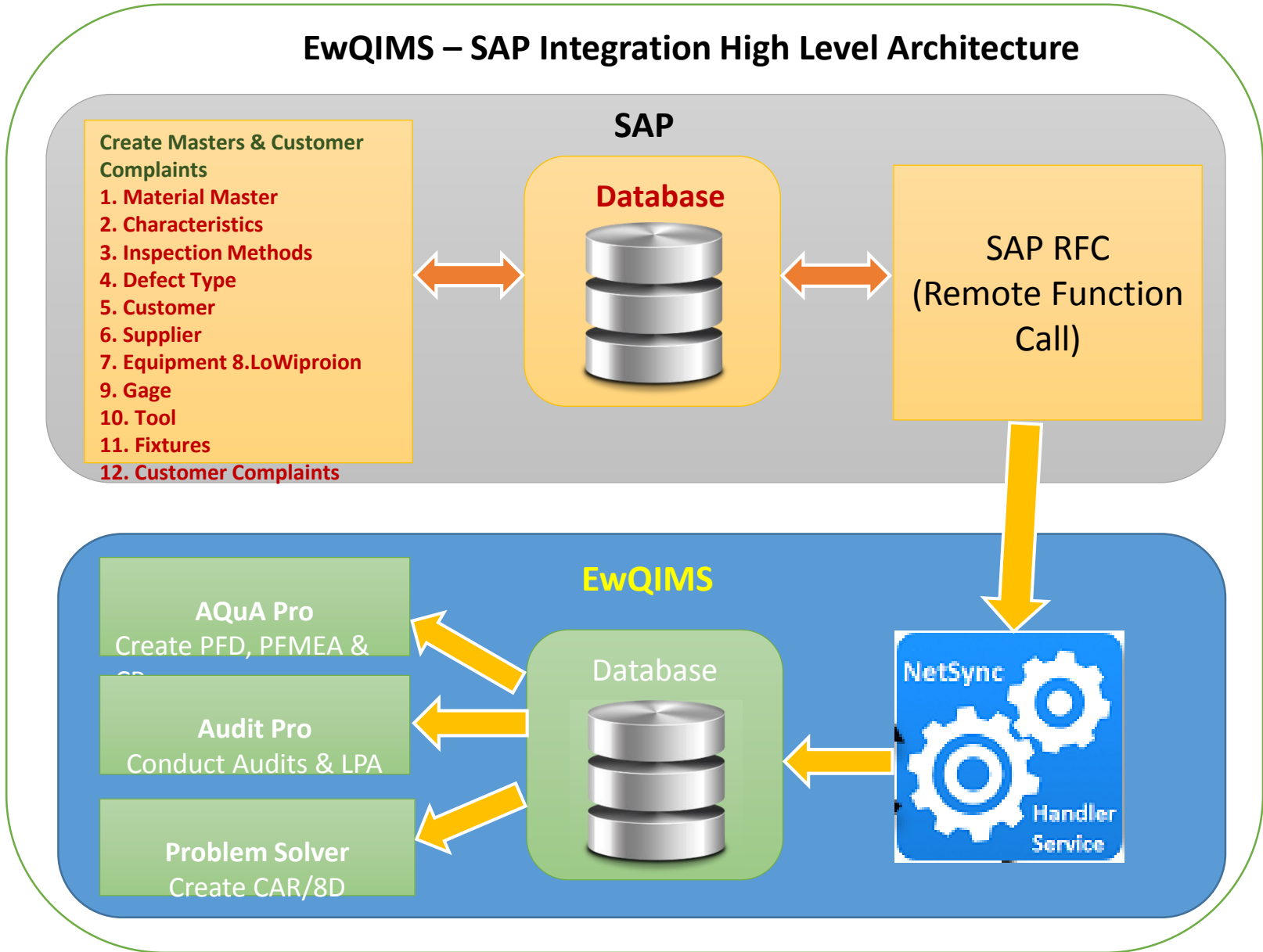
# EwQIMS - netSync Architecture



# Integration Topics

- Connectivity with Processing software (reduce ME over-processing and live documents updates – ( Pushing info from SAP/CBS or Siemens VPPA to Omnex)
- Connectivity with quality system to drive failure modes and occurrence updates live with shop floor AQE inputs (Pulling info from the Shop floor to Omnex)
- Connectivity between detection/preventions controls to quality systems such as pin point (Pushing info from Omnex to Shop Floor)
- Reporting/Alert capacities – live information on high risk areas from Quality data inputs in the shop floor (Risk management tools – eliminating data mining)

