

OMNEX SYSTEMS

CORPORATE PRESENTATION

July 10, 2019
SPID Annual Seminar
COAX, Seoul, Korea



www.omnexsystems.com



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

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



OMNEX SYSTEMS



Dr. Edwards Deming

Greg Gruska

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
- IMS / QHSE Solution
- Supplier Quality Management

Industry 4.0 Solution


- IIOT 4.0 Solution
- O- BOTS

Customers


- 500 +Customers Worldwide including Many Fortune 50 Companies

WORLDWIDE OPERATIONS




 International Headquarters

 Regional Offices

 SPID, Korea

 Regional Headquarters

 Delivery Associates

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, Seoul, Republic of Korea (Zip Code: 08506)

Business Phone No.: +82-(0)2-3453-5345

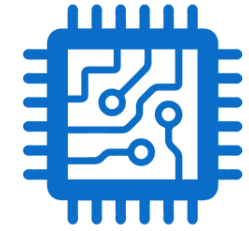
Industries Served



AUTOMOTIVE



AEROSPACE



ELECTRONICS/
SEMICONDUCTOR



JEWELLERY



WIND ENERGY



HOME APPLIANCES



MEDICAL DEVICES



FOOD & RETAIL

EwQIMS Software Customers - Worldwide



DAIMLER



Kyungshin Industrial



PANDORA



100s of customers across the globe and counting.....

Enterprise-wide Quality Integrated Management System and Enterprise Functional Safety



Managing integrated APQP/PPAPs Project Management , Safety Plans, and Safety Cases for organization and suppliers



Manage your Voice of Customer & Requirements through out the System, Sub-System & Components – functions, requirements, and characteristics



Linked DFMEA, Test Plans, Process Flow, PFMEA, Control Plans and Work Instructions by Product and Process Families



Managing Enterprise QMS (ISO 9001 and IATF 16949) including Functional Safety Management System processes (ISO 26262)



Integrated Audit Management - ISO TS/ IATF 16949, ISO 9001, AS 9100, ISO 14000, CMM, CMMI



Manage your gages and performs all MSA Studies - Bias, Calibration, GR&R, and Stability Studies for Variable and Attribute gages.



Manage your In-Process, Incoming/Receiving & Outgoing/Final inspections



Conducting integrated problem solving for internal quality, external quality, suppliers etc.



Manages Total Productivity Maintenance of your plant(s). Addresses all TPM requirements



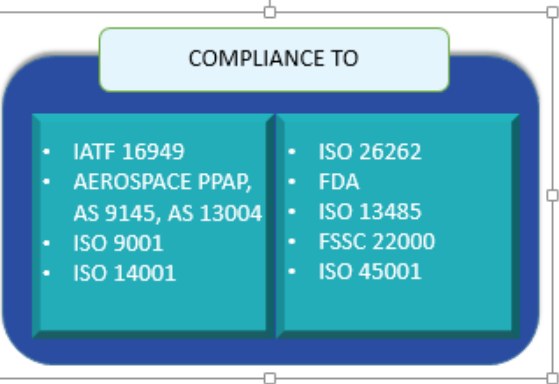
Training management and objectives deployment from Corporate to employees



Top management in implementing customer-focused continual improvement and tracking performance



