Knowledge Aware Enginering

Why placing knowledge in the flow of work will be a game changing engineering capability

Jeff Moffa

Jeff has been an innovative leader in the field of Engineering Knowledge Management and Intelligent Design Automation for the past fifteen years and is the author of the whitepaper 'Knowledge Aware Engineering'.

Jeff is currently the President of Auros Knowledge Systems where he heads the business, research, and product development teams.

Prior to Emergent Systems, Jeff worked at Ford Motor Company in the Advanced Manufacturing Technology Development organization leading several Design Automation and Knowledge Systems projects.

Jeff has a BS Mechanical Engineering from Miami University and earned his an MBA from Michigan State University's Eli Broad Graduate School of Management.

What is the point ?

+ Increase engineering efficiency
+ Prevention of past mistakes
+ Build and improve competency over time
+ Consistency and robustness of engineering outcomes

>> Managing Technical Knowledge is critical <<

Existing Approaches

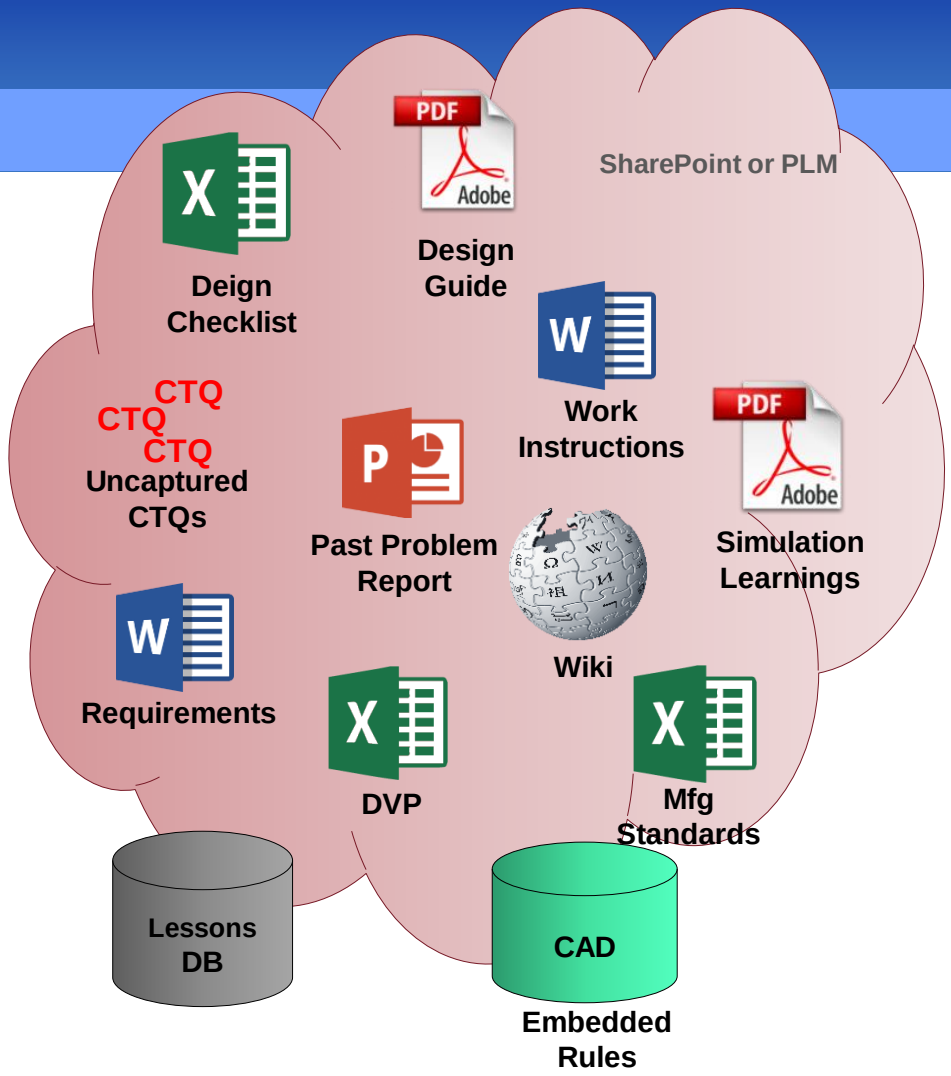
Document Centric

Library Model

>> Past Approaches are passive, ineffective <<

Existing Approaches

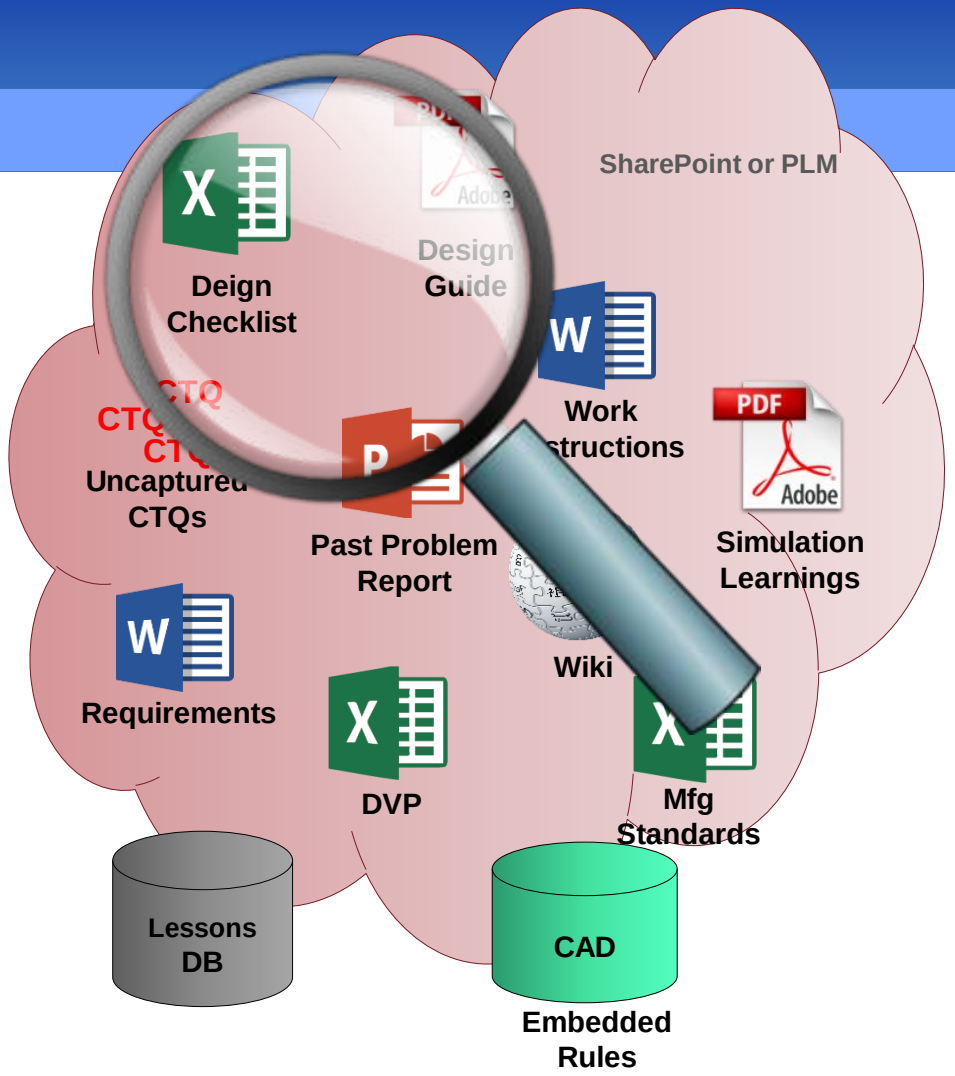
Document Centric



>> Virtualized, but still passive, ineffective <<

Existing Approaches

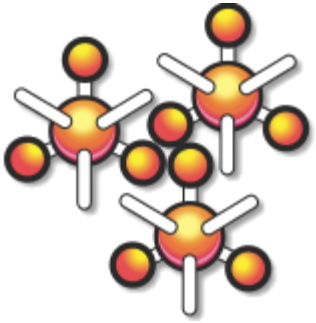
Document Centric

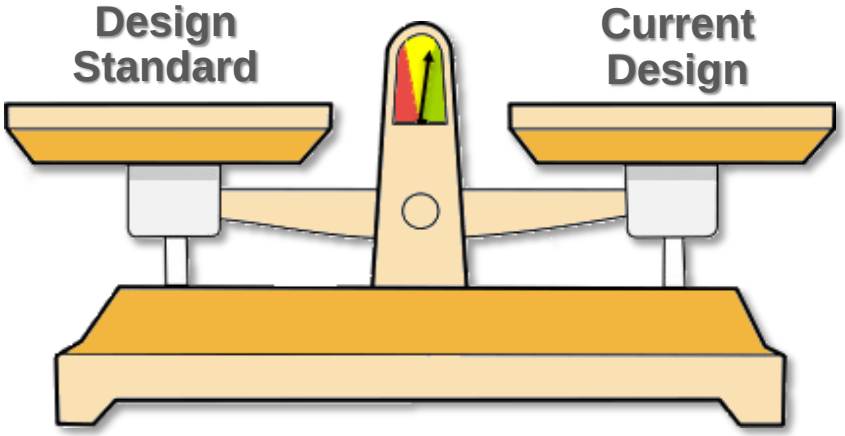


>> Virtualized, but still passive, ineffective <<

Auros: 'Knowledge Aware' difference

Assessment Centric





*A*ppraisal *Model*

>> Auros places Knowledge in-the-flow of work <<

Auros: Value to you

Certainty in Knowledge re-use

Continuous Product & Process Validation, Verification, & Evaluation

Closed-loop Enterprise Learning and Knowledge Sharing

>> Auros is an *active* knowledge system that places knowledge in-the-flow of work <<