### EwQIMS – SAP Integration High Level Architecture





# PPM Occurrence Update in FMEA

Daily Defect Record for Cutting & Crimping Inspection

Production

Visual Analysis Customer Complaint Warranty Format Master Forms Line Process Import

Comparison of Occurance Table Column List

**POTENTIAL FAILURE MODE AND EFFECTS ANALYSIS (PROCESS FMEA)**

Component: 02 AH2-Front  
 Sub system: Electrical  
 System: Electrical  
 Process Responsibility: Production

Key Contact: Tiruvenkat.H

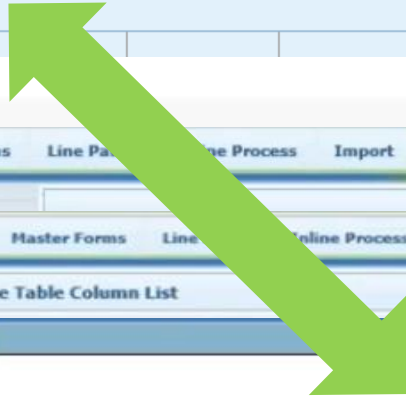
Key: 11/12/2017  
 Rev No: 4  
 Rev Date: 12/12/2018  
 Customer: HMI

Core Team:(All 3 Units) : Engg: Janakiraman/Rajini/Sindhu, Quality: Anandraj/Harihara Prabu/Senthil/Ramados/Senthil Pandiyan Production: Balaji/Karthick/Sasiraj/Asokan/Jayaseelan, PED: Pandiyan/Loganathan/Madhanraj, Marketing: Sreekanth/Prabhakar/Theerpu Moothy, Commercial: Vijayakumar/Selvaraj Stores: Kalidas/Prabhakar/Thavamani, PPC: Karthick/Ramachandran/Tamil, Training(HR): Savitha/Ranjani/Thamarakshi, Maintenance: Gopal/Gopinathi/Dhinagarar, EDP: Razak/Jeevagan/Neppolian

Op no	Operation Description	PC Description	Potential Failure Mode	Potential Effects of Failure: Sev	Sev	Characteristic Class Symbol	Potential Causes of Failure	Occ	Control method		Det	RPN	Rec
									Preventive Controls	Detective Controls: Det			
		Material Inward condition	Material damage	1.Next stage:Can't able to do the process:5 2.Customer:Difficult to assemble with mating part:5 3.End user:Poor performance :5	5		Supplier end improper inspection	1		Inspection report (FRM/QE/44):6	6	30	
			Material mixup (Wrong parts)	1.Next stage:Difficult to assemble & Increase in rejection level:5 2.Customer:Difficult to assemble with mating part:5 3.End user:Poor performance :5	5		Supplier end improper inspection	2		Inspection report (FRM/QE/44):6	6	60	
			Parts missing	1.Next stage:Difficult to assemble & Increase in rejection level:5 2.Customer:Difficult to assemble with mating part:5 3.End user:Not applicable:5	5		Supplier end improper inspection	1		Inspection report (FRM/QE/44):6	6	30	