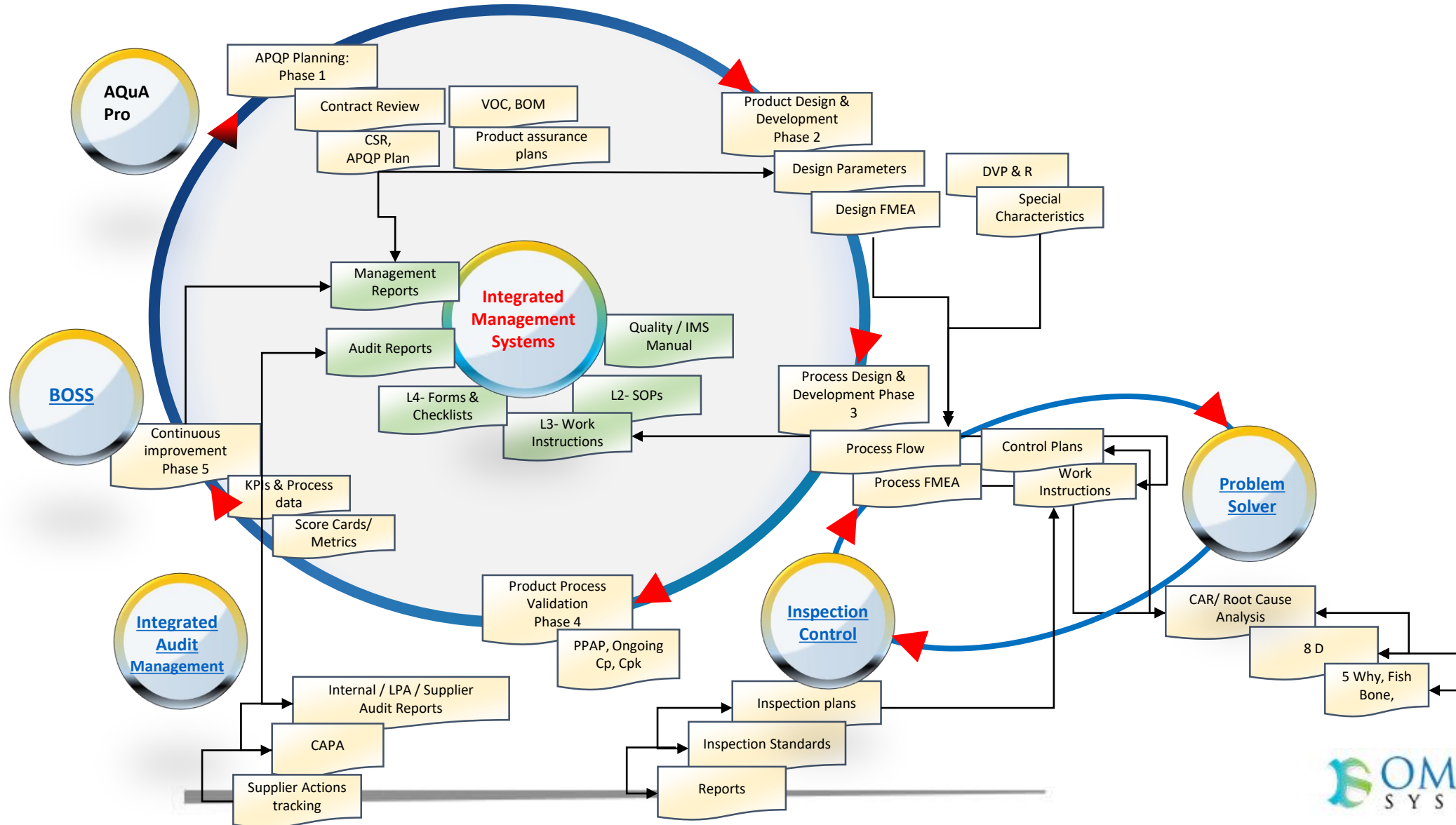
Manufacturing Controls and Traceability of ASILs to Control Plan, Inspection Plans, and Inspection Sheets



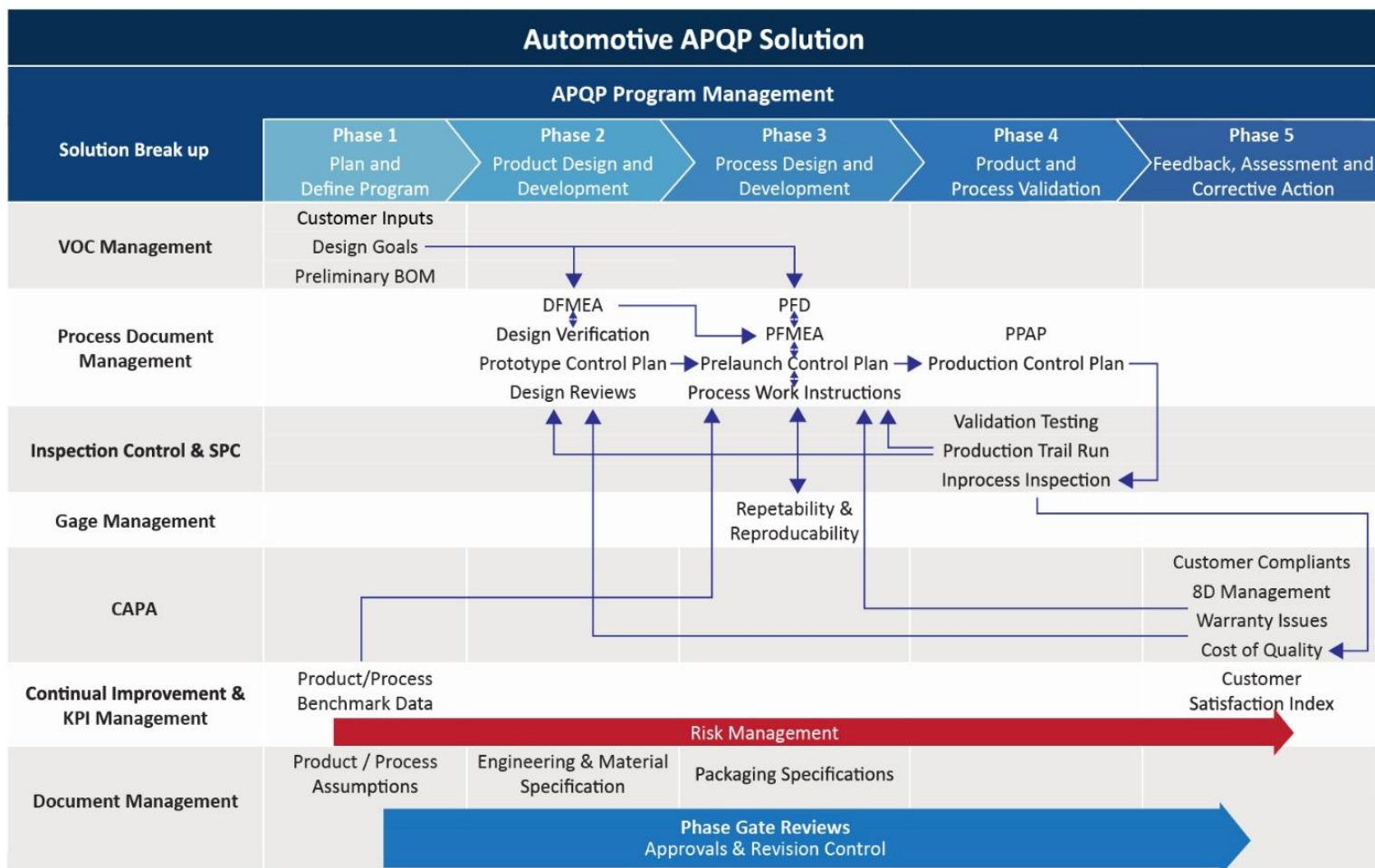
Enterprise APQP & Functional Safety Solution



