Topics

• AIAG-VDA FMEA Handbook
• Risk Based Audit Days
• Problem Solving
• Core Tools Software App
• Traceability Guideline
• Core Tools Self-Assessment
AIAG - VDA FMEA Handbook

- The project is currently in the “Validation” Phase
  - Open Stakeholder Commenting Period (90 days) has closed
  - Over 4000 comments have been received from industry stakeholders
  - Comment dispositioning session is being conducted March 19th – 23rd

- Deployment and Support
  - Targeting release of publication in Q3, release of new training courses in Q4
  - The new Handbook will not be a requirement for IATF 16949 until Jan. 2019 at the earliest
  - The OEMs will update and communicate their FMEA CSR’s to their suppliers in Q4
Risk Based Audit Days

• **Project Background**
  - The IATF is looking for ways to improve alignment between certification and supplier performance. Best practice audit planning allocates auditor resources based on QMS risk.
  - The IATF is developing a Risk Based approach to determining allowable audit day decreases and required audit day increases in our scheme.
  - The result would be a revision to “Rules” to incorporate the Risk Based model as the approach to adjust (increase or decrease) audit days.
  - The team has agreed to expand the scope and develop an “Audit Days Calculator” spreadsheet, that would be the tool used across all IATF CB’s to calculate audit days for an IATF 16949 audit.

• **Project Status**
  - Five “Risk Drivers” are:
    - APQP/NPD Workload, Product Safety, QMS Complexity, QMS Maturity, and Product Quality and On-Time Delivery Performance
  - The project is currently in the “Validation Phase” with five supplier organizations and over 40 sites
  - We have collected site risk data and compared the Risk Based adjustments to current Rules 5th
  - Next step is an Oversight review and validation of the site data and proposed adjustments
Problem Solving Guideline CQI-20

- AIAG’s 2015 Quality 2020 survey found that OEMs and suppliers rank problem solving as the most critical issue impacting quality. The study stated that over one-third of respondents felt there was significant potential for improvement in problem solving.

- One of the team’s first steps was to survey the industry and further investigate why almost two-thirds of respondents in the Quality 2020 study felt their organizations are, at best, only *moderately capable* at problem solving.

- The AIAG Problem Solving work group has determined there is an opportunity to improve the existing CQI-20 and CQI-21 Effective Problem Solving documents by adding guidance for the items that were identified as problematic in the industry survey.
The Core Tools are often referred to as the “building blocks of automotive quality.” There is a critical need in the industry for tools that enable suppliers to successfully execute all of these Core Tools during their new product and process development projects. To address this need, AIAG is developing a new Core Tools Forms software solution to replace the 15 year old Core Tools Forms CD.
A Voice of the Customer Survey was sent out and the results show a strong international interest in a cloud based application to complete several very technical forms related to product and process development (DFMEA, Process Flow, PFMEA, Control Plan and Gage R&R), and product release (PPAP) that are part of the Advanced Product Quality Planning (APQP) process.

**MSA and SPC are out of scope.**
The new Core Tools software will include the new AIAG-VDA FMEA content.
The intended customer base for this project is T2 and smaller organizations that do not need, and/or cannot afford, the larger PLM or QMS applications. T2 and smaller companies may have only one or two people working on the documentation versus large, multi-site teams.
What software do you currently use to create FMEAs, Control Plans, Process Flows, Core Tool checklists, etc...

Answered: 96   Skipped: 0
<table>
<thead>
<tr>
<th>Feature</th>
<th>Rating</th>
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<tbody>
<tr>
<td>Copy &amp; Paste</td>
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<tr>
<td>Customizable</td>
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<tr>
<td>Easy to Use</td>
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<tr>
<td>Flexible</td>
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<tr>
<td>Global Access</td>
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<tr>
<td>Inexpensive</td>
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<tr>
<td>Linkages</td>
<td></td>
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</tbody>
</table>

**What do you like about the current software you use?**

**Integrated Simplicity Company Model Control AIAG Format Copy and Paste Excel Core Tools Flexibility Software Documents Business Forms Program Specific Understands Ease Easily**
### What do you NOT like about the current software you use?