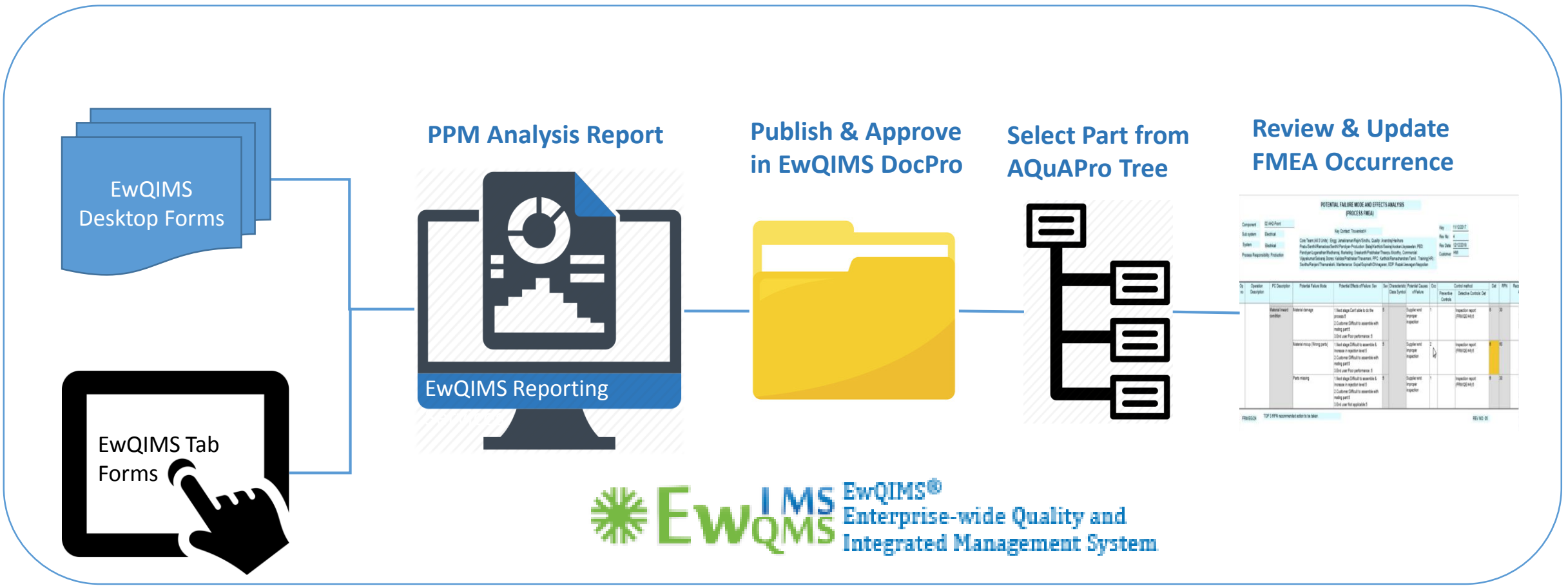
FRM/EG/24 TOP 3 RPN recommended action to be taken