APQP Solution/An Intuitive Solution





Mapping AIAG - APQP with Omnex APQP Solution



Omnex Solution Modules	
APQP PPAP Manager (PM)	✓
Requirements Flow Down (VOC)	✗
Aqua Pro (Process Documentation)	✓
Inspection Control	✗
MSA Pro	✗
Problem Solver	✗
BOSS	✗
Doc Pro	✓
Audit Pro	✗
Supplier Initial Assessment	✓

The Solution can be customized based on Initial Requirements and can be scaled up later

-  Solution considered
-  Solution available, Plug-in on demand



HARA

Topic Element : Anti-lock Breaking System Context Element : Anti-lock Breaking System

OS Id	Category	Operational Situation	E	Comments	Req/ Mal Id	Malfunctions	Failure Mode	Hazard and effect	S	Comments	C	Comments
OS-ABS-0002	Vehicle moves	free driving with brakes	E4		REQ-ABS0003_MF-Functionality	<Unintended functionality	ABS activation without imminent collision		S3		C3	

Voice of Customer

Topic Element : Anti-lock Breaking System Context Element : Anti-lock Breaking System

Number	Name	Description	Associated Characteristic(s)
		Apply braking force until wheel speed	

Safety Goals, Safety States

Topic Element : Anti-lock Breaking System Context Element : Anti-lock Breaking System

ASIL	Safety Goal Id	Safety Goal	Safe State	Fault Tolerant Time Interval
D	SG-ABS-0001	Prevent unintended ABS activation	ABS OFF, Inform Driver	< 1000ms
C	SG-ABS-0002	Ensure ABS activation in wheel lock situation	ABS OFF, Inform Driver	< 1000ms

Safety Requirement Allocations

Topic Element : Anti-lock Breaking System Context Element : Anti-lock Breaking System

Safety Goal Id	ASIL	Safety Goal	Safe State	Fault Tolerant Time Interval	Rational for Time Interval	Function	Req/ Mal Id	Requirement	Req/ ASIL	Control Unit	Front left sensor	Front right sensor	Hydraulic modulator	Solenoid sensor	Rear left sensor	Rear right sensor	Interface Unit/Control
SG-ABS-0001		Ensure ABS does not activate when not intended	ABS OFF	< 1000ms	Vehicle shift	Provide Wheel Speed Signal	REQ-ABS0010	Provide solenoid valve control to brake modulator	C		B[C]	B[C]			B[C]	B[C]	
SG-ABS-0002		Ensure ABS activates when intended	ABS ON	< 1000ms	Vehicle shift	Provide Wheel (Speed) LF	REQ-ABS0012	Provide Wheel (Speed) LF	B[C]		B[C]						

Technical Safety Requirements

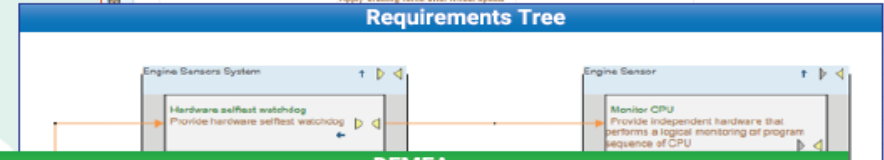
Topic Element : Anti-lock Breaking System Context Element : Anti-lock Breaking System

Function	Functional Requirement Id	Requirement	ASIL	Allocated to Element	Function
Provide Wheel (Speed) LF	REQ-ABS0012	Provide Wheel (Speed) LF	B[C]	Front left sensor	Provide Wheel (Speed) LF

Hardware & Software Interface

Topic Element : Anti-lock Breaking System Context Element : Anti-lock Breaking System

Hardware/Software Interface	Configuration Parameters
Hardware Operating Mode	Advanced mode Initiation mode Default Mode
Hardware Feature	Gain Control, Band Pass Frequency or Clock Prescaler
	Ensures Element Independence
	Support



DFMEA

Topic Element : Anti-lock Breaking System Context Element : Anti-lock Breaking System

Function Group	Function	Function Additional	Requirement	Potential Failure Mode	Failure Mode Additional	Potential Effects of Failure: Sev	Charactertic	Class	Potential Cause (s)Mechanisms (m)of Failure	Occ	Preventive Design Controls	ASIG-VDA Detective Actions	Action Occ Description	ASIG-VDA
Functional	Provide Wheel (Speed) LF		Provide Wheel (Speed) LF	Locking of the wheels		Causes the vehicle to skid/lose control	7		Mechanical damage to wheel	10				

