

#	CATEGORY	EVALUATION CRITERIA	REQUIREMENT / NEED	APIS® IQ-Software Solution
1	Functionality	Create a New FMEA	Facilitates the creation of a new FMEA. For example, allow users to create new FMEAs from a template, from an existing FMEA, or as a totally new file.	✓
2	Functionality	AIAG/VDA Form	According to the methodology described in the AIAG / VDA FMEA Handbook (2019), new FMEA Forms are implemented, and the AIAG/VDA Forms Editor displays all information in columns, side by side. In parallel, the VDA2019(AIAG/VDA) layouts (A, C, D, E, F, G) are available with the adaptations to the newest AIAG/VDA 2019 standard.	✓
3	Functionality	FMEA Scope Analysis	<b>Step 1, Planning and Preparation</b> , described in the method part of AIAG / VDA FMEA Handbook (2019) is supported by the new editor <b>FMEA Scope Analysis</b> .	AIAG / VDA (2019) Steps 1-7 are each supported fully by various editors in the IQ-Software.
4	Functionality	Template Management	Allow user-created/managed templates (blank and/or partially completed) for data entry. The ability to avoid "creating from scratch" every time.	Templating functionality is available on many levels. From catalogs of reusable Functions, Failures, Preventive & Detection actions, etc. to more elaborate templates of complete product/process design elements (e.g., compressor assy, welding station, etc.).
5	Functionality	FMEA Form	Put information into a DFMEA format. Have multiple formats available, including all customer variants as well as regional governing body formats. For example, AIAG output form, DRBFM output form, user defined form, etc. Ability for users to customize DFMEA forms and create new standard forms.	Multiple FMEA form sheet layouts are available including AIAG and VDA (including the upcoming changes.) Although the form sheets are not directly customizable by the user, the APIS® IQ-Software supports custom form sheet layouts upon request. Besides the existing standard forms, the User-Defined View editor allows very flexible customization of table views.
6	Functionality	Structure type AIAG/VDA MSR	The AIAG / VDA FMEA Handbook (2019) introduces the new FMEA type, FMEA for Monitoring and System Response (MSR). This is available as a new structure type AIAG/VDA MSR (2019) in the IQ-Software.	✓
7	Functionality	Action Priority Catalog	According to the methodology described in the AIAG / VDA FMEA Handbook (2019), catalogs for the Action Priority (AP) for DFMEA, PFMEA, and FMEA-MSR have been implemented. Like with other valuation catalogs, it is also possible to create more, own AP catalogs and to customize them.	✓
8	Functionality	Statistics by AP	Corresponding statistics (graphs) are integrated for Action Priority (AP) metric	✓
	Functionality	Statistics by RPL	Risk Priority Level (RPL) metric can be calculated per General Motors Guidelines	✓
9	Functionality	Valuation Catalogs	According to the methodology described in the AIAG / VDA FMEA Handbook (2019), all required additional valuation catalogs for Severity (S), Occurrence (O), and Detection (D) have been integrated. Besides coverage of DFMEA and PFMEA valuation catalogs, you will find FMEA-MSR valuation catalogs with Severity (S), Frequency (F), and Monitoring (M) instead of the well-established Severity (S), Occurrence (O), and Detection (D): AIAG/VDA (2019) FMEA-MSR.	✓
10	Functionality	P-Diagram	Provide tool to create <b>P-Diagram</b> integrated with the DFMEA. The Parameter-Diagram Editor focuses on a function and makes it possible to enter data according to input, output, error states, control factors, and noise factors information. There are also several layouts for the P-Diagram for the user to choose from.	✓
11	Functionality	Risk Matrix	Provide means to view/analyze risk according to Risk Matrices(in the context of the rating pairs SxO, SxD, OxD)	The Risk Matrix permits visualization of the failure risk in the context of the rating pairs SxO, SxD, OxD. These matrices are customizable to allow G, Y, R classification according to the rating pairs.
12	Functionality	Document Embedding and/or Linking	Provide the ability to paste images/documents directly into the FMEA form. The ability to link to other documents from within the FMEA form (e.g. Excel file, .jpg, etc...) . Links can be either to files or via URL address.	* Images / documents can be linked or embedded either via "bookmarks" or within "notes." External links to IQ-Objects can also be provided (e.g., open an IQ file from within an email or PowerPoint)
13	Functionality	Management Report Editor	Using a special template, the custom Management Report is created, summarizing the result of the analysis for documentation purposes.	✓
14	Functionality	Create/Modify Process Flow Diagram and Control Plans	Provide ability to create Process Flow Diagram and Control Plans from entered PFMEA data.	✓
15	Functionality	Create/Modify Block Diagram	Provide a function to allow users to create and modify subsystem functional block diagrams. Ability to automatically generate functional block diagram based on entered data (product contents). Linkage of functional block diagram to system structure.	The Block Diagram Editor allows users to import graphics from different sources. Component areas of this diagram can easily be linked with hotlinks to the IQ-Software data objects.