REV NO: 05



# EwQIMS Inspection/Defect Data Entry Options and FMEA Occurrence Update

## EwQIMS Inspection/Defect Data Entry Options

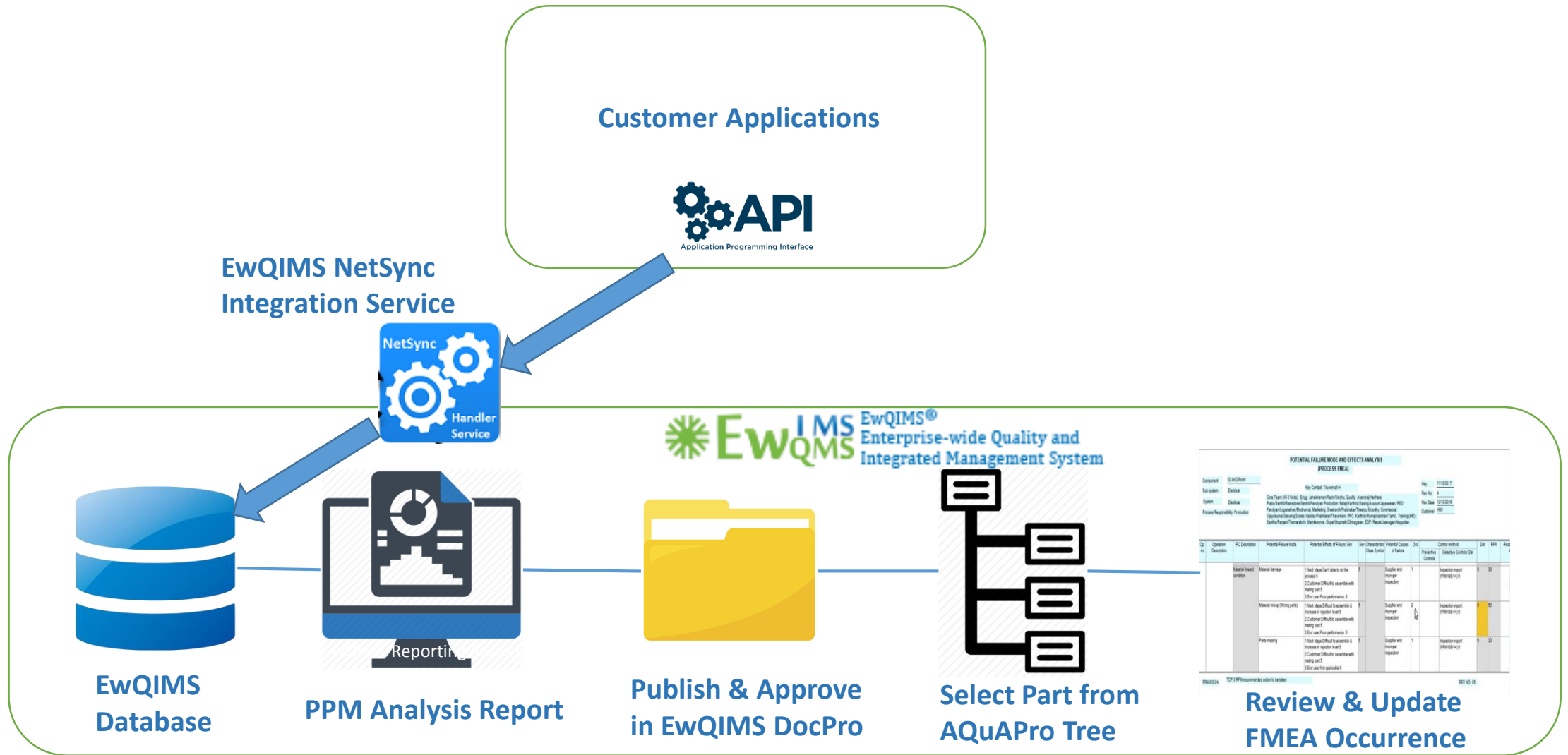


POTENTIAL FAILURE MODE AND EFFECTS ANALYSIS (PROCESS FMEA)

Q#	Description	PC Description	Potential Failure Mode	Potential Effect of Failure	Det	Occ	Preventive Controls	Control method	Det	RPN	Risk
1	Material Procurement	Material storage	1) Heat steps Cont. due to the process 2) Customer Difficult to assemble with mating part 3) Use user Poor performance	Supplier and inspector	1	1	Inspection report (PFMEA)	Inspection report (PFMEA)	1	1	1
2	Material Procurement	Material storage	1) Heat steps Difficult to assemble & increase in reaction time 2) Customer Difficult to assemble with mating part 3) Use user Poor performance	Supplier and inspector	2	1	Inspection report (PFMEA)	Inspection report (PFMEA)	2	2	4
3	Part mixing	Part mixing	1) Heat steps Difficult to assemble & increase in reaction time 2) Customer Difficult to assemble with mating part 3) Use user Poor performance	Supplier and inspector	1	1	Inspection report (PFMEA)	Inspection report (PFMEA)	1	1	1



# Integration with Existing Apps and FMEA Occurrence Update



# Mobility

Form

### Inprocess Inspection Worksheet

Part Number	Operation 80	Shift	WO No
Part Name XJ-770	Operation Name CNC Turning Center	Prepared By Default	Batch No
Date 11/26/2016 11:14:32 PM	Department	Acceptance Criteria	Lot No 1245

**Characteristics**

No	Characteristics Description	Sample Size	Action
1	Length of target TIR	5	Inprogress
2	Groove width	7	Inspect
	Length to Bearing Surface	8	Inspect