DVP&R

Topic Element : Anti-lock Breaking System Context Element : Anti-lock Breaking System

Function Group	Function	Requirement	Design Control	Procedure/Standard	Acceptance Criteria	Test Plan	Test Instance	Test Responsibility	Test Stage	Sample Quantity	Timing	Sample Type	Test Report

PFMEA

POTENTIAL FAILURE MODE AND EFFECTS ANALYSIS (PROCESS FMEA)

FMEA Number: _____
 Prepared By: _____
 Model/Year(s)/Vehicle(s): _____
 Key Date: _____
 FMEA Date (Orig): _____ (Rev): _____

Control Plan

Control Plan Number	Key Contact	Phone	Date (Orig)	Date (Rev)

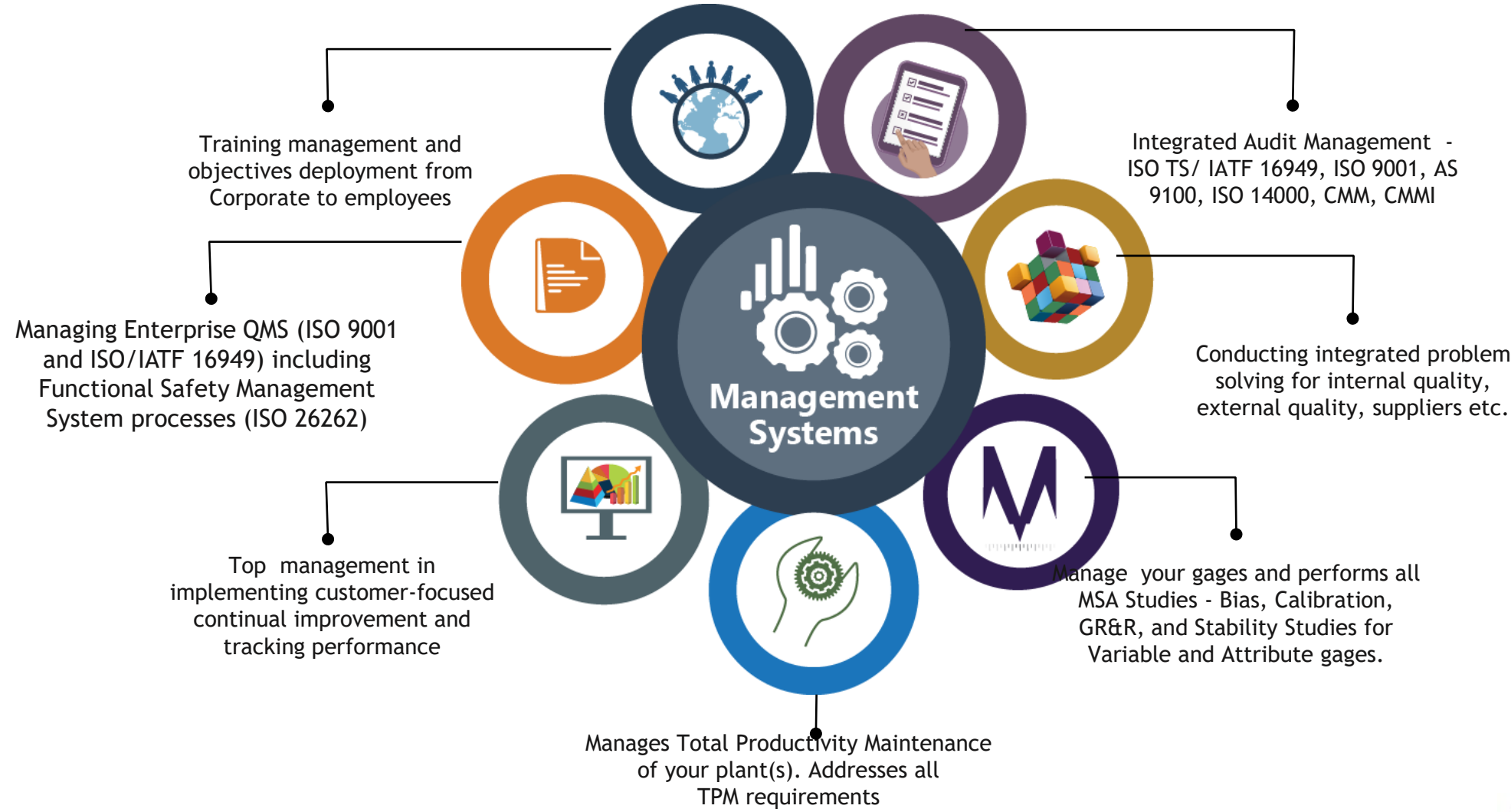
Shop Floor Control Work Instruction

Document No: _____ Model: BA 4DR Part No: 92401/2-B4400

- Work Standard
- Tear Down
- EP Verification
- Maintenance
- Rework
- Inspection Method

Work Process	Quality Check
Critical Process	Daily Inspection

Enterprise Quality & Integrated Management Solution



Supplier Quality Management Solution



Enterprise Quality Solution – All in one Solution



Enterprise wide Web-based system

Manage multiple sites

Support for multi-language(Including Korean) and multi-date.