16	Functionality	Item/Function/Matrix	Ability to create an item/function interface matrix. Automatically Integrated with to functional block diagram based on entered data (product contents).	Item / Function interface diagram already exists. Linkage to block diagram is TBD.
17	Functionality	Functional Safety Fitting	Ability to support Functional Safety requirements. Compliant with ISO26262	Ref. websites <a href="http://www.apisnorthamerica.com">www.apisnorthamerica.com</a> (en)   <a href="http://www.apis.de/en">www.apis.de/en</a>
18	Functionality	Link to and cascade critical characteristics between PFMEA & DFMEA	Allow DFMEA files dynamically link with PFMEA files (similar to item 7 above). Allow data to be shared between the files, while maintaining the ability to update each independently. Ability to cascade critical characteristics between DFMEA to PFMEA.	✓
19	Functionality	Action Item/ Task Tracking	Provide a method for users to set action items for themselves or others, provide a list of action items for task tracking purposes. Allow users to enter information about action item resolution/results. This is related to the notifications criteria.	Actions can be managed via Deadline Editor. Responsible can be emailed directly.
20	Functionality	Notifications	1. Automated notifications via email to users when approvals or input is required. 2. Option to send a notification manually 3. Ability to customize language used for notification	See 19. Reports (WebPublisher, CARM® Server PDF Reporting, Windows Scheduler) can be scheduled with information regarding action status and/or those needing attention. Direct email of action status or action required is a manual operation from within the APIS® IQ-Software. Data languages (31) are available via the Terminology & Translation editor.

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21	Functionality	Link Management	Allow DFMEA/PFMEA files to dynamically link to each other. Provide for access controls between linked files (e.g. ability to link between the top level and its components)	Within a file, linkages can be made/maintained across multiple Structures. Linkages across separate *.fme files can be accomplished with the CARM server software using CSS Modules .
22	Functionality	Import/Export FMEA Files	Provide functionality for DFMEA/PFMEA importing/exporting from the software in a format readable/usable by someone without the software (e.g. Excel format, or formats supported by competing tools).	e.g., Excel, html, XML, ODBC
23	Functionality	Risk Limiting Method	Ability to configure risk threshold.	✓
24	Functionality	Search/Filter and Sorting Capability	When displaying (search) results/data, allow it to be filtered/sorted/ordered by standard and/or custom criteria.	Most advanced filtering/searching capabilities on the market! Both auto-filters and custom built
25	Functionality	Facilitates Managed Milestones/Checkpoints	Provides the ability for management review and approval at certain checkpoints, before proceeding with product and/or design releases. Can set an approval process for each change / update? WIP, Draft, Released?	✓ Audit Trail
26	Functionality	Fault Tree Analysis	Provide ability to create and conduct FTA from FMEA data.	✓
27	Functionality	Reporting and Presentations	Allow users to run reports on WIP D/PFMEAs, showing useful metrics. Allow users to run reports that compare multiple DFMEAs to gather long-term usage metrics. Able to set up automatic/scheduled report generation. Ability for users to create new and/or ad-hoc reports. Ability to easily present FMEA information to others (e.g. customers) in a customized format. Any free/inexpensive "view only" license/software available.	Comprehensive, easy to create and present output available using <b>WebPublisher</b> option (html output) and/or <b>Management Report</b> functionality. Use built in "Quality Rules" or customize your own filters.
28	Functionality	User Interface	Have an intuitive user interface. Require as few 'clicks' as possible to navigate between key functions. Provide a variety of options to complete tasks. Allow users to customize the interface, store personal settings.	✓
29	Functionality	Spell Check	Actively check spelling of text inputs. Provide similar functionality to MS Office tools. If it exists, be able to disable auto-correct. Spell check against a technical reference library.	Given the technical nature of the terms used in the FMEAs, spell checking is not considered a relevant functionality. Most words would be flagged.
30	Functionality	Summary Function	This makes determining operating figures possible and is based on the filter concept. It is also possible to save the operating figures permanently with the values they has when the analysis was executed.	✓
31	Functionality	Parts/Functions Library	Allow users to create a library of parts, features, functions, failures, etc. that can be pulled from while filling out the DFMEA, to keep language standard and save time. Provide support to create these libraries to maximize usability/efficiency.	CARM® Server application!