Auros: Knowledge Aware Engineering

Predictive Analytics

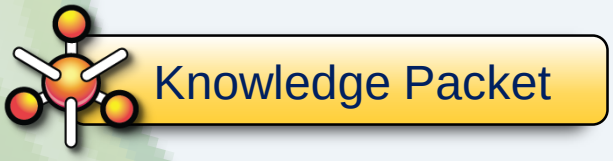
Continuous Validation

Reuse

Instance

Acquisition

Generalized

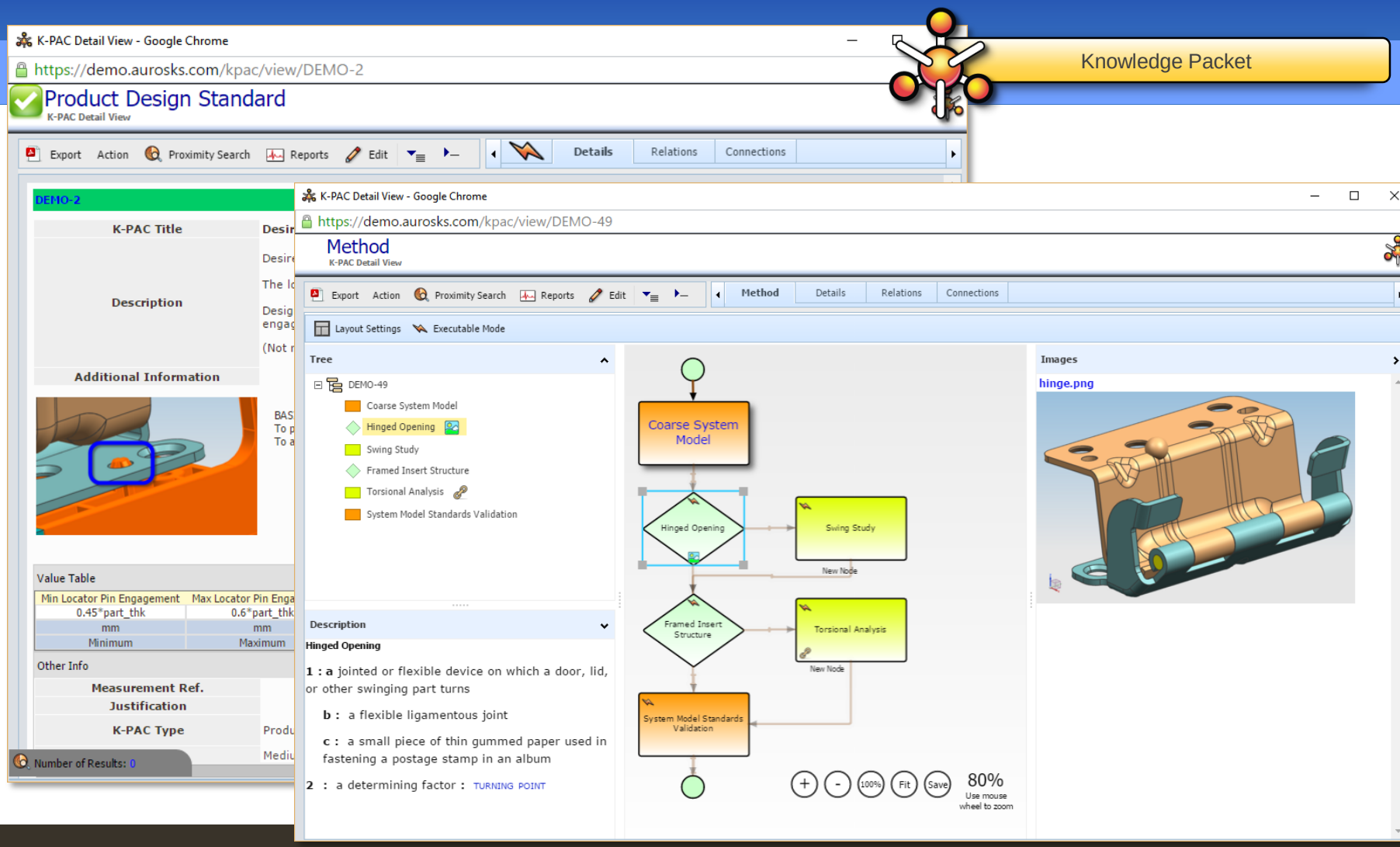


Knowledge Capture

Team Collaboration

Knowledge in-the-flow Services

Auros Core Technology



>> K-PACs are the ideal way to manage all technical knowledge <<

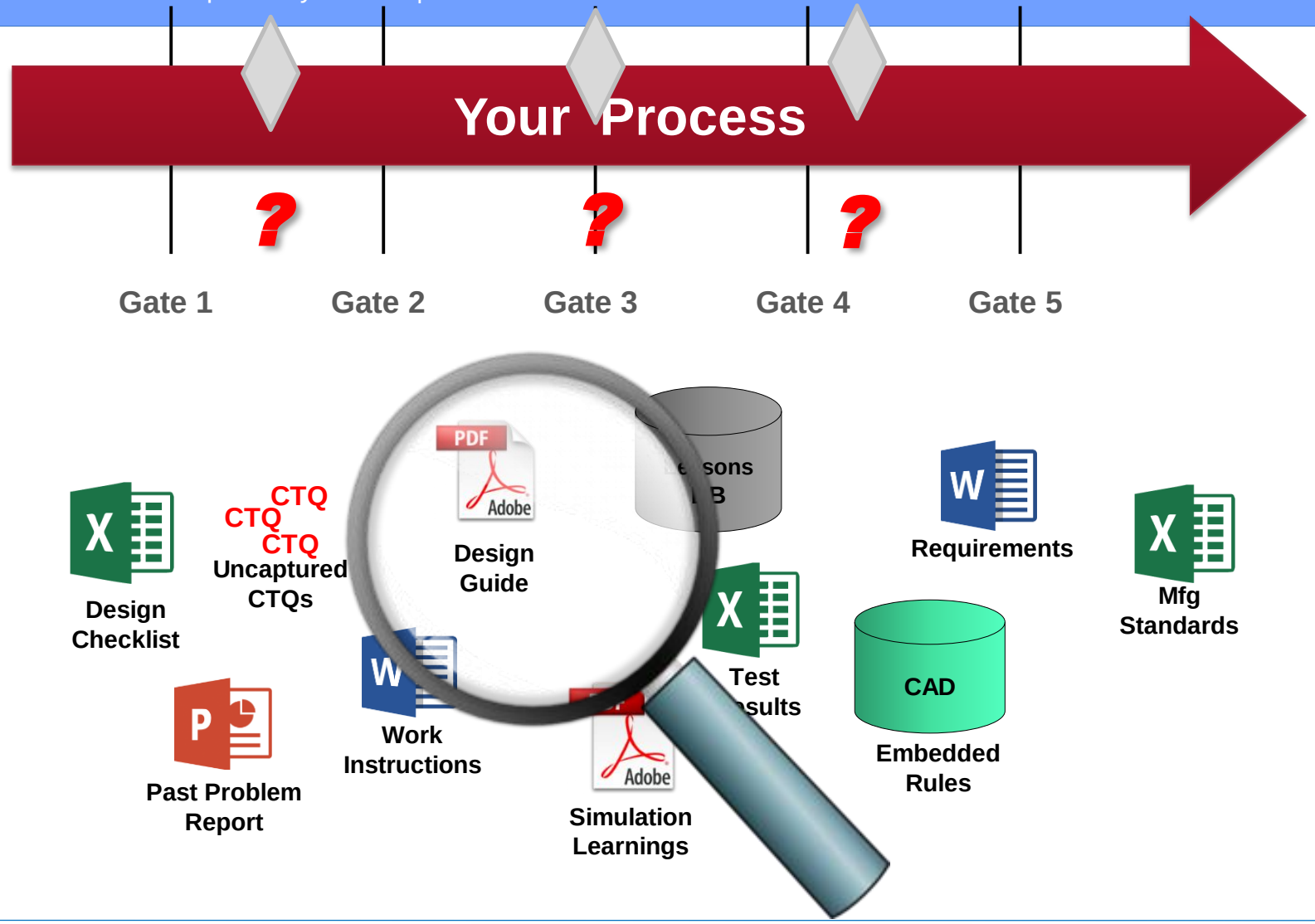
Auros Core Technology

Glob

