

INNOVATION
WITHOUT LIMITATION

Aras Quality Management System

Quality Planning

Topics

- Solution Introduction
- Objectives
- Key Features
- Benefits
- Demo
- Availability

Aras Quality Management System

- Quality Management System (QMS) is a new application comprising:
 - Quality Planning (QP) - QMS 11R1
 - Replaces previous Aras application
 - Quality Systems (QS) - QMS 11R2
 - Derived from existing Community project
- **Focus for today is Quality Planning (QMS 11R1)**
 - Released Dec '15, SP5

Quality Planning (Proactive)

- Design
 - FMEA
- Process
 - PFMEA,
 - Flow Diagrams
 - Control Plan

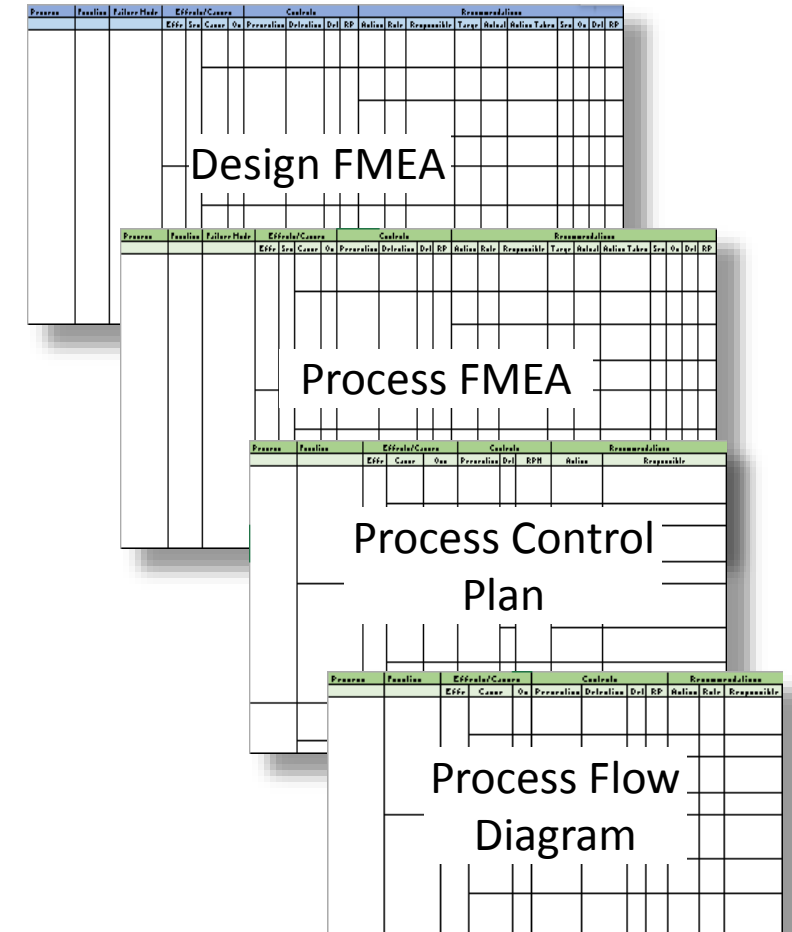
Quality Systems (Reactive)

- Quality Events
 - Issues, Audits, NCRs..
- Quality Containment
 - Hold Notice, Purge Notice..
- Quality Analysis
 - 5-Whys, FTA, Fishbone
- CAPA

Quality Planning – Goals and Scope



- Ensure a product meets customer’s requirements
 - Product / Process design and analysis
 - Risk assessment and mitigation
- Produces/Updates QP Documents (*among others*):
 - Design/Process Failure Modes Effects Analysis (DFMEA/PFMEA)
 - Process Control Plan (PCP)
 - Process Flow Diagram (PFD)
- Based on AIAG standards
 - APQP & Control Plan (2nd Edition)
 - Potential Failure Mode and Effects Analysis (4th Edition)



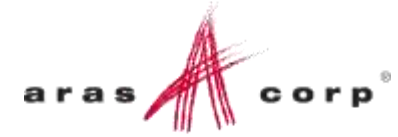
Quality Planning - Document Content



- 1 Tabular, using a common structure with typical end-user tailoring
- 2 Use headers to identify columns and column groupings
- 3 Use cell merging to show association / containment
- 4 Use algorithms (custom logic) for computed values
- 5 Typically have extensive horizontal and vertical space requirements
- 6 Contain/Reuse content from corporate & industry standards/procedures
- 7 Contain content that references Products / Processes