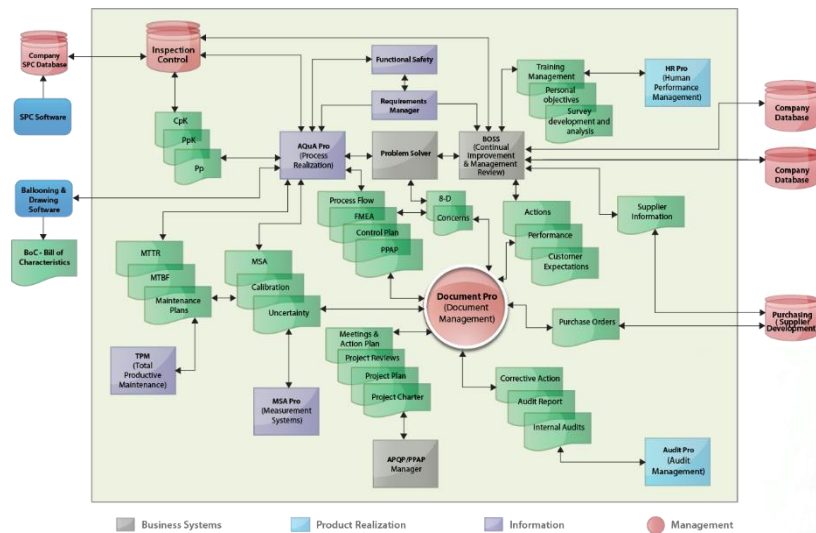
Integrated email notifications, reminders and escalation services

Ready to integrate with legacy and ERP systems

Single Sign On (SSO)

Role-based Security

Mobility & Cross-Browser Support.



Our Awards and Accolades



US Patented.