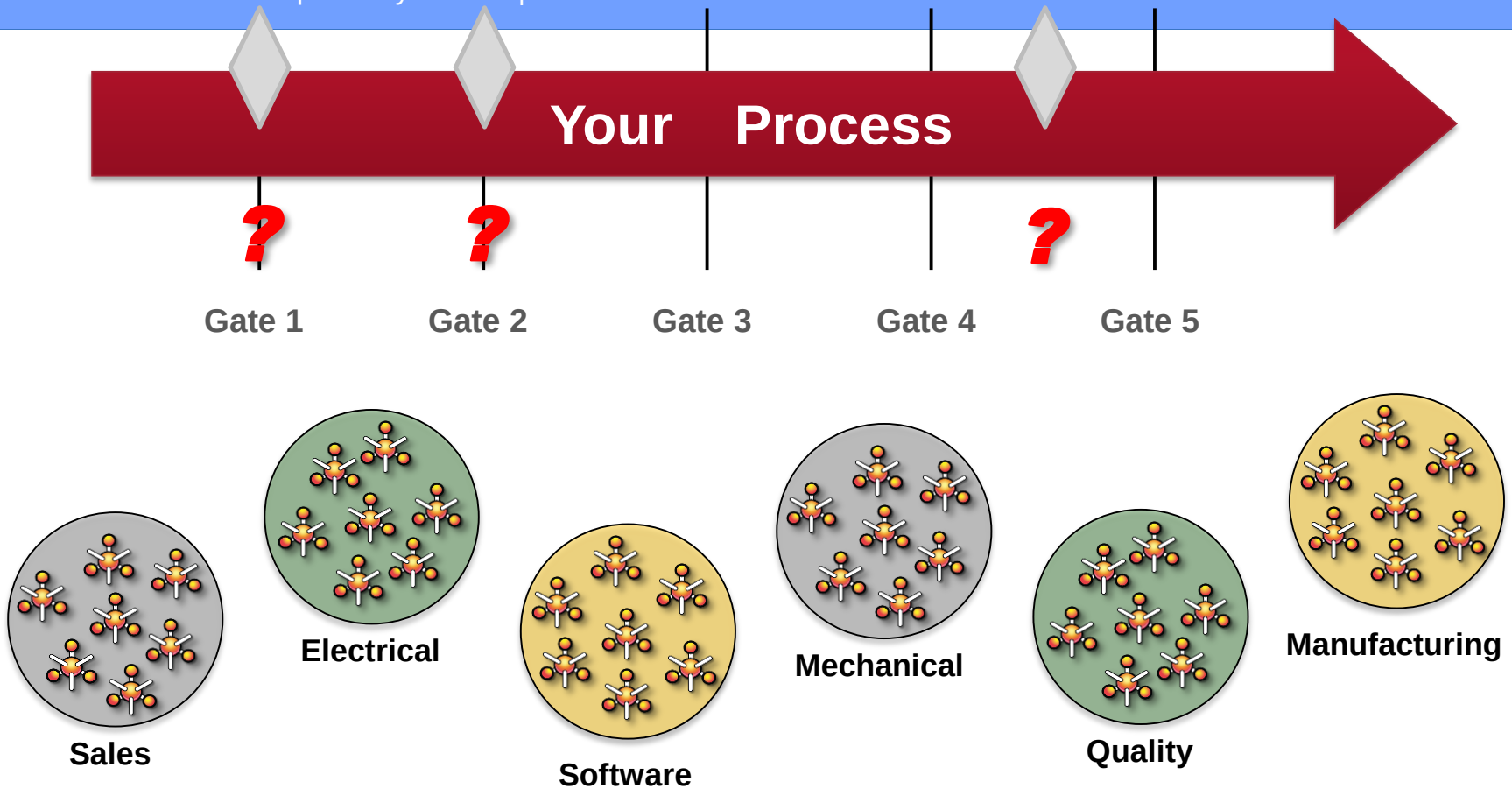
Assessment Control

>> Knowledge is assessed continuously – everywhere <<

Knowledge Aware Engineering

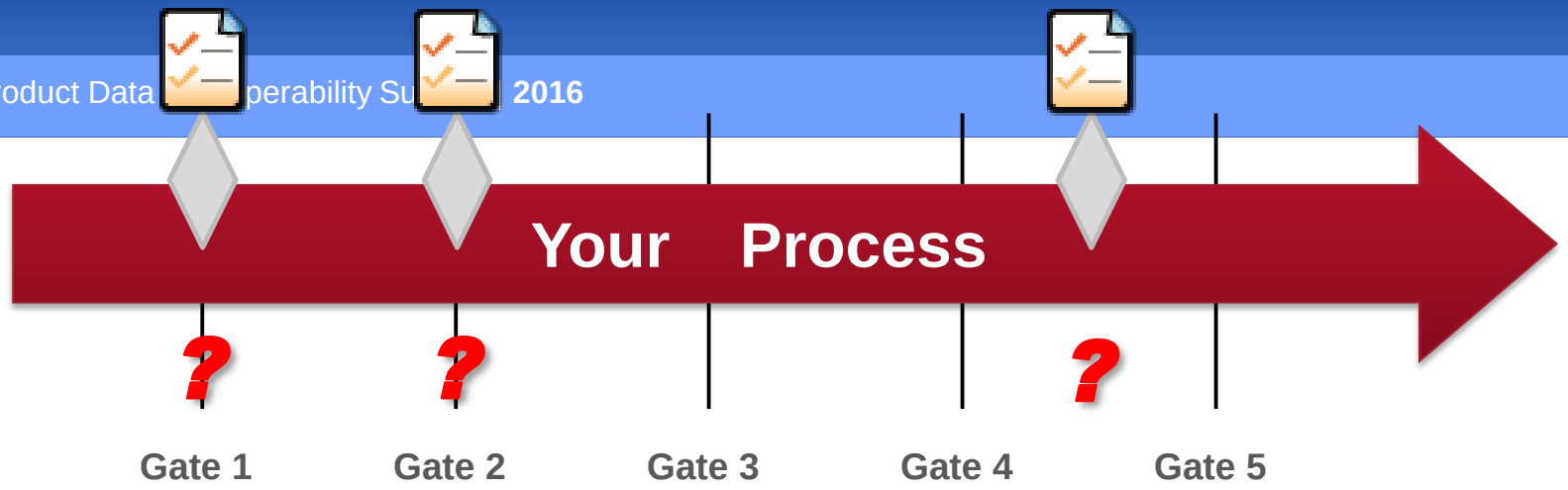


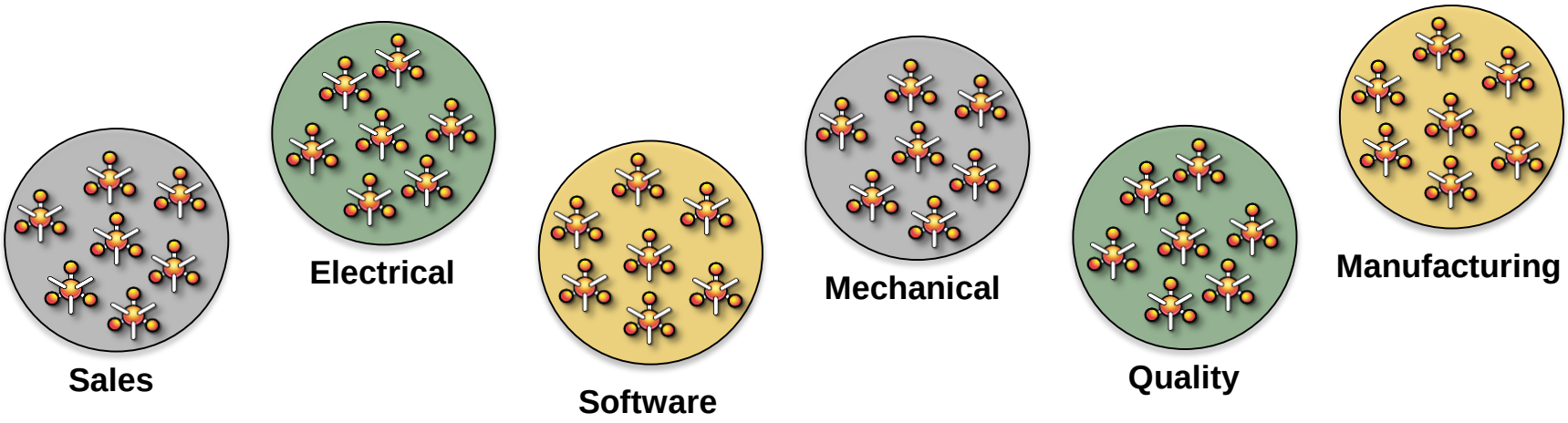
Auros Assessment Controls ensure critical knowledge is delivered



>> Assessment Controls deliver Knowledge in-the-flow of Work <<

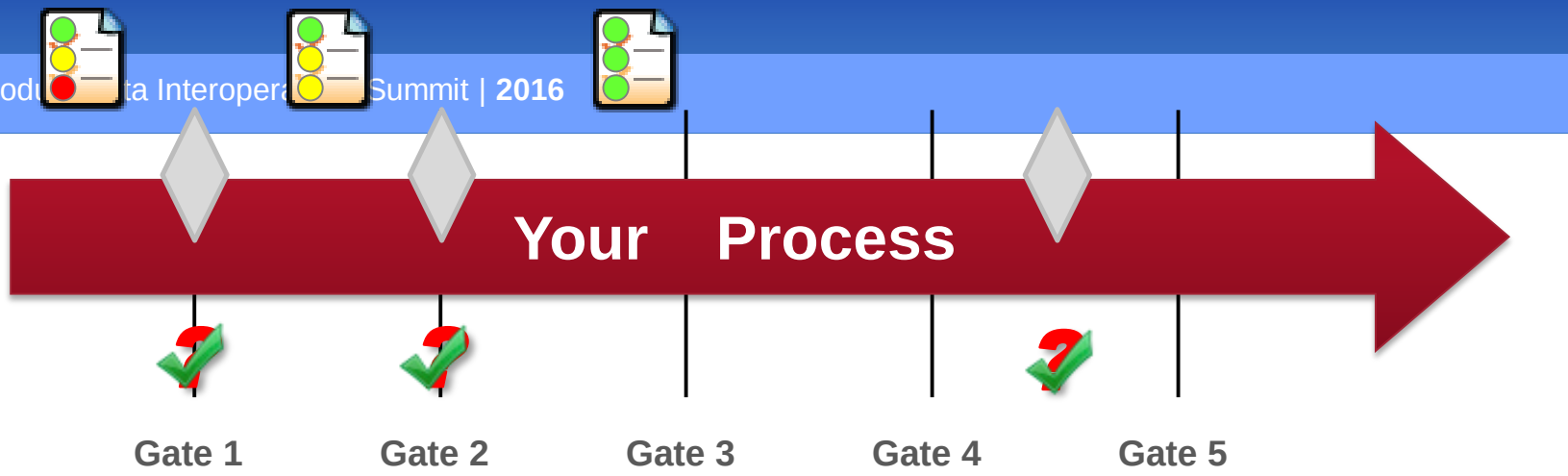
Auros Assessment Controls ensure critical knowledge is delivered