Item	Function	Failure Mode	Effects/Causes			Controls					Recommendations											
			Effect	Sev	Cause	Occ	Prevention	Detection	Det	RPN	Action	Role	Responsible	Target	Actual	Action Taken	Sev	Occ	Det	RPN		
Front Door L.H. H8HX-0000-A	Maintain integrity of inner door panel	Integrity breach allows environ. Access of inner door panel	Corroded interior lower door panel	4	Upper edge of protective wax application specified for inner door panels is too low	3	Design requirements (#31268) and best practice (BP 3455)	Vehicle durability test T-118	7	105	Laboratory accelerated corrosion test	Body Engineer	A. Tate	5/25/2015	5/21/2015	Based on test results (test no. 1481) upper edge spec raised 125 0X 09 30	5	2	3	30		
					Insufficient wax thickness specified	3	Design requirements (#31268) and best practice (BP 3455)	Vehicle durability test T-118	7	105	Laboratory accelerated corrosion test	Body Engineer	A. Tate	5/25/2015	5/21/2015	Based on test results (test no. 1481) upper edge spec raised 125 0X 09 30	5	2	3	30		
					Inappropriate formulation specified	2	Industry standard MS-1893	Physical and chemical lab test - report No. 1265 Vehicle durability test T-118	5	50												
			Deteriorated life of door leading to unsatisfactory appearance or impaired function of door	5	Corner design prevents spray equipment from reaching all areas	5		Design aid with non-functioning spray head	8	175	Team evaluation using production spray equipment and specified wax	Body Engineer and Assembly Dps	T. Edwards	5/12/2015								
					Insufficient room between panels for spray head access	4		Vehicle durability test T-118	7													
							Drawing evaluation of spray head access	4			80											