Six other patents pending regarding risk management and enterprise compliance

20 MOST PROMISING MANUFACTURING TECHNOLOGY CONSULTING COMPANIES

MOST PROMISING QMS SOLUTION





Advanced Solutions



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

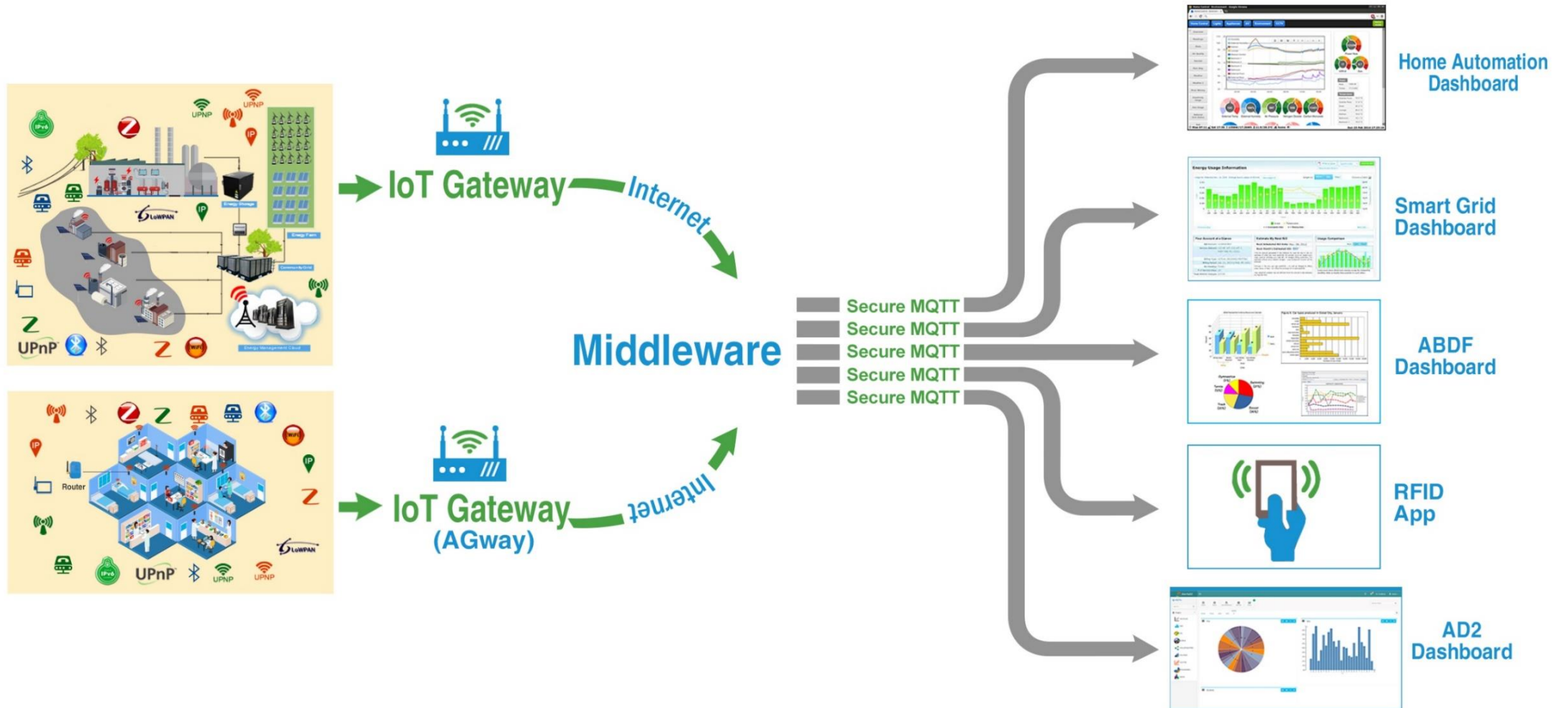
Audits & Status

Dashboard

Smart Filters

Conduct Audits

TPM IIOT Ecosystem



OMNEX IIOT ECOSYSTEM

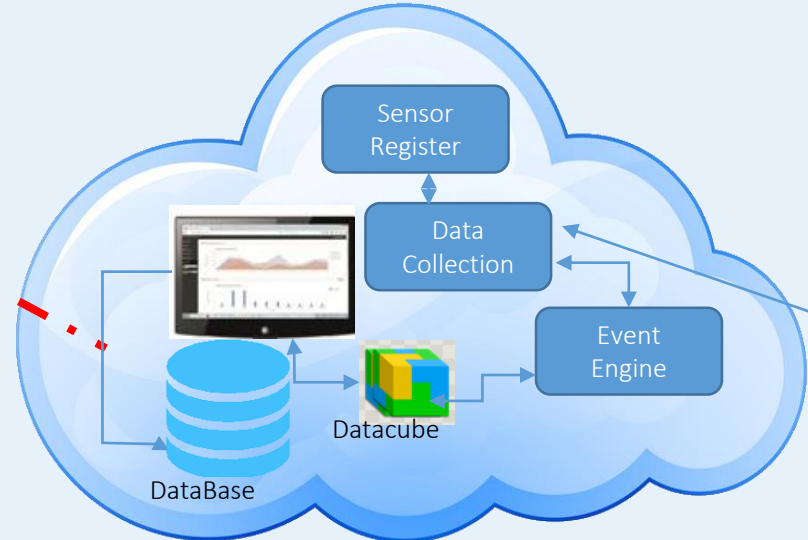
OmneX Cloud

Push and Pull

Internet



- Equipment details
- Sensor details
- Dashboards

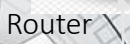


IoT Sensor Data Cloud Platform

Internet



Gateway



Router



Pump

Pump

Chiller

Chiller

Pump

Pump

Flow

Temperature

Vibration

Vibration



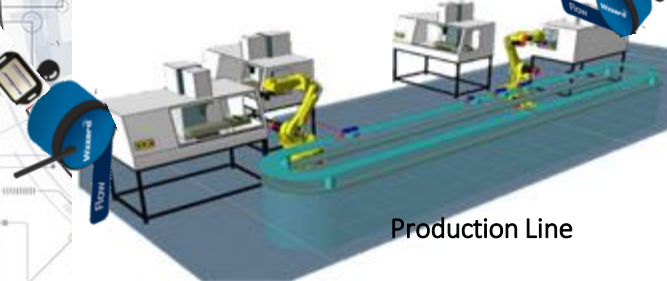
CNC



CNC



Motor



Production Line





O - BOT



NO MORE MANUAL REVIEW OF PPAPs

Page 1 of 23

Page 2 of 23

Family Type:
0 Prototype ZJ Pre-Production Q Production
Base Part Number: callisto
Customer Part Number:
Core Team:

FAILURE MODE AND EFFECTS ANALYSIS (PROCESS FMEA)

