

PLM, The Digital Thread and ASD Standards

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AGENDA

- Introduction
- Evolution of ILS Practices and Software
- The desired end game/goal – why is the digital thread so critical?
- Integrating PLM, S3000L and S1000D into this thread
- Where could we evolve to?
- Q&A

Who we are, what we do...

PTC IS A GLOBAL SOFTWARE TECHNOLOGY COMPANY

GEOGRAPHIC COVERAGE



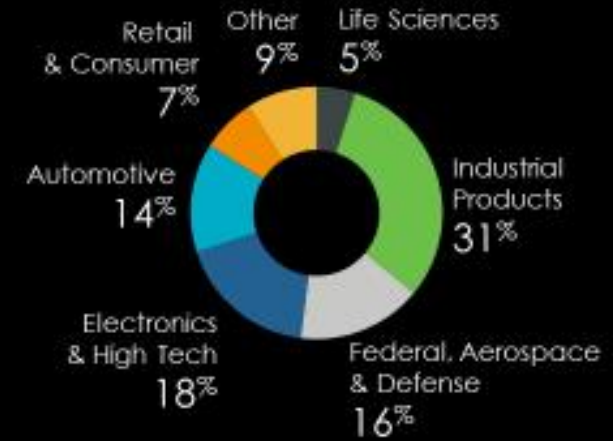
BRANDS



NEW HQ: BOSTON SEAPORT



REVENUE BY VERTICAL



FAST FACTS

\$1.17B	\$989M	\$856M	68%	30,000	750	6,000	1,800
FY17 total revenue	FY17 software revenue	FY17 recurring software revenue	FY17 new software bookings subscription	active customers	partners	employees	universities