<table>
<thead>
<tr>
<th>Feature</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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</thead>
<tbody>
<tr>
<td>Cumbersome</td>
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<td>No Central Database</td>
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<td>No error checking</td>
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<tr>
<td>No Linkage</td>
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<tr>
<td>No Version Control</td>
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<td>Only Single User</td>
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</tbody>
</table>

**Software Spreadsheets User Friendly Basic Control Plan Tasks Processes MPACT Manual Stand Documents Linkage Excel Integration AIAG Tools Flow ERP System Standardization Somewhat Data Entry Options PFMEA Input Hard**
<table>
<thead>
<tr>
<th>Method</th>
<th>View all</th>
<th>Edit</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doc Control App</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excel</td>
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<tr>
<td>Hardcopy</td>
<td></td>
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<tr>
<td>K Drive / SharePoint</td>
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<tr>
<td>Manual</td>
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<td></td>
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<tr>
<td>Nothing</td>
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<tr>
<td>Part of ERP / PLM</td>
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</tbody>
</table>
The Voice of the Customer (VOC) survey resulted in several common themes including: flexibility, customizable, project task tracker, linkages between forms, and robust security of proprietary data on a web app.
The addition of a checklist, or a simple project management / task management process with flexibility to customize the task list. A simple timeline with assignments and due dates will be added.
Linkage between the DFMEA, Process Flow, PFMEA, and Control Plan with a relational database that makes it easier to make sure that everything is tied together.
Form Linkage is Critical

Flowchart

PFMEA

Control Plan

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# The CTS View Capability & Templates

## THE CTS View with new AIAG VDA

<table>
<thead>
<tr>
<th>Display(Y/N) for every row</th>
<th>Display(Y/N) for every column</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Initial Drivers - Product and Process Charts</th>
<th>DFMEA NEW Structure Analysis</th>
<th>DFMEA NEW Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPF</td>
<td>ITEM #</td>
<td>ITEM #</td>
</tr>
<tr>
<td>PFMENA</td>
<td>PRODUCT CHARACTERISTICS</td>
<td>1. System (Item)</td>
</tr>
<tr>
<td>PFMENA</td>
<td>PROCESS CHARACTERISTICS</td>
<td>2. System Element / Interface</td>
</tr>
<tr>
<td>CPF</td>
<td>ITEM #</td>
<td>3. Component Element (Item / Interface)</td>
</tr>
<tr>
<td>ITEM # / ID</td>
<td>ITEM #</td>
<td>1. Function of System and Requirement or Intended Output</td>
</tr>
<tr>
<td>ITEM # / ID</td>
<td>ITEM #</td>
<td>2. Function of System Element and Requirement or Intended Output</td>
</tr>
</tbody>
</table>

*Display (Y/N) as necessary for each column.*

*OPTIONAL*: Lookup, Lookup, Lookup, Optional.

*Insight. Expertise. Results.*
As a cloud based application, there will be robust security that assures no one can access the company’s information without permission.
Reporting will be added in order to make it easier for companies to manage the process.

- Projects
- Meetings
- Deliverables
- Part List
- Action Items
- Customer list

- Employee list
- Supplier List
- App usage report
- Reference tables
- My To Do List
- Project Submission Packet
Recognizing the global automotive supply chain, several languages will be supported in the application.
• Concurrent User means how many can be in the app at the same time versus Named Users

• Multi-Site - One company can have multiple locations under the same license.

• Annual cost per concurrent user - TBD
In 2017, the Volunteers developed robust requirements documents and a prototype

In 2018

<table>
<thead>
<tr>
<th>2018</th>
<th>1st Qtr</th>
<th>2nd Qtr</th>
<th>3rd Qtr</th>
<th>4th Qtr</th>
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<tbody>
<tr>
<td>Developer Selection</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agile Sprints</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beta Sites</td>
<td></td>
<td>Every Two Weeks</td>
<td></td>
<td></td>
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<tr>
<td>Beta Sites</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Go Live</td>
<td></td>
<td></td>
<td>Sep 2018 AIAG Quality Summit Demos</td>
<td>X</td>
</tr>
</tbody>
</table>

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We would like to have a T2 representative from the South East – contact jcachat@aiag.com
Brian Martensen

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• The National Highway Traffic Safety Administration’s (NHTSA) recall data confirms yearly increases in the number of recalls issued and the number of vehicles recalled, culminating with 927 recalls issued affecting 53,194,177 vehicles in 2016.
• Product traceability is critical in allowing manufacturers to pinpoint at risk products and initiating quick, focused containment either through the corrective action or recall processes. The ability to pinpoint vehicles affected by a non-conformance accelerates the containment process by reducing the number of vehicles inspected, which benefits vehicle owners through fewer dealership visits and disruptions.
NHTSA Reported Recall Trends
1996 Through 2016

Number of Vehicles affected
Number of Recall Actions
• How does an organization standardize and implement product traceability without an industry guideline?