Latest Document Revision:
Date Originated: 02/17/2018
Document Rev No: 0

Oper. No.	Operation Description	Process Function	Failure Potential Failure Mode	Effects Potential Effects of Failure: Sev	Sev	Process Characteristic	Charac. Class Symbol	Causes Potential Causes of Failure	Occ	Mistake Proof? Y/No; N/No	Preventive Controls	Current Control Methods	Defective Controls	Det	RPN	Recommended Action	Responsible Party	Target Date	Actions Taken	S	O	D	RPN
			Clogged nozzles or other equipment (Includes stencils, squeegee)		3						Stencil ID	S/D Paste Inspection (solder skips, shorts, and debris):4 Flying Probe/CT:4 Functional Test:4 Inspection, Visual:3		72									
			Damaged / Degraded stencil		2						Cleaning & Inspection Process Stencil ID	S/D Paste Inspection (solder skips, shorts, and debris):4 Flying Probe/CT:4 Functional Test:4 Inspection, Visual:3		48			07/05/2018						
			Debris (in assembly)		2						Air Blower and vacuum Fixtures or Guides	S/D Paste Inspection (solder skips, shorts, and debris):4 ACI (Automated Optical Inspection):5		48									
			Incorrect / Wrong stencil loaded		2							S/D Paste Inspection (solder skips, shorts, and debris):4 Flying Probe/CT:4 Functional Test:4 Inspection Visual:3		48									
			Inadequate paste on stencil	Operation intermittent impaired	4						MP Manufacturing Processes or Work Instructions Temperature/Humidity Monitoring System	S/D Paste Inspection (solder skips, shorts, and debris):4 ACI (Automated Optical Inspection):5 Flying Probe/CT:4 Inspection, Visual:3		32									
			Excessive paste impurities		2						MP Manufacturing Processes or Work Instructions Temperature/Humidity Monitoring System	S/D Paste Inspection (solder skips, shorts, and debris):4 ACI (Automated Optical Inspection):4 Flying Probe/CT:4 Functional Test:4 Inspection, Visual:3		32									
			Damaged materials (includes paste)		2						MP Manufacturing Processes or Work Instructions	Flying Probe/CT:4 Functional Test:4 Inspection, Visual:3		4	32								
			Improper handling of materials or assembly		2						Operator Training / Certification - Prov FCHS compliance Separated	ACI (Automated Optical Inspection) Flying Probe/CT:4 Inspection Visual		8	80			Check with EPM may be able to lower severity with severity to customer					
			Improper set up		2						Operator Training / Certification - Prov FCHS compliance Separated Solderwork station for Lead and Lead Free Assembly RFI verification	Inspection, Visual		8	96			Check with EPM may be able to lower severity if units aren't sent to customer					
			Solder paste height out of spec		2						Cleaning & Inspection Process	S/D Paste Inspection (solder skips, shorts, and debris):4 ACI (Automated Optical Inspection):7 Flying Probe/CT:4 Inspection, Visual		40									
50	Solder Paste Dispense Gun - SMT	Bottom side surface mounting preparation.	Incorrect / Wrong Solder Flux (Includes Lead No Lead)	Electrical or mechanical defect, productivity loss or scrap	5	Sold-Up, Line Speed		Improper set up	2		Operator Training / Certification - Prov FCHS compliance Separated	Inspection, Visual		8	96			Check with EPM may be able to lower severity if units aren't sent to customer					