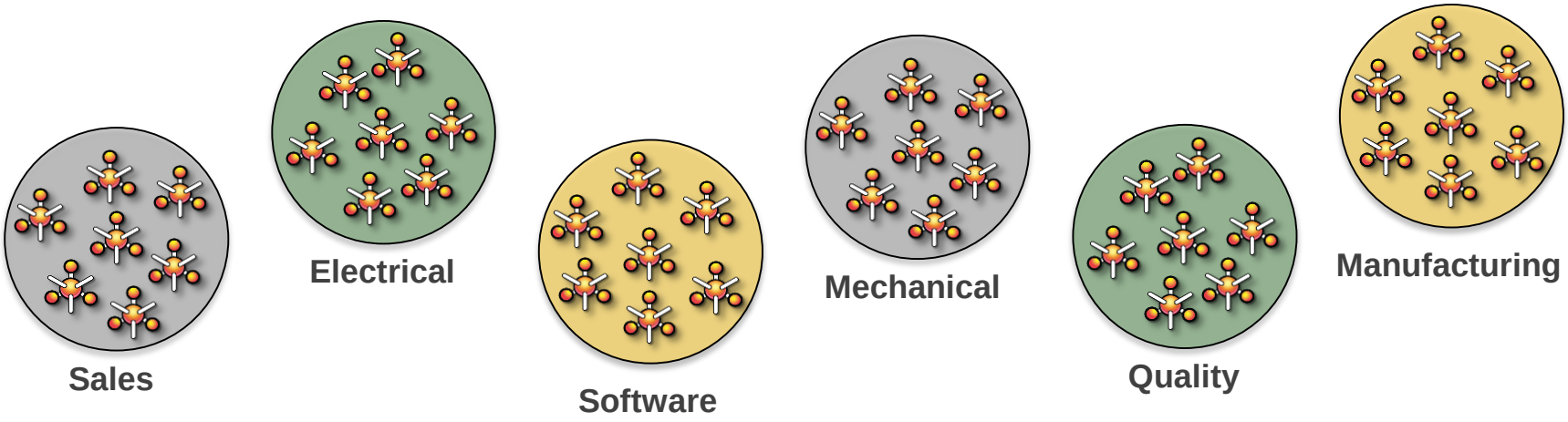




>> Assessment Controls deliver Knowledge in-the-flow of Work <<

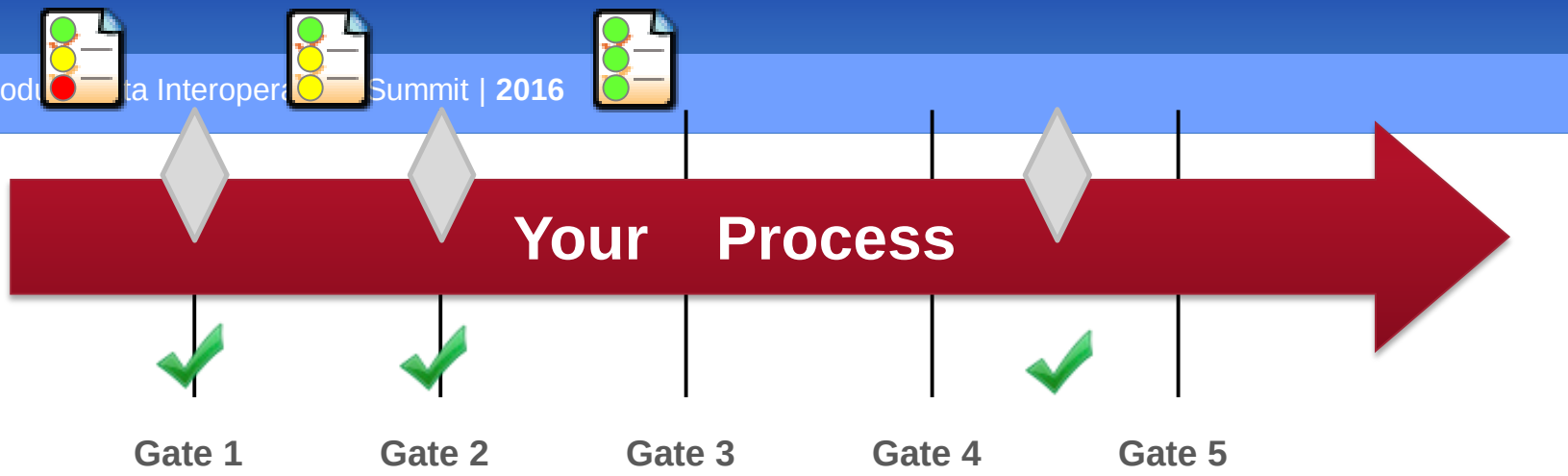
Auros Assessment Controls ensure critical knowledge is delivered

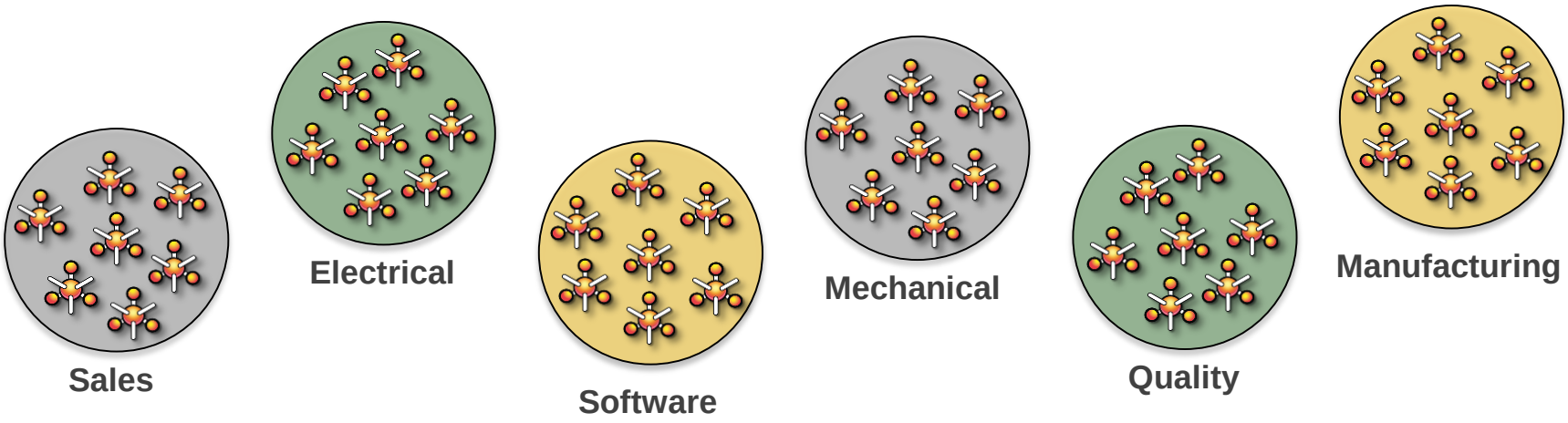




>> Assessment Controls deliver Knowledge in-the-flow of Work <<

Auros Assessment Controls ensure critical knowledge is delivered

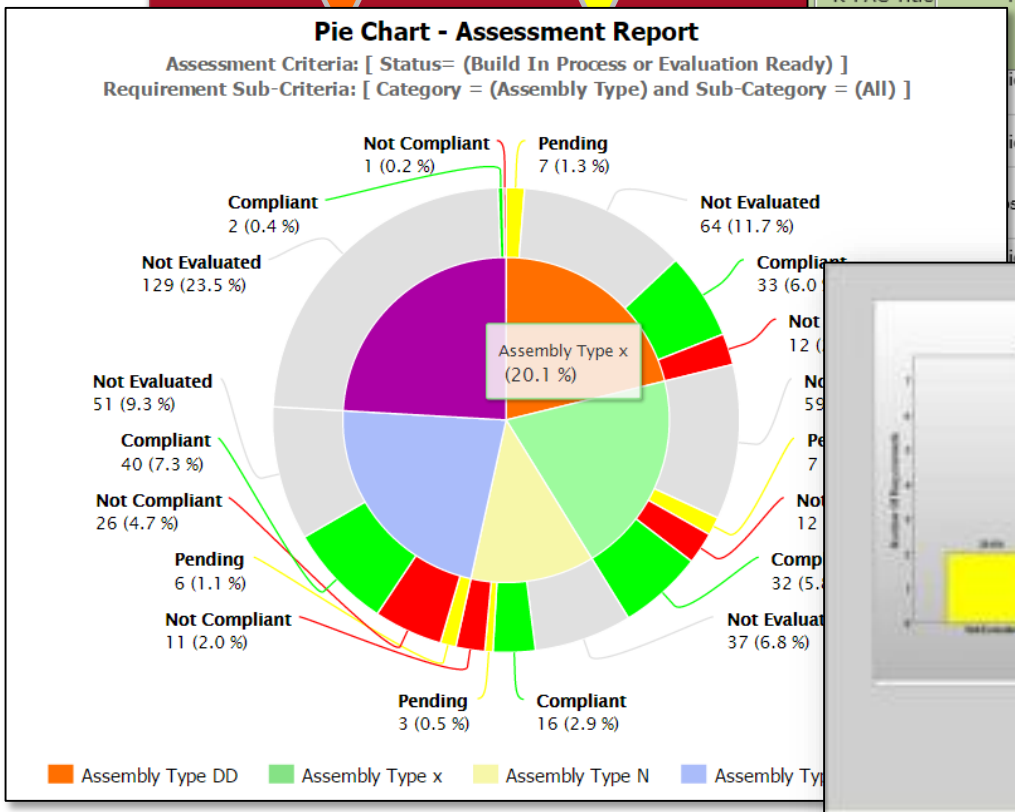




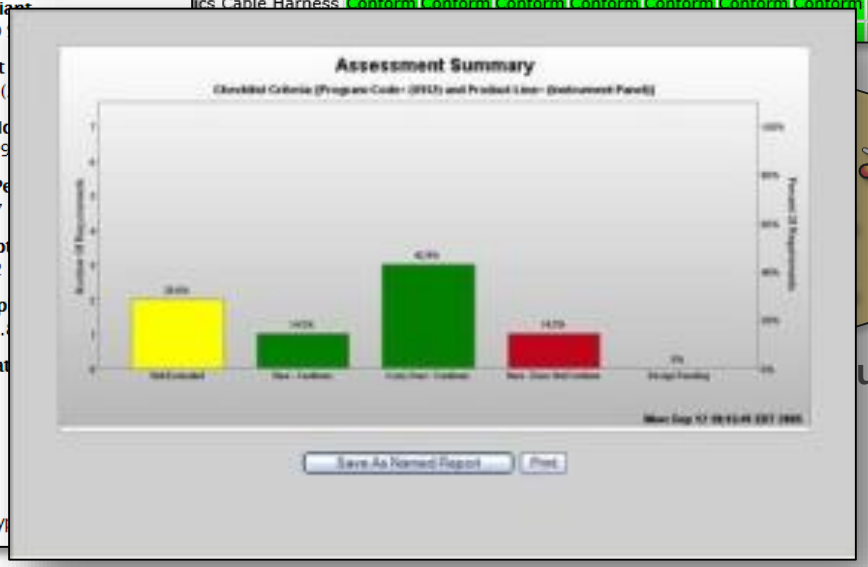
>> Assessment Controls deliver Knowledge in-the-flow of Work <<

Auros Assessment Controls ensure critical knowledge is delivered

Global Product Data [illegible]perability Su[illegible] 2016



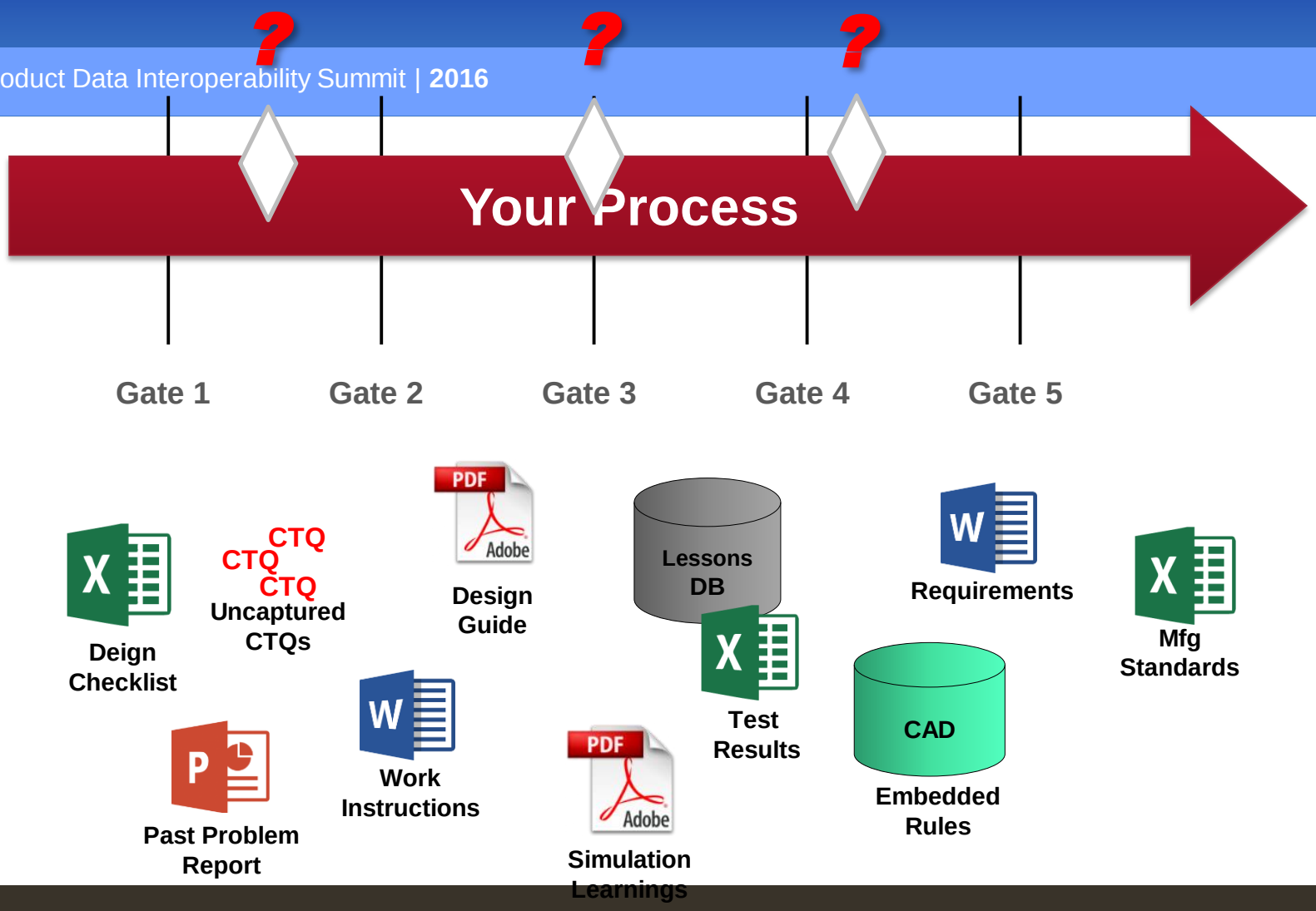
K-PAC Title	Part Name	Denoxtronic 2.2							
		CK_66	CK_66	CK_66	CK_66	CK_66	CK_66	CK_66	CK_66
	ics Cable Harness	Conform	Conform	Conform	Conform	Conform	Conform	Conform	Conform
	ics Cable Harness	Conform	Conform	Conform	Conform	Conform	Conform	Conform	Conform
	sing Module	Not Evaluate	Conform	Conform	Conform	Not Evaluate	Conform	Conform	Conform
	ics Cable Harness	Conform	Conform	Conform	Conform	Conform	Conform	Conform	Conform