32	Functionality	Check In/out FMEA files	Allow a user to check out the DFMEA (or just a part of it) so that only they can work on it. The ability for concurrent users to access different functions of the same part. Track (audit trail) check in/out activity.	✓
33	Functionality	Change Point Visualization	Ability to perform detailed change point analysis. Highlight the change point in the structure	✓
34	Functionality	Audit Trail	Ensure change tracking capability	The APIS® IQ-FMEA® PRO and APIS IQ-RM® PRO, provide a rigorous workflow to track changes to the FMEA data, listing what changes, who changed it, when they changed it, etc., which are related to the regulated environment.
35	Functionality	Version Control	Be able to access and revert to previous versions of the form. Allow users to manually save the file as an updated version. Ability to associate different versions with different statuses in the product lifecycle (e.g. WIP, Draft, Released).	✓
36	Functionality	Library Management	Store all/multiple completed and WIP DFMEAs in a organized library for easy/intuitive access. Facilitate copying between DFMEAs in library. Ability to crossreference across FMEAs (all solenoid coils, motors, welding, etc.).	✓
37	Functionality	Folder Hierarchy Management	If using a library-type system, allow for the folder creation/relocation to be locked. In addition, the folder hierarchy should be visual/icon based, not word based (similar to windows)	The APIS IQ Software is not "folder" based but rather "object-oriented". As such, hierarchy and inheritance are inherent in the software and data model.
38	Functionality	Parent Lifecycle Management	Be able to open the software and file from a hyperlink placed in another program/software/location. Unclear, but leave for demos.	"FMX" Bookmarks and "URL" Bookmarks both provide this outside-in access.
39	Functionality	Validation of Required Fields	Ensure that required data is entered (for the FMEA at a minimum) and error messages are displayed at the appropriate stages within the process. Ability to disable if desired.	Rules based data validation is extensive and customizable. IQ-Software Feature = Assistant Rules
40	Functionality	Innovations for Filters	Ensure robust filtering capability to identify specific data according to user criteria.	Version 8.0 - System filters are now displayed ordered in topics, which makes it easier to find needed filters. For working with multiple notes categories, the selection of relevant note categories has been simplified. There are additional system-defined filters and the FMEA form includes additional parametrizable system-defined filters with the criteria AP, Maximum RPN, or Date in the Future.
41	Functionality	Quality Rules	Built in rules/filters to easily assess the status & quality of the analysis data.	<b>Quality Rules</b> are an additional concept to determine the degree of maturity of an FMEA and find abnormalities. Quality Rules can be used in the Management Report, Function/Failure Analysis (FFA), and the IQ Explore editors. All Quality Rules are provided with explanatory text and example data for ease of understanding.
42	Functionality	Transfer settings	Ensure ability to transfer TPL file (+Template file) from one workstation to another.	✓
43	Functionality	Multi-location support	Tool can be accessed at multiple locations (e.g. other U.S. locations, Europe, China, etc....). Data can be accessed/shared across the different locations.	The addition of the FlexNet based license manager brings this to an even higher level of flexibility and performance!

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44	Functionality	Language Translation	Provide ability to manage and host analysis data in multiple languages.	Workstation settings now offer the possibility to enter an authentication key for DeepL, a translation service DeepL Pro, which evolved from Linguee, a well known provider of software based translation. In addition Microsoft Azure Translate and Reverso are supported. 31 language options are provided for the data.
45	Functionality	Six Sigma Tools	Provide integrated tools for Design for 6Sigma analysis.	IQ-FMEA® PRO & IQ-RM® PRO, provide the 6Sigma tools to support the concept Design for 6Sigma (DFSS). The available editors are Pairwise Comparison Matrix (PWC-Matrix) and House of Quality 1-3 (HoQ)
46	Functionality	Design Verification Plan and Report (DVP&R)	Provide integrated support for DVP&R data & reporting	The activation of the DVP&R in Workstation Settings, enables the DVP&R Editor. DVP&R has its own management like the FMEA Form.
47	Functionality	Ability to work offline	Allow users to access the software even when not connected to company's network (or even internet). At a minimum, the ability to open and display information (e.g. at customer sites, in offsite presentations, etc....)	Stand-alone license or NLX license
48	Functionality	Mobile App/Access	The ability for end-users to access the application via a mobile app on a mobile device and/or via the intranet	Web-based app to Track/Manage actions is in development.