Submit

4:47

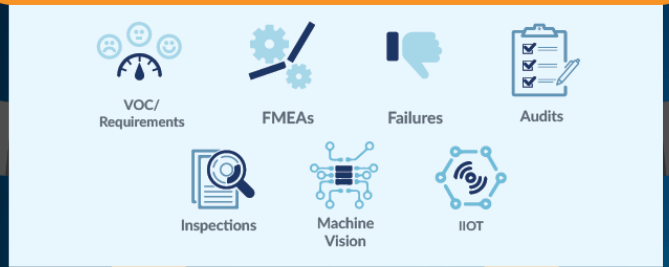
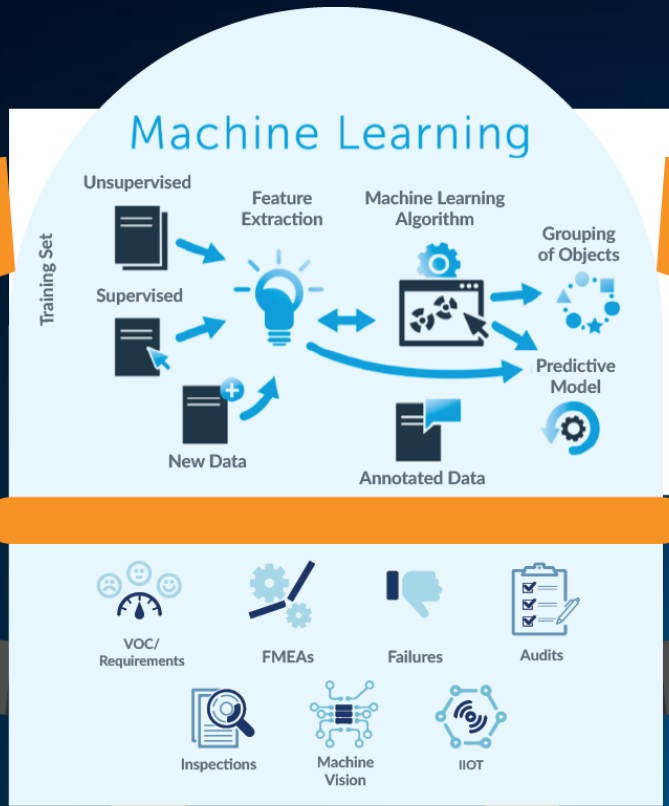
Welcome Roberts

7 | 0 | 2  
Scheduled | InProgress | Completed

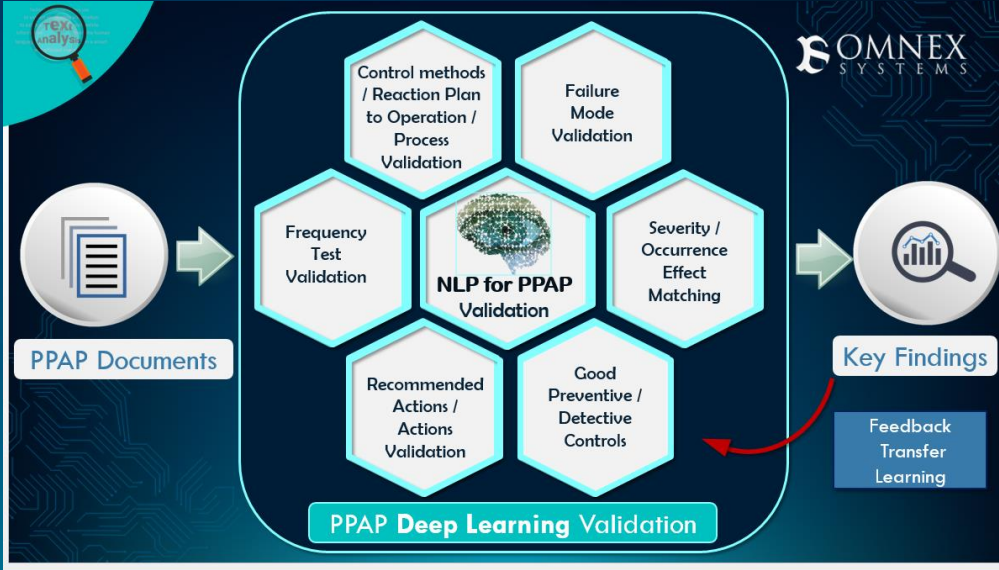
Recent | Forms | Status | Sort

- Equipment->001 QMS PS 00...  
24-Dec to 24-Dec  
LPA-Operators (L1)-2018-DEC-3  
LPA(1) **100%** Completed
- Equipment->001 QMS PS 00...  
01-Apr to 01-Apr  
LPA-Operators (L1)-2019-APR-16  
LPA(16) **100%** Completed
- Equipment->001 QMS PS 00...  
01-Apr to 01-Apr  
LPA-Operators (L1)-2019-APR-8  
LPA(8) **10%** Scheduled
- Equipment->001 QMS PS 00...  
01-Jan to 01-Jan  
LPA-Operators (L1)-2019-JAN-11  
LPA(8) **10%** Scheduled

Profile | Dashboard | Sync



# AI BASED PPAP REVIEWER





# Q & A

# Thank you

[Info-kr@Omnexsystems.com](mailto:Info-kr@Omnexsystems.com)