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Who we do it for

ARMY



NAVY



NASA



US DoE



A&D

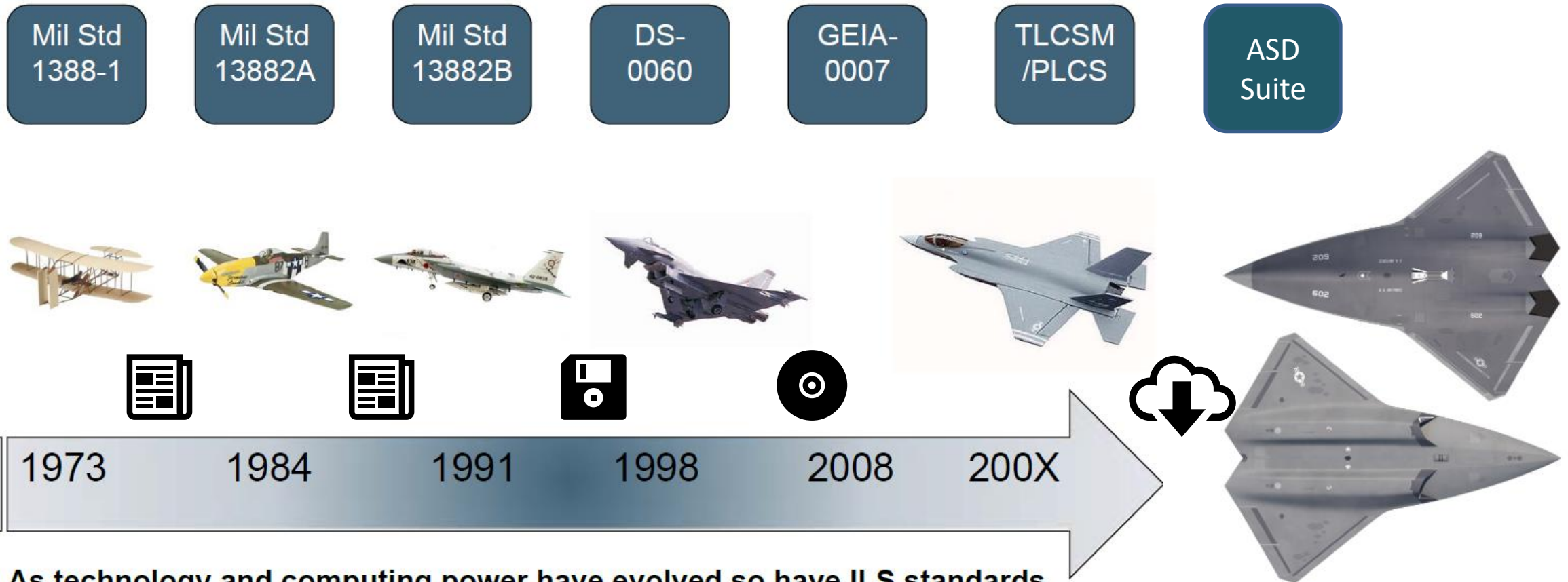


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How the ILS standards have evolved...



As technology and computing power have evolved so have ILS standards...

Why is the digital thread so critical to product support?

ORDER FROM CHAOS

Is the Pentagon headed for a military readiness crisis?

Michael E. O'Hanlon - Thursday, October 12, 2017

DoD BUZZ

News > DoDBuzz

Navy Cutting Maintenance, Cannibalizing Planes Amid Readiness Crisis



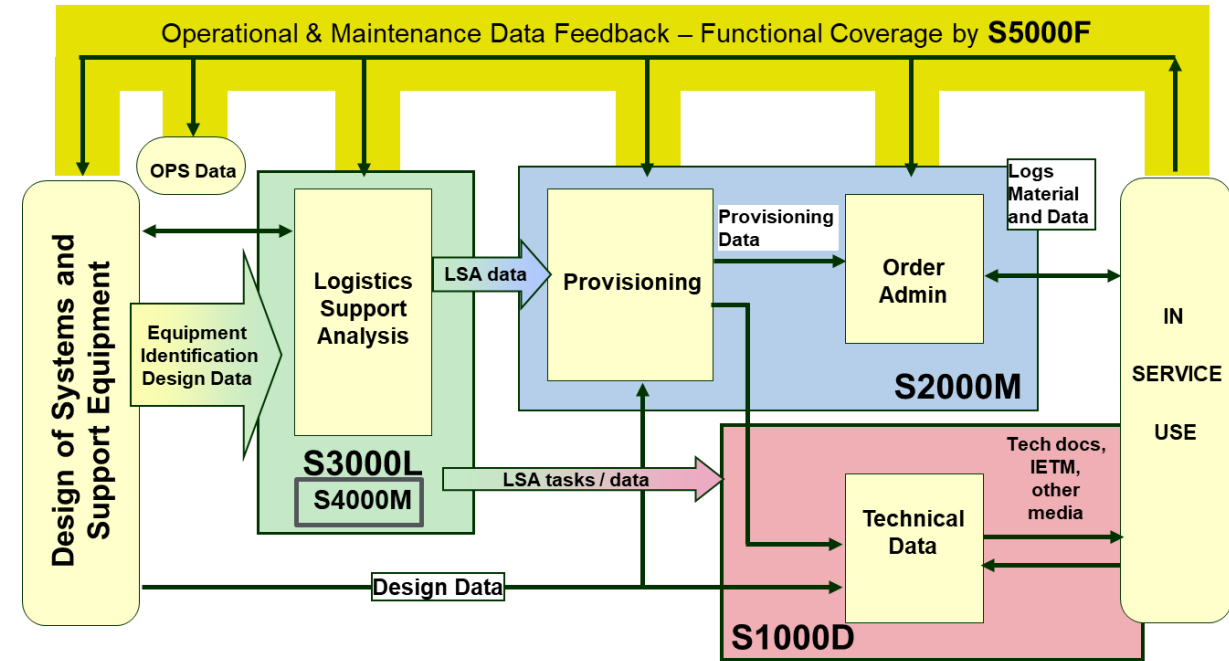