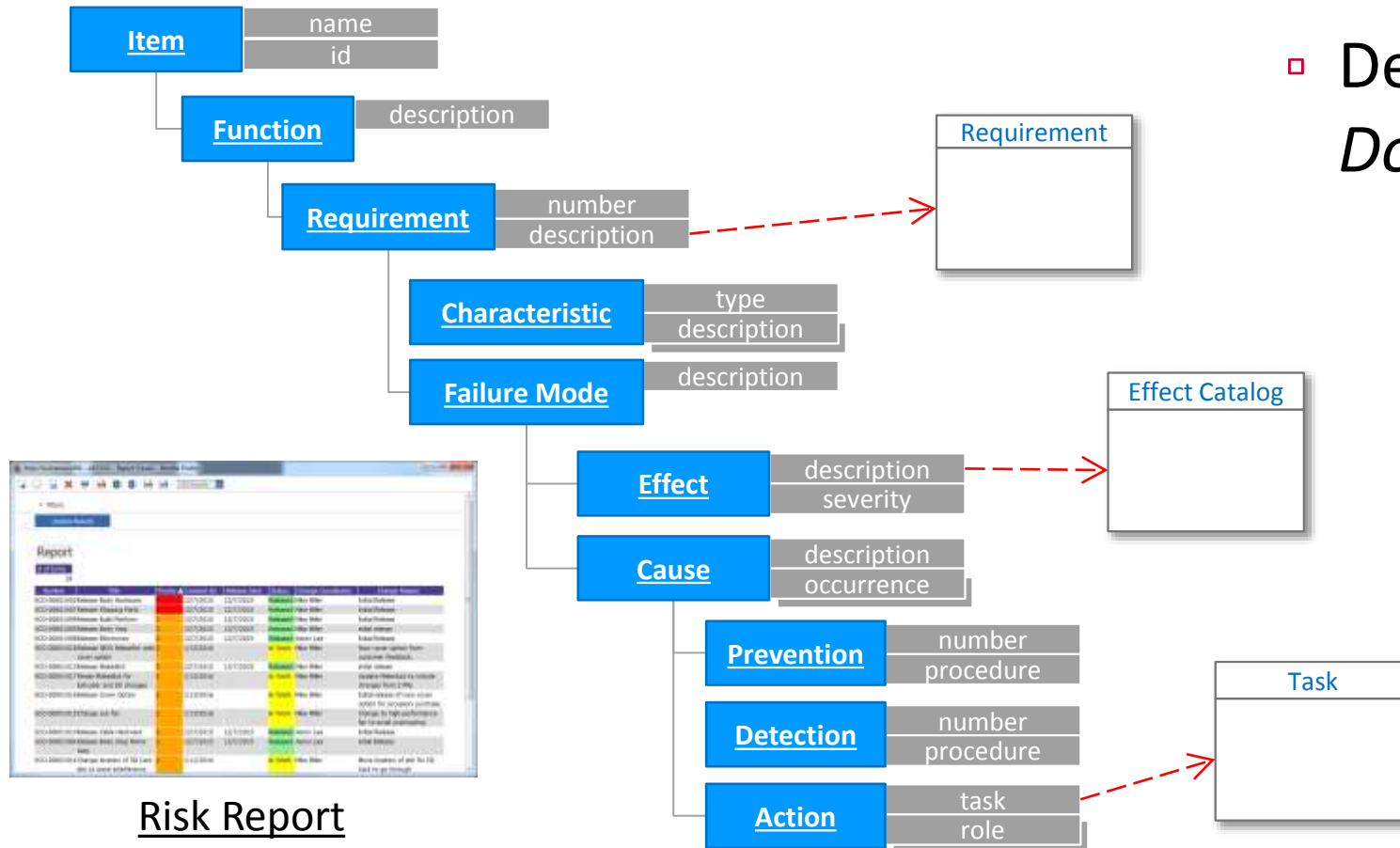
Quality Planning – A New Approach



- New Editor/Viewer for Quality Documents
 - Evolution from QP 9.x application
 - Co-Designed with help from our customers
 - Better than Excel - improved usability and efficiency
- New Data Model: Content Modeling Framework (CMF)
 - Defines schema of Document Elements
 - Simplifies Document structure and UI setup
 - Adds customization points to tailor business logic
- Fully integrated with PLM
 - Use and reuse existing PLM business objects (Parts, Processes, Tools, etc.)
 - Integrated with PLM business processes (Access, Lifecycles, Workflows, etc.)



Quality Planning Structured Documents



- Structured Documents are:
 - Defined by a schema of discrete *Document Elements* that:
 - Provide semantic markup to improve search and reporting
 - Have user-defined Access Control and Properties with:
 - Independent Type, Style, and Validation settings
 - Can reference, and synchronize with, Items in Innovator