Not a good failure mode

Due date passed.
Action taken missing

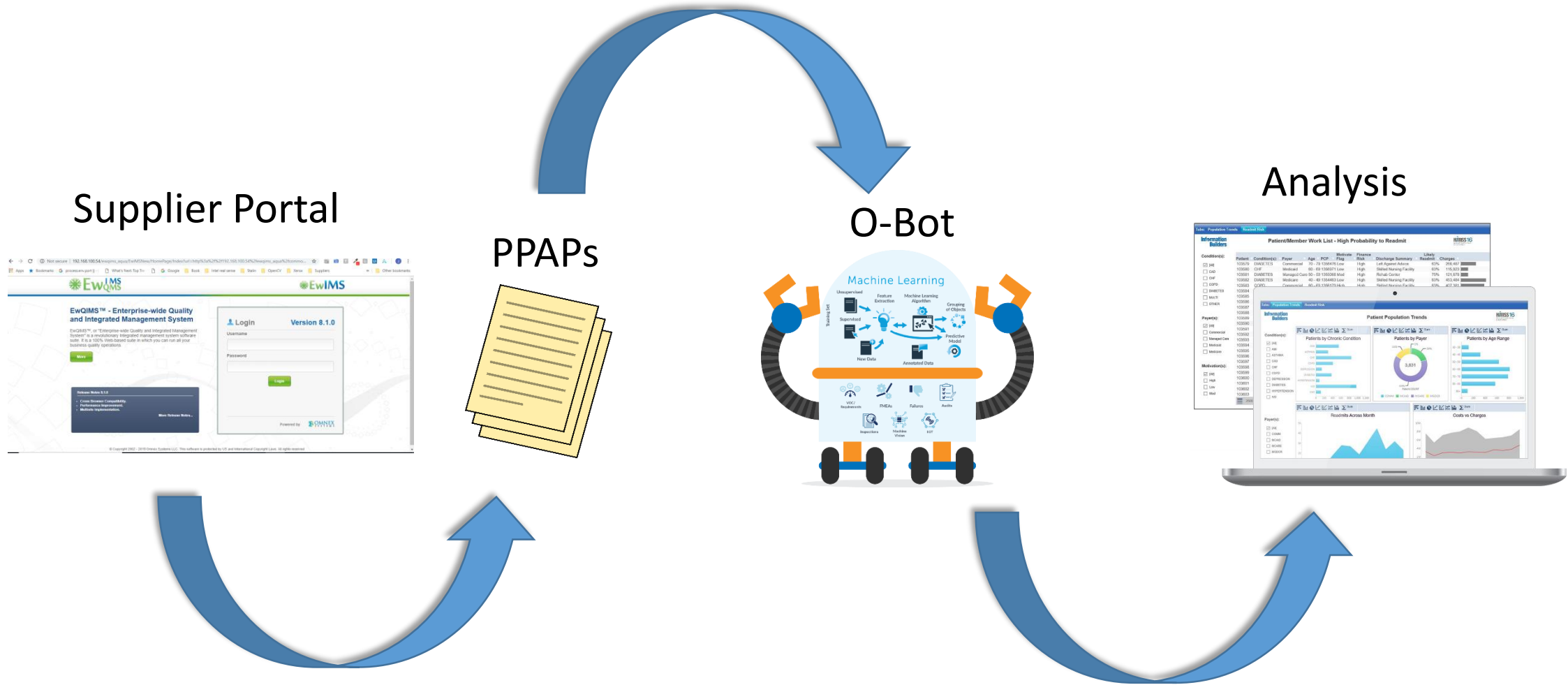
Res. party and Date missing

DIGITAL PPAP REVIEW
from OMNEX

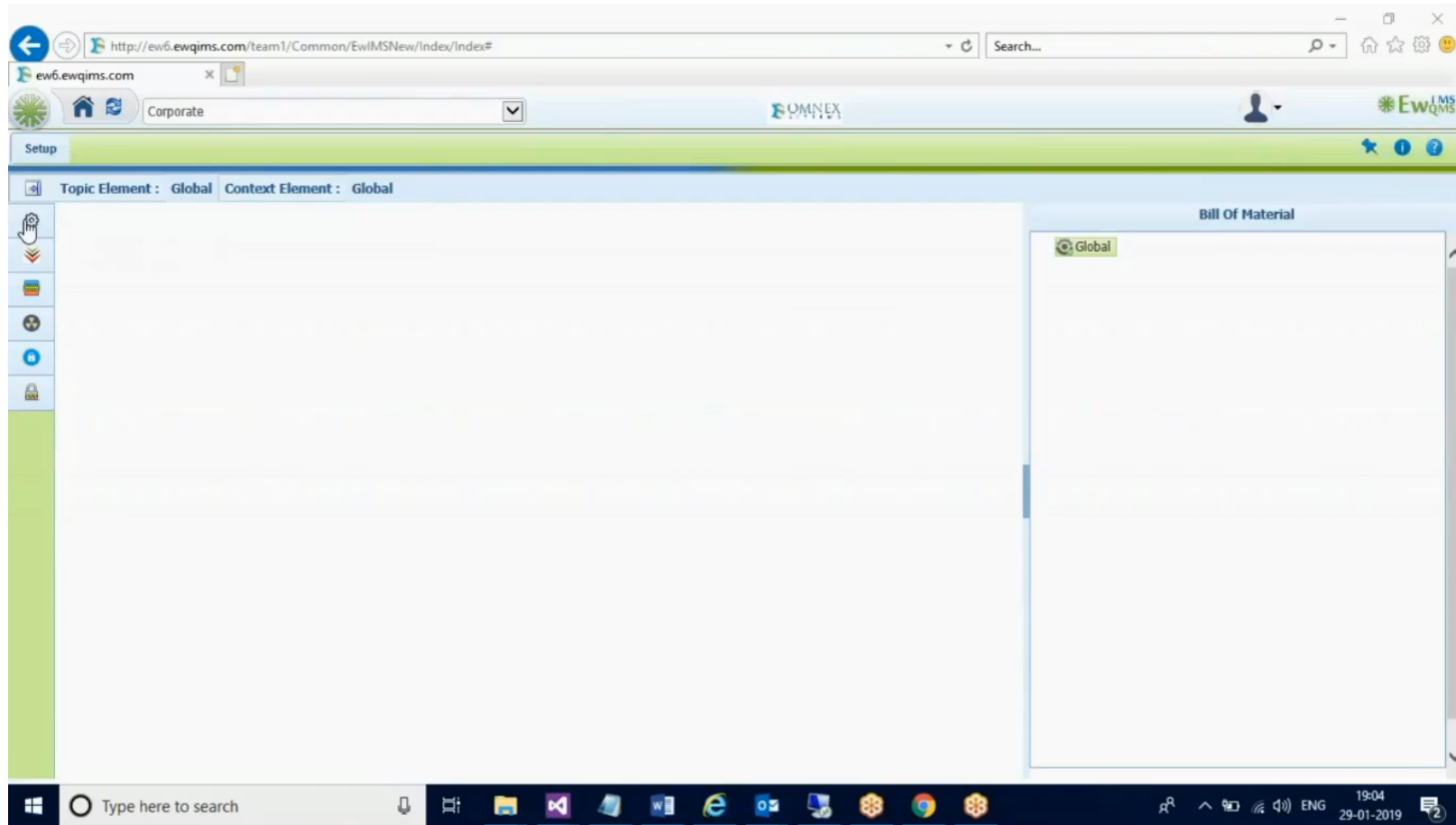
350+
Business Rules

AI

O- BOT: SUPPLIER QUALITY MANAGEMENT 4.0



Functional Safety : ISO 26262 Snippets



THANK YOU

- **Global Headquarters**
- **Ann Arbor, Michigan, United States**
- **(734) 761-4940**
- **info@omnexsystems.com**

OMNEX CANADA

Email: info-ca@omnex.com

OMNEX EUROPE

Email: info-eu@omnex.com

OMNEX SINGAPORE

Email: info-sg@omnex.com

OMNEX MALAYSIA

Email: info-my@omnex.com

OMNEX MEXICO

Email: info-mx@omnex.com

OMNEX KOREA (SPID)

Email: info-kr@omnex.com

OMNEX INDIA

Email: info-in@omnex.com

OMNEX CHINA

Email: info-cn@omnex.com

OMNEX THAILAND

Email: info-th@omnex.com

OMNEX MIDDLE EAST (OMNEX INTEGRARE)

Email: info-me@omnex.com