uring

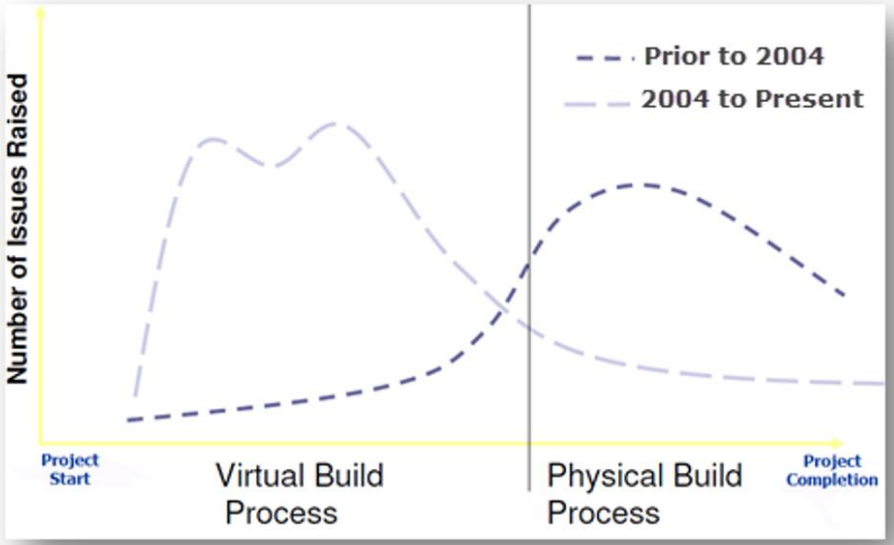
>> Assessment Controls deliver Knowledge in-the-flow of Work <<

Auros: Knowledge Aware Engineering



Document are inherently separated from the flow of work

Auros Value: Measured Value at Ford



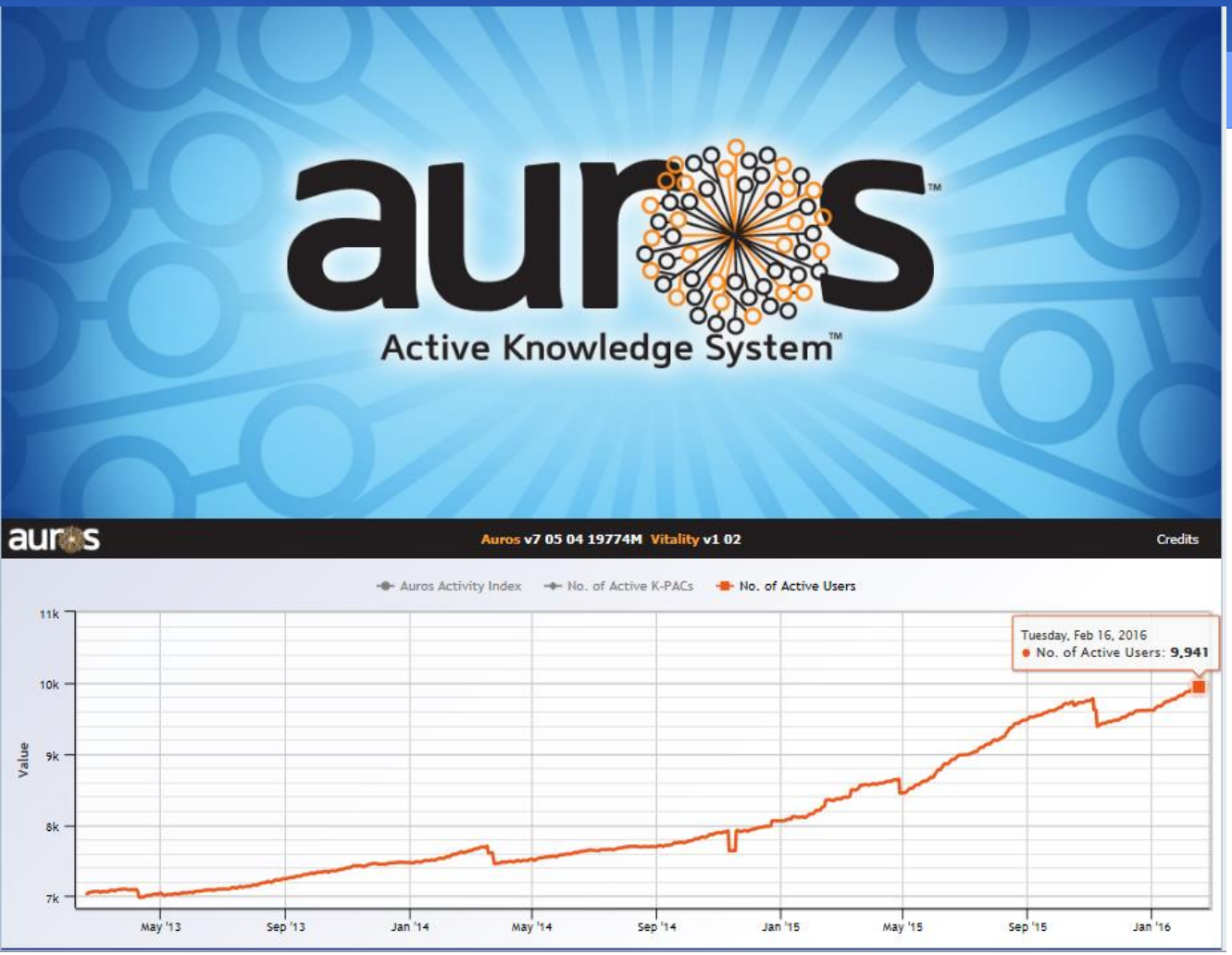
"We have a set of Design Standards that we constantly update… Design Standards are the first line of defense, if you know that you have realizable Design Standards you certainly want to repeat those over and over again. And we have what we call a 'Checklist' ; where everything that we learned from a mistake in the past and we create a counter measure to it, goes into that Checklist, and we go through a series of checks in the very early stages, in terms of the making sure we have right design and right content."

Bennie Fowler
Group VP of Global Quality

http://www.autoline.tv/show/1413?play

>> Auros has a proven track record of high impact and value <<

Auros Value: Measured Value at GM

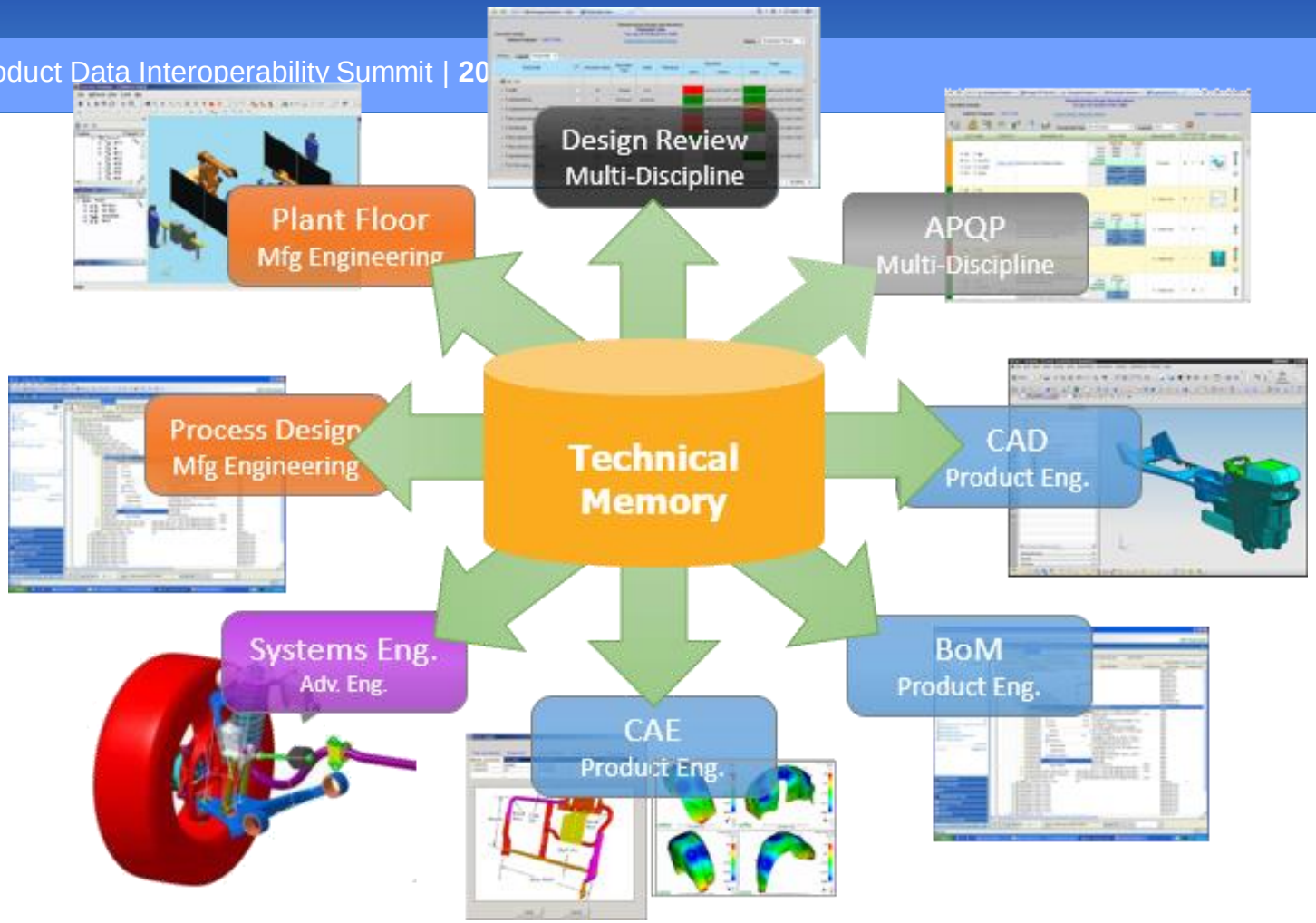


GM implemented Auros in late 2010:

- 200% increase in the number of K-PACs
- 150% increase of active users

→ Auros has a proven track record of high impact and value

Auros Value: Auros is Enterprise



>> Auros ‘in-the-flow of work’ is an Enterprise-wide solution <<

Auros Software is developed by Emergent Systems

- **Founded in 1997**
- **HQ in Dearborn, Michigan**
  - Global Team locations:
    - Dearborn, MI
    - Kharkiv, Ukraine
    - Hyderabad, India
  - Service Partner Network:
    - Paris, France
    - Pune, India
- **Large Customer/User Base**

34,000↑

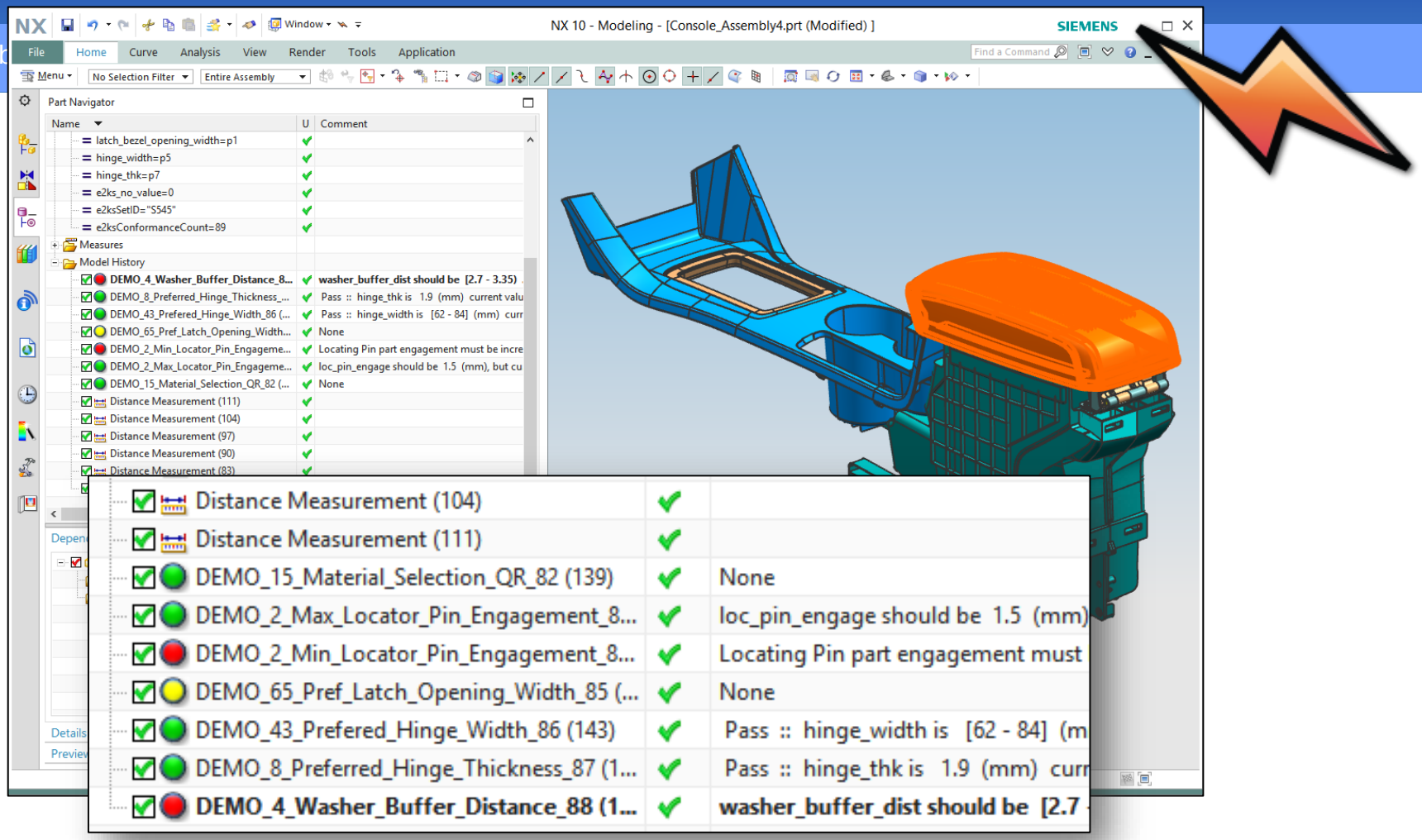
users - growing

Ford, GM, AIRBUS, NAVISTAR, CATERPILLAR, Johnson Controls, ZF, TRW, EATON, ROUSH, AAM, BorgWarner

>> Established Company with rapid growth <<

Knowledge Best Shared

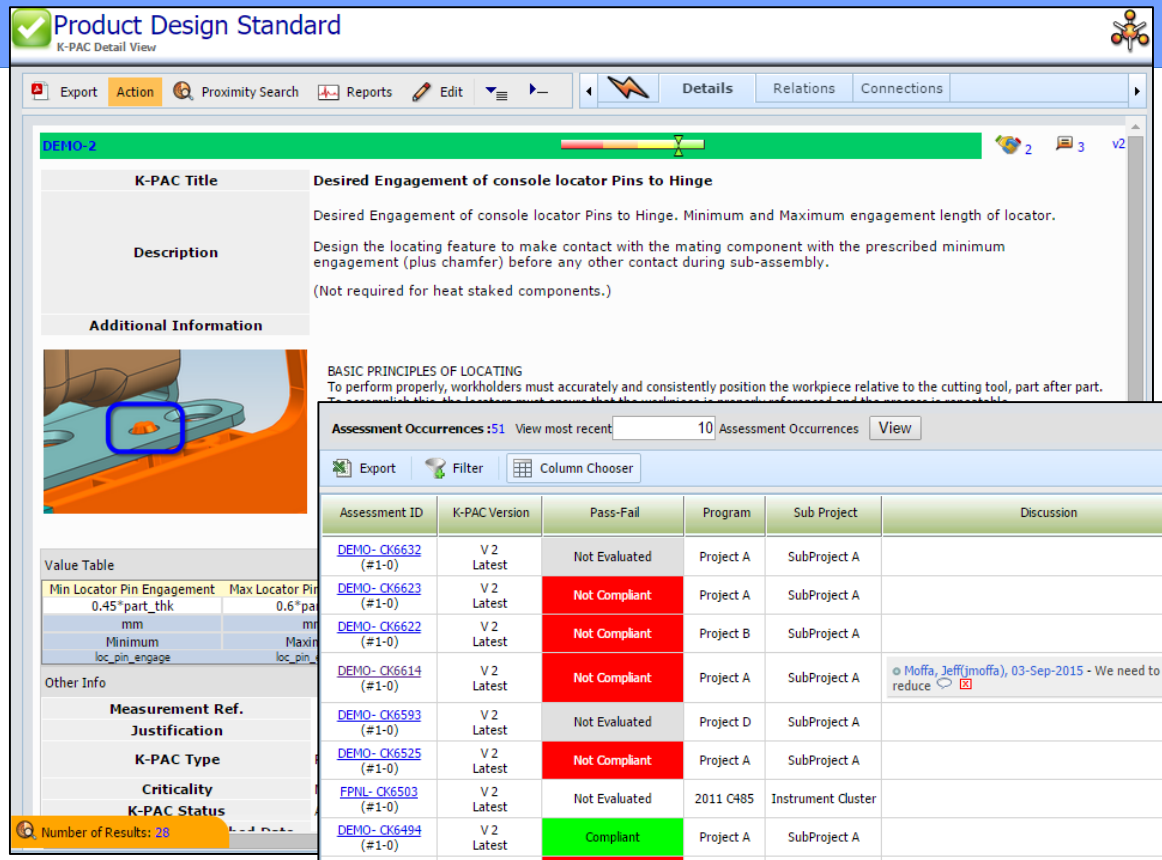
Auros Unique Features: Rules Engine

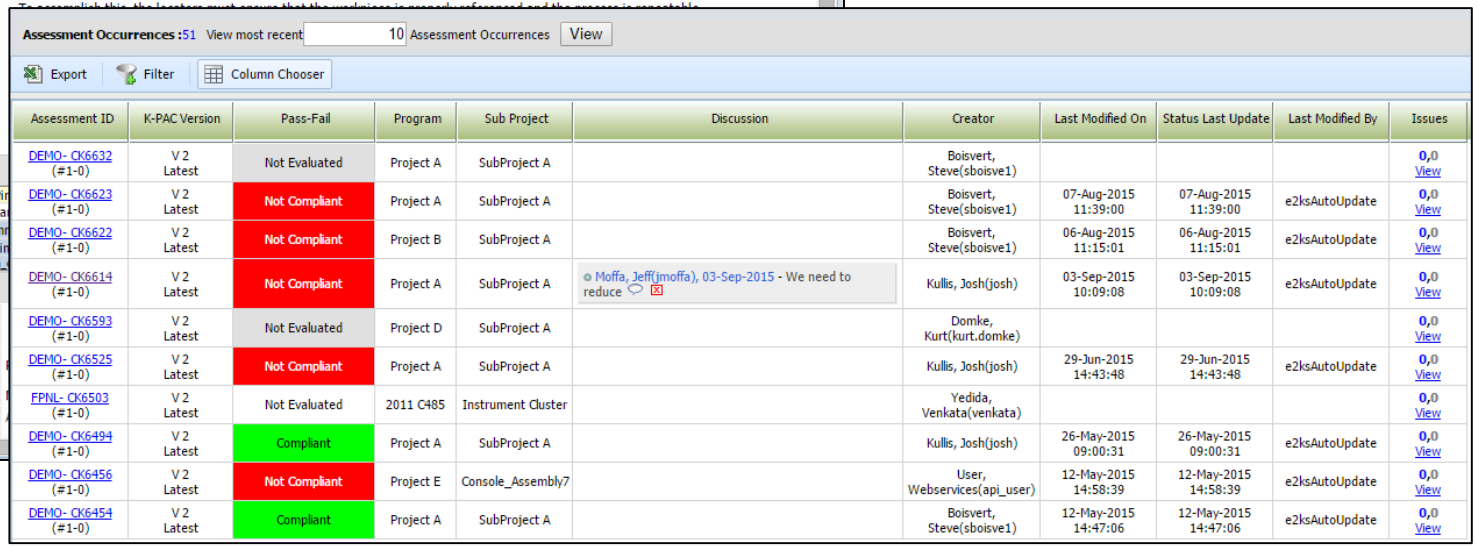


>> Auros puts knowledge into the flow-of-work (e.g. CAD) <<

Auros Unique Features: Look Across

With Auros, past solutions to issue are automatically connected to current context leading to deeper insights and faster problem solving. The grid below is a 'Reverse' assessment showing all past projects where knowledge was used.

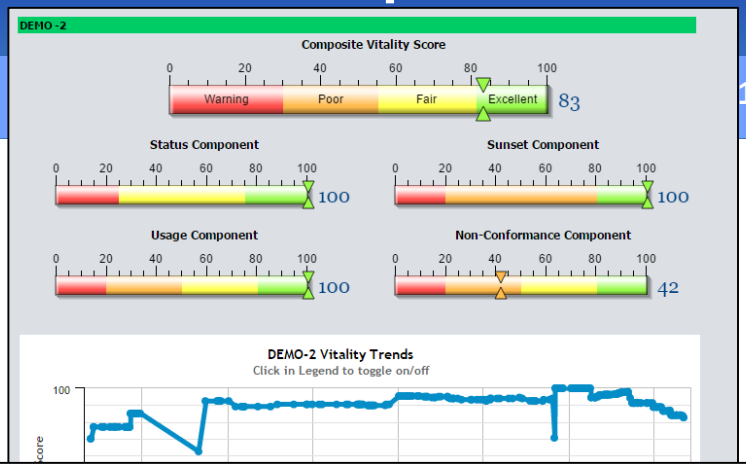


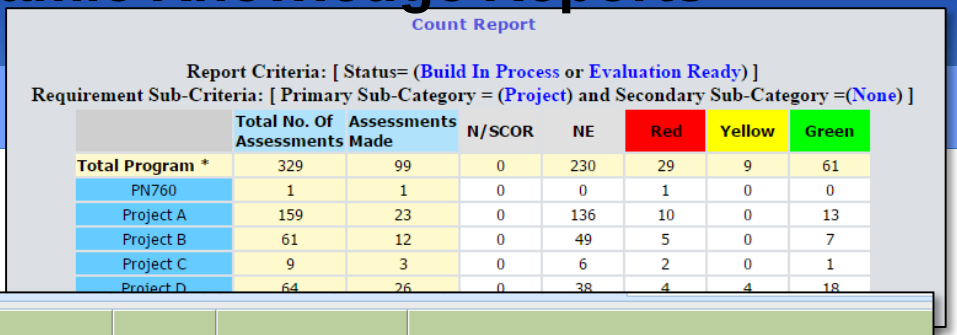


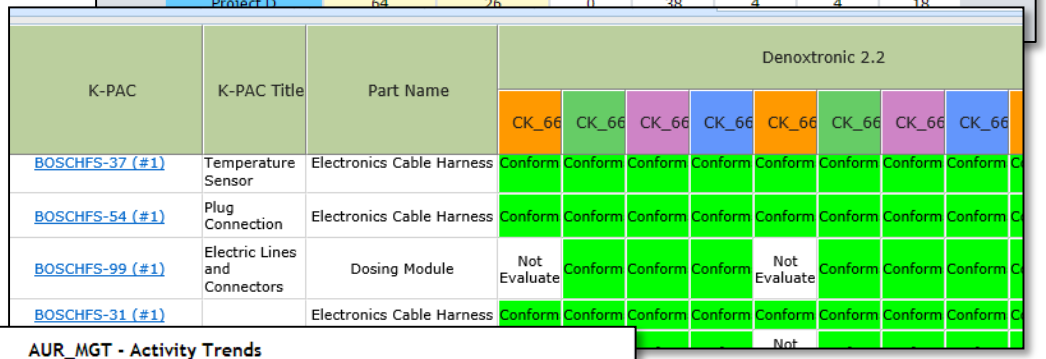
Assessment ID	K-PAC Version	Pass-Fail	Program	Sub Project	Discussion	Creator	Last Modified On	Status Last Update	Last Modified By	Issues
DEMO- CK6632 (#1-0)	V 2 Latest	Not Evaluated	Project A	SubProject A		Boisvert, Steve(sboisve1)				0,0 View
DEMO- CK6623 (#1-0)	V 2 Latest	Not Compliant	Project A	SubProject A		Boisvert, Steve(sboisve1)	07-Aug-2015 11:39:00	07-Aug-2015 11:39:00	e2ksAutoUpdate	0,0 View
DEMO- CK6622 (#1-0)	V 2 Latest	Not Compliant	Project B	SubProject A		Boisvert, Steve(sboisve1)	06-Aug-2015 11:15:01	06-Aug-2015 11:15:01	e2ksAutoUpdate	0,0 View
DEMO- CK6614 (#1-0)	V 2 Latest	Not Compliant	Project A	SubProject A	Moffa, Jeff(jmoffa), 03-Sep-2015 - We need to reduce	Kullis, Josh(josh)	03-Sep-2015 10:09:08	03-Sep-2015 10:09:08	e2ksAutoUpdate	0,0 View
DEMO- CK6593 (#1-0)	V 2 Latest	Not Evaluated	Project D	SubProject A		Domke, Kurt(kurt.domke)				0,0 View
DEMO- CK6525 (#1-0)	V 2 Latest	Not Compliant	Project A	SubProject A		Kullis, Josh(josh)	29-Jun-2015 14:43:48	29-Jun-2015 14:43:48	e2ksAutoUpdate	0,0 View
FPNL- CK6503 (#1-0)	V 2 Latest	Not Evaluated	2011 C485	Instrument Cluster		Yedida, Venkata(venkata)				0,0 View
DEMO- CK6494 (#1-0)	V 2 Latest	Compliant	Project A	SubProject A		Kullis, Josh(josh)	26-May-2015 09:00:31	26-May-2015 09:00:31	e2ksAutoUpdate	0,0 View
DEMO- CK6456 (#1-0)	V 2 Latest	Not Compliant	Project E	Console_Assembly7		User, Webservices(api_user)	12-May-2015 14:58:39	12-May-2015 14:58:39	e2ksAutoUpdate	0,0 View
DEMO- CK6454 (#1-0)	V 2 Latest	Compliant	Project A	SubProject A		Boisvert, Steve(sboisve1)	12-May-2015 14:47:06	12-May-2015 14:47:06	e2ksAutoUpdate	0,0 View

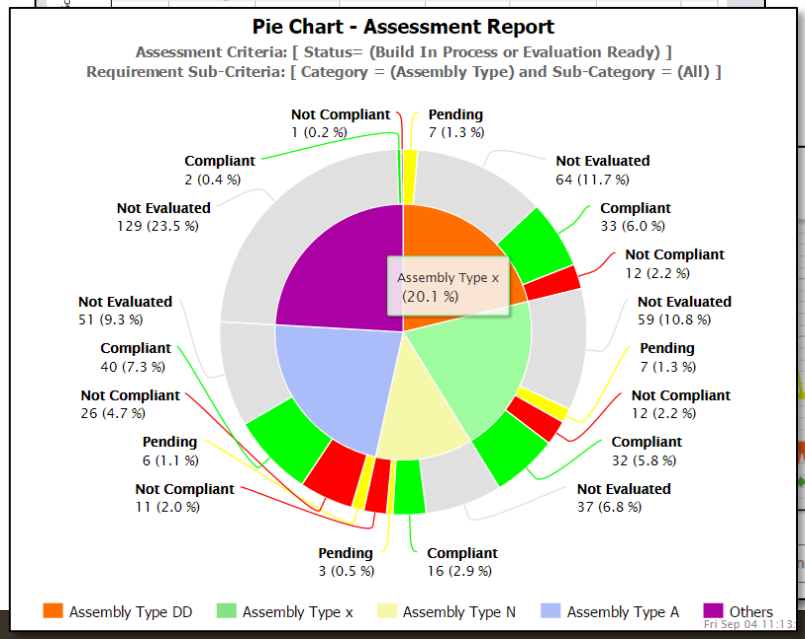
>> Auros allows users to connect with past similar projects/problems <<

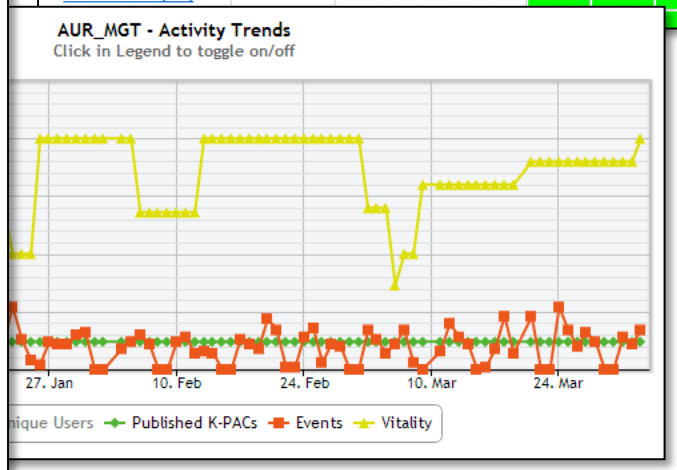
Auros Unique Features: Dynamic Knowledge Reports







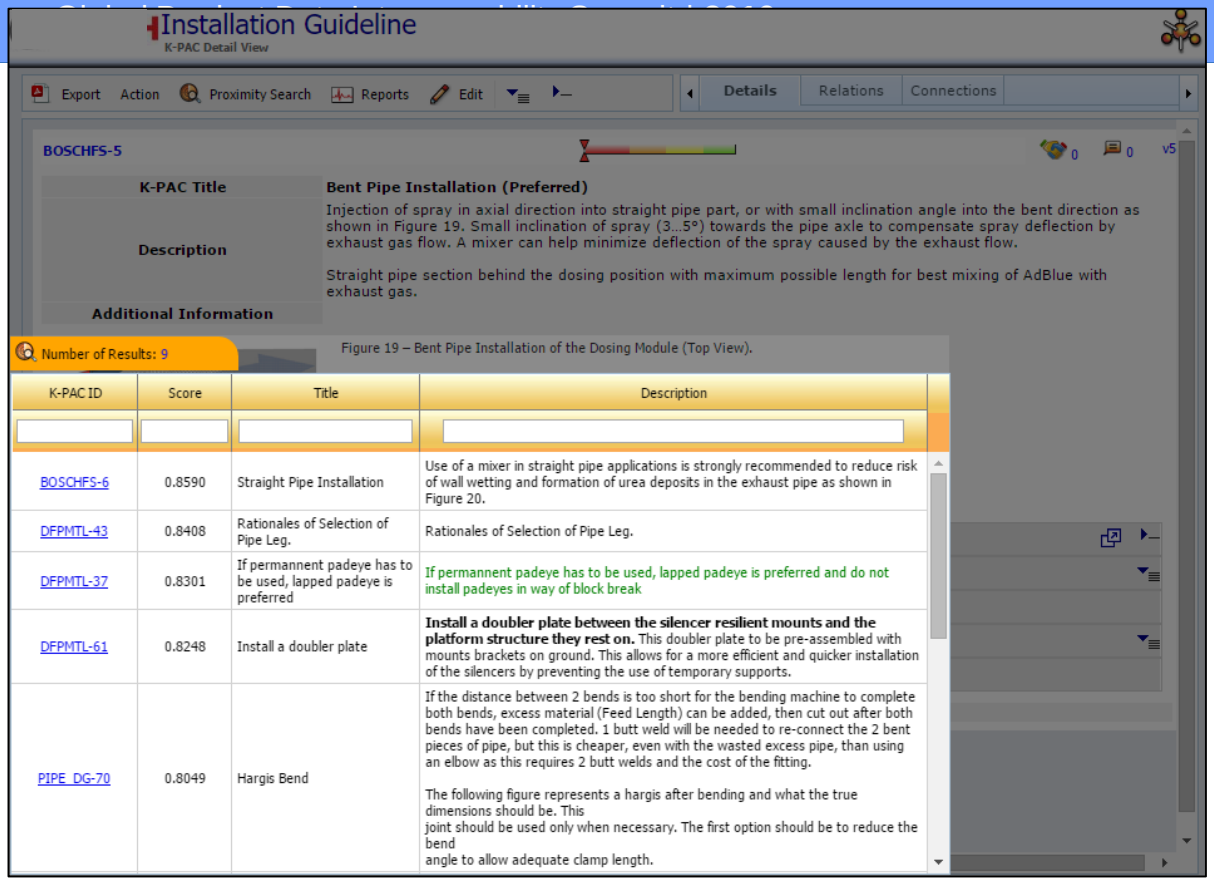




With Auros, reporting within and across projects for problem identification, status and roll-up is made easy. No XLS consolidation.

>> Auros provides a wide variety of reporting/analytics options <<

Auros Unique Features: Proximity Search

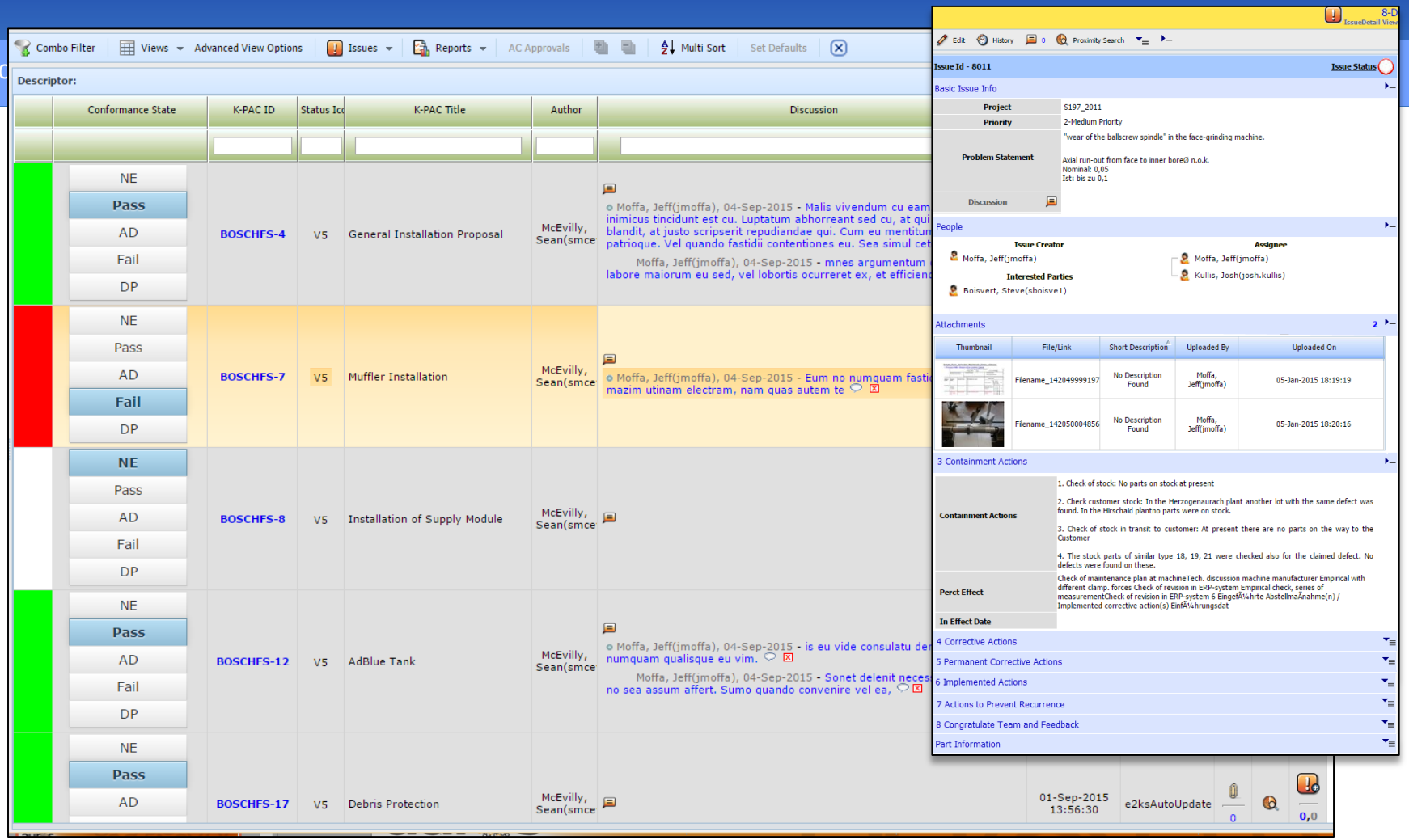


With Auros, engineering knowledge is automatically associated through purpose built semantic search.

- *No more duplicated standards*
- *Related standards are 'connected'*
- *Related issues are identified*

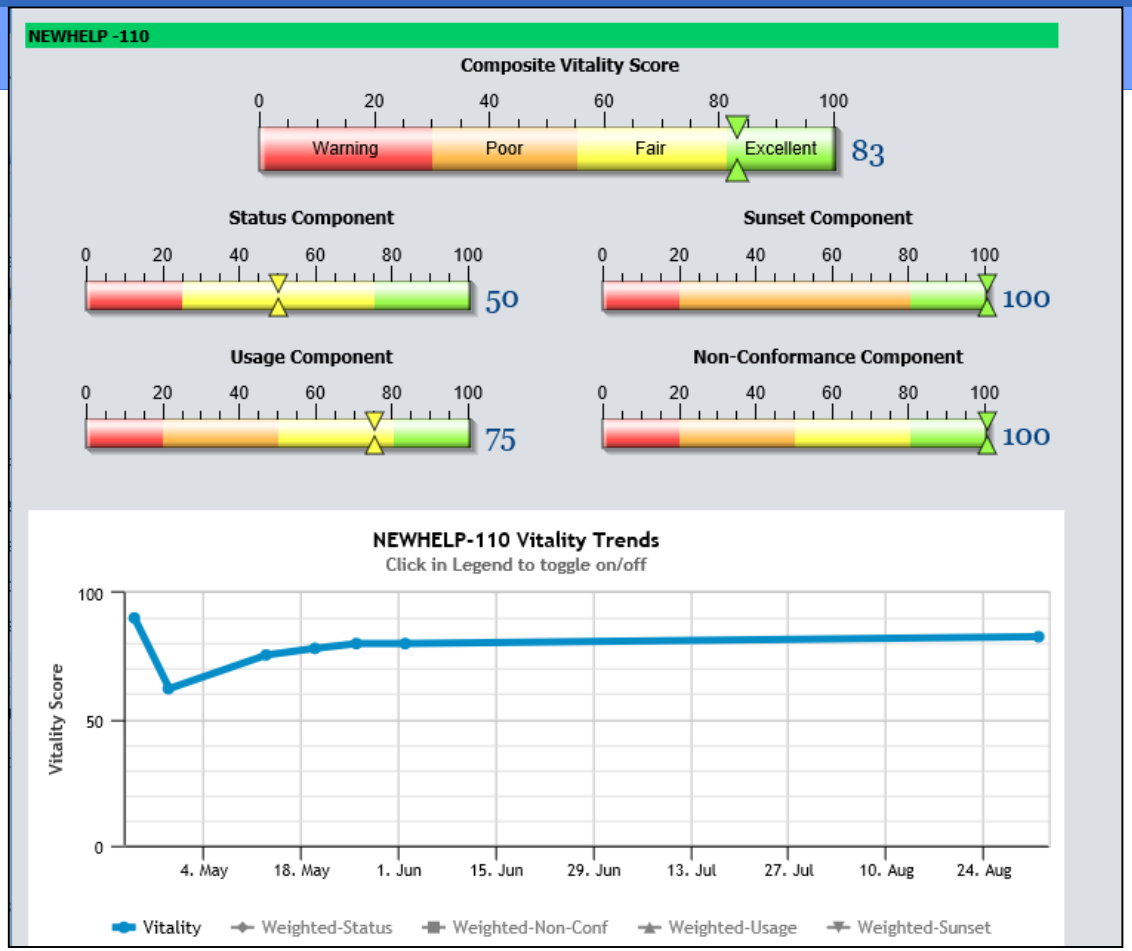
>> Auros automatically makes connections across related knowledge <<

Auros Unique Features: Integrated Problem Solving



>> Integrated problem solving (8-D, A3, issue Mgt) ties issues to knowledge and makes problem solving 'Knowledge Enabled' and efficient <<

Auros Unique Features: Vitality



With Auros, Knowledge is statistically evaluated for quality or 'Vitality'

- *Experts do not have to review all standards, just standards where measured 'Vitality' has decayed*
- *End-users trust the knowledge when measured 'Vitality' is high*

>> Auros calculates the 'confidence of quality' of knowledge items <<

Knowledge Best Shared