Quality Planning - Key Features



Design Quality Document - DQD-0021A - Internet Explorer

File Edit Views Search Actions Reports Tools Help

Search for

Configurable Header

Keyword Search

Structure Tree

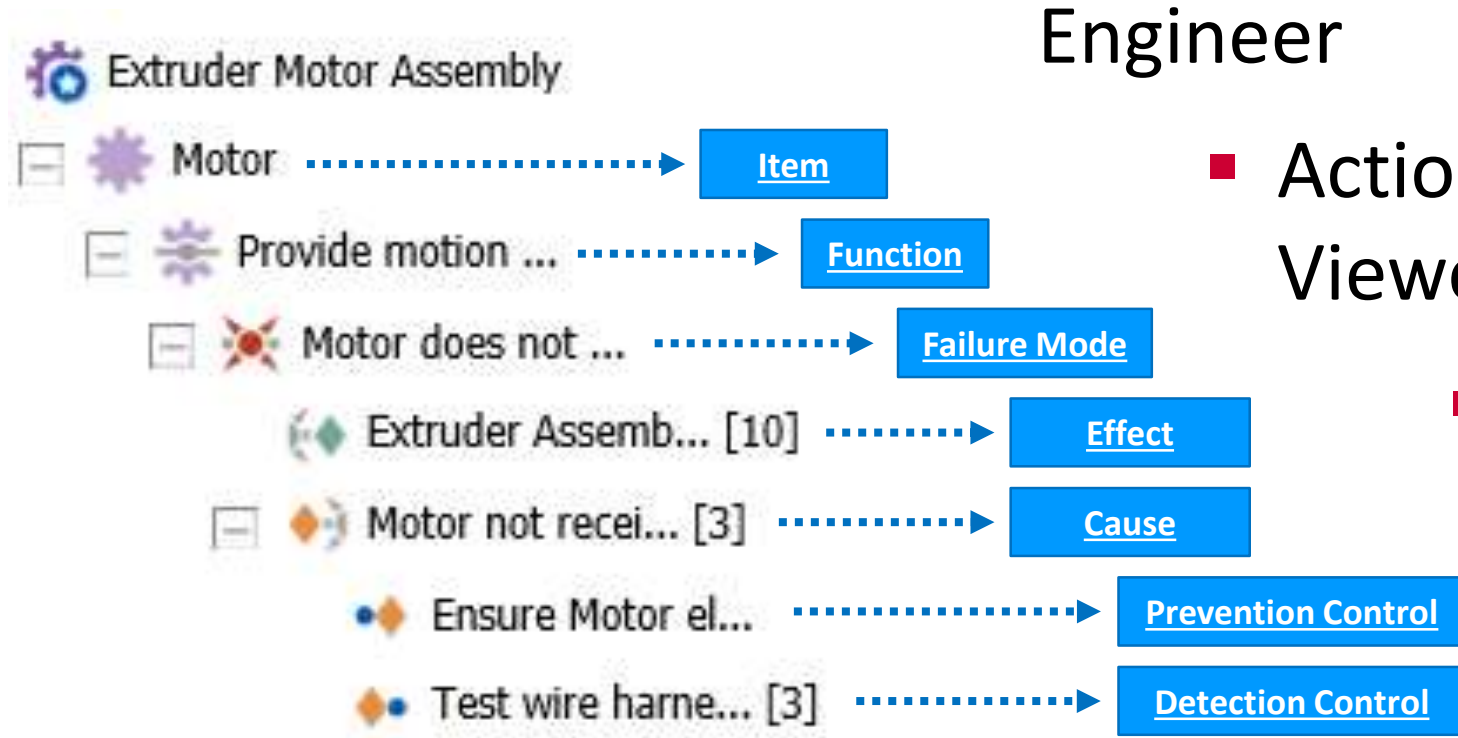
QP Table Viewer

Item	Function	Failure Mode	Effect	Sev	Cause	Occ	Prevention	Controls	D		
Motor	Provide motion to move Extruder assembly	Motor does not operate	Extruder Assembly does not move	10	Motor not receiving power	3	Ensure Motor electrical harness is seated securely	Test wire harness connectors	3	90	
					Motor is not operational	1	Use new, tested Motors	Test Motor	2	20	
					Worn or broken stator	2	Use new, tested Motors	Test Motor	2	40	
		Motor does not operate efficiently	8	Bearing seized	2	Ensure proper bearing lubricant used					
						Ensure proper application of bearing lubricant. Refer to specification #DS-02334					
				Excessive load on drive gear	3	Ensure Extruder assembly range of motion does not interfere with other Replicator components	Test Extruder Assembly can move at full range of operation without interference	5	135		
				Worn Drive Gear	2	Ensure Extruder assembly range of motion does not interfere with other Replicator Components					
		Motor overheats	9	Excessive heat buildup in Extruder Assembly	2	Fan does not operate	3	Check power requirements for fan motor assembly			
						Disconnected Heat Sink	2		Check clearance heat sink with Drive Bar Mount		
						Power input not sufficient	5				
Motor too slow	6	Print operation efficiency compromised	2	Power input not sufficient		Check wire gauge in motor electrical harness					
				Warm rotor shaft							
Drive Gear	Transfer circular motion to drive gear	Drive Gear does not turn	Extruder Assembly does not move	8	Worn Drive Gear		Ensure Extruder assembly range of motion does not interfere with other Replicator Components				
					Lubricant applied to surface	2					
Fan	Provide air to cool Heat Sink and drive motor	Fan does not operate	Motor overheats	9	Material preventing fan blades to spin	3	Check fan blade housing component for proper blade clearance	Test Extruder Assembly can move at full range of operation without interference	5	135	
							Check operation components for possible collision during normal use				

Ready

Aras Innovator

Structure Tree



- Provides a navigation aide to the Quality Engineer

- Actions synchronized with Table Viewer

- Illustrates the Document Structure

Table Viewer / Editor



Effects/Causes				
Effect	Sev	Cause	Occ	Prevention
Extruder Assembly does not move	10	Motor not receiving power	3	Ensure Motor electrical harness is seated securely
		Motor is not operational	1	Use new, tested Motors
		Worn or broken stator	2	Use new, tested Motors
Motor does not operate efficiently	8	Bearing seized	2	Ensure proper bearing lubricant used
				Ensure proper application of bearing lubricant. Refer to specification #DS-02334
		Excessive load on drive gear	3	Ensure Extruder assembly range of motion does not interfere with other Replicator components
Excessive heat buildup in Extruder Assembly	9	Wrong Plunger diameter used		Ensure part fits within Drive Block
		Worn shaft bearing		Ensure torque specified on Drive Block bolts
		Fan does not operate		Ensure requirements for fan assembly
		Disconnected Heat Sink		
		Power input not sufficient	5	

- Add Cause
- Insert Prevention
- Insert Detection
- Insert Action
- Copy
- Remove

- Layout and Style based on AIAG standard FMEA tables
- Content Position & Row Merging automatically applied
- Content Addition/Modification through Context Menus
- Cell Editing using type/content-specific editors

Benefits

- Further reduces and mitigates the risk of defects through design or process errors in complex system products
- Maximizes the productivity of quality professionals by
 - Fully integrating quality documents with product definitions, process plans, release and change processes
 - Streamlining the change process from impact assessment to execution
 - Maintaining consistency across products and programs
- Meet the needs of your business
 - Standards based and tailorable to specific company needs



Product Availability



- Quality Planning (QMS 11 R1) Released Dec. '15
 - Open to Community
 - Subscribers get Excel Export capability
 - Installation via new *Aras Update* Application
 - New for SP5 Applications and Beyond...
 - <http://www.aras.com/support/downloads/download.aspx>
- Quality Systems (QMS 11R2) Scheduled Q3 '16

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