• AIAG’s Traceability Work Group, consisting of OEM(s), Tiered Suppliers, and traceability solutions providers, is developing an industry guideline that explains traceability system benefits and outlines several scenarios to highlight the effectiveness of traceability through the automotive value stream, including how traceability has positively impacted containment and recall situations. The Group understands the need for traceability throughout the value stream and is utilizing its members to ensure the guideline is applicable for all organizations.
Not Knowing Where Parts Are

Illustration of Situation:

Traceability

• Our Goal:

- Suspect

Illustration of Situation:

Easy Finding Parts

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Quality Core Tools

• Quality Core Tools are:
  – Advanced Product Quality Planning (APQP) & Control Plan
  – Production Part Approval Process (PPAP)
  – Failure Mode & Effects Analysis (FMEA)
  – Measurement System Analysis (MSA)
  – Statistical Process Control (SPC)

• Benefits:
  – Create consistency & reduce variation
  – Provide accurate measurement techniques and data
  – Identify risk and areas for improvement
  – Control changes
## Quality Core Tools: Benefits

<table>
<thead>
<tr>
<th>APQP/Control Plan</th>
<th>PPAP</th>
<th>FMEA</th>
<th>MSA</th>
<th>SPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistent launch planning process</td>
<td>Statement for product and process capability and performance</td>
<td>Identifies “What can go wrong” and how to control</td>
<td>Confirms stable measurement processes</td>
<td>Measures processes to identify conformance, trends, and changes</td>
</tr>
<tr>
<td>Communication between supplier and customer</td>
<td>Signed approval from customer</td>
<td>Identifies product and process risk</td>
<td>Confirms acceptability and appropriateness of measurement processes</td>
<td>Confirms process changes and improvements</td>
</tr>
<tr>
<td>Customer requirements and supplier feedback</td>
<td>Baseline for products and processes</td>
<td>Created by cross-functional team</td>
<td>Identifies areas of improvement and risk</td>
<td>Identifies variation</td>
</tr>
<tr>
<td>Control Plans</td>
<td>Change control</td>
<td>Identifies areas for corrective action and improvements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core Tools</td>
<td>APQP/PPAP</td>
<td>FMEA</td>
<td>SPC/MSA</td>
<td></td>
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<tr>
<td>Core Tools Overview eLearning*</td>
<td>Understanding and Implementing APQP with PPAP</td>
<td>Production Part Approval Process (PPAP) Overview</td>
<td>Understanding and Implementing FMEA</td>
<td></td>
</tr>
<tr>
<td>Quality Core Tools – Connect the Dots eLearning*</td>
<td>APQP How-to Workshop</td>
<td>Advanced Product Quality Planning &amp; Control Plan (APQP) Core Tools Overview eLearning*</td>
<td>Measurement Systems Analysis (MSA) with Applications*</td>
<td></td>
</tr>
<tr>
<td>Implementing APQP, Control Plan, and PPAP*</td>
<td>Implementing Failure Mode and Effects Analysis (FMEA)*</td>
<td>Implementing Statistical Process Control (SPC)*</td>
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Applied SPC and MSA for Practitioners
Core Tools Self Assessment

- AIAG’s Core Tools Self Assessment measures competency for:
  - APQP/PPAP
  - FMEA
  - MSA
  - SPC

- Practical tool for satisfying IATF competency requirement

- Core Tools Self Assessment Statistics
  - Launched in 2012
  - 9776 exams completed
  - 7914 unique individuals
  - 1558 unique companies
Congratulations, you have completed the AIAG Core Tools Self Assessment. Attached please find your results.

If you are interested in additional training, please visit our website at www.aiag.org or call our Customer Service Department at 248-358-3003.

You are welcome to sign up for the Self Assessment again in 30 days to see how your knowledge level has increased.

www.aiag.org

Thank you for taking the AIAG Core Tools Self Assessment.

The purpose of the Self-Assessment is threefold:
1. Measure basic understanding of the automotive quality core tools
2. Identify areas where additional education and training may be useful
3. Provide feedback regarding effectiveness of prior training investment

The assessment has been designed with the expectation that professional quality practitioners should be able to score 90+ in their prime competencies. There are no predetermined thresholds for taking action. However, to the degree that your results are less than 90+, you should consider additional training.

Your results are shown below for the four competency areas measured:

<table>
<thead>
<tr>
<th>ASSESSMENT AREA</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>APQP/PPAP</td>
<td>95</td>
</tr>
<tr>
<td>FMEA</td>
<td>91</td>
</tr>
</tbody>
</table>

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Core Tools Self Assessment

- Core Tools Self Assessment Statistics - Alabama
  - Launched in 2012
  - 128 exams completed
  - 128 unique individuals
  - 45 unique companies
Core Tools Self Assessment Results
Averages

Alabama Core Tools Exam Results Boxplot

Industry Average Core Tools Exam Results Boxplot
Core Tools Self Assessment Results
APQP/PPAP

Alabama: APQP/PPAP Averages by Year

Industry-Wide: APQP/PPAP Averages by Year
Core Tools Self Assessment Results

FMEA

Alabama: FMEA Averages by Year

Industry-Wide: FMEA Averages by Year
Core Tools Self Assessment Results

SPC

Alabama: SPC Averages by Year

Industry-Wide: SPC Averages by Year