49	Functionality	User Training & Knowledgebase	1. Method of training delivery (onsite vs. online) 2. Availability/frequency of training 3. Availability/usefulness of knowledgebase (online, easy lookup/search capability, quality of materials, etc....)	1. Training available to be delivered onsite, local, or via Web 2. yes 3. yes
50	Technical Fit	System Architecture/ Infrastructure	Compatibility with existing environment/infrastructure (e.g. hardware, operating system/software versions, SaaS vs. On Premise, Clients, etc....) - or do we need to acquire expensive new specialized infrastructure (i.e. new servers, storage, etc....). Can be used from normal office PC (no special client h/w requirements). Expected Platform End-of-Life (i.e. Legacy platform or modern/ relevant) Compatibility with NAITS team member skills sets - Level of complexity (simple is better).	Standard hardware and Windows OS. No special hardware requirements. Software is installed directly on client PCs and license access is managed via FlexNet LM.
51	Technical Fit	Implementation	1. How easy is it to implement the tool (set up complexity, level of effort, ability to convert existing data, amount of initial configuration required, etc....)? 2. How long does it take to implement? 3. How expensive (required level of support from Vendor)?	1. Installation is standard Windows OS application installation 2. Implementation time is customer dependant 3. Vendor support not required to implement. User training costs are available upon request.
52	Technical Fit	System Administration & Maintenance	1. Ability for individual users configure their own "workspace" 2. Ease of upgrade regardless of level of configuration (what are the typical required tasks?) 3. Simplicity of configuration (i.e. How easy is it to configure? What is the level of training/expertise required?) 4. Audit trail/log of system admin activities	1. Supported 2. Service Pack updates made available ~ approx every 3 months 3. User configuration accomplished during initial training. Expertise required is fully dependent upon user need / job role. 4. Logs are auto-created / Audit Trail feature is available in PRO expansion stages of the software.
53	Technical Fit	User Management	1. Provide for individual 'logins' or 'accounts' for each associate. 2. Provide ability to manage access and access (i.e. read/write) authority based on account role.	1. Yes. 2. * Role-based access controls available when using CDM®-Server.
54	Technical Fit	Customer Technical Support	1. Responsiveness (does vendor commit to SLAs?) 2. Support options (e.g. help desk - phone or chat, online portal/self-help, email, etc....) 3. Access to implementation staff post implementation 4. Local (Southeast Michigan) Customer Rep	With an active maintenance contract, support is available via APIS North America® as well as APIS Informationstechnologien GmbH.
55	Technical Fit	Technical/System Administrator training	1. Required level of training (i.e. how complex is the tool to administer) - Method of training delivery (onsite vs. online) 2. Availability/frequency of training 3. Availability/usefulness of knowledgebase (online, easy lookup/search capability, quality of materials, etc....)	Technical IT administration is minimal.
56	Commercial	License configurations	1. Cost effective Licensing model? (site/floating vs. individual "named-user", "view only", multiple environments - dev, test, train, prod, different floating, 2. Cost of ongoing support/ upgrades? Is there a cost of required hardware?	<b>Licenses available include:</b> * Stand-alone: Installed on a single-user computer * Network: Shared seats, requiring a network connection * NLX: Permits "check out" of Network seat for temporary use as a "stand-alone" license on a single computer. * FlexNet License Manager: to manage network license access.
57	Commercial	Training Costs	Cost of required training?	* Training options and costs are available upon request.
58	Commercial	Vendor commitment to customers/tool	1. Roadmap/Upgrade Path (what are their future plans for the tool? 2. What is the track record of upgrades?) Backward compatibility of future upgrades 3. Ease of implementation of future upgrades (ability to implement regardless of level of configuration) Method (and likelihood) for customers to influence contents of future upgrades.	The APIS® IQ-Software is fully and completely influenced by customers...thousands of them! Major version upgrades are typically on 3-year cycle. Service packs are released on a (typically) Quarterly cycle. Customer influence of future upgrades is what has made the IQ-Software great! Customer requests are welcomed!
59	Commercial	Financial Health/ Stability of company	1. How long has the company been in existence? 2. How likely is it that they will continue to be in existence in the long run? 3. How profitable in recent years? 4. What other major customers use the tool?	Development of APIS IQ Software started 1988 and first entered market 1992. German company financials are transparent per German law. Profitability has been given now for more than 30 years. Some important customers include: <a href="https://www.apis.de/en/company/our-customers/">https://www.apis.de/en/company/our-customers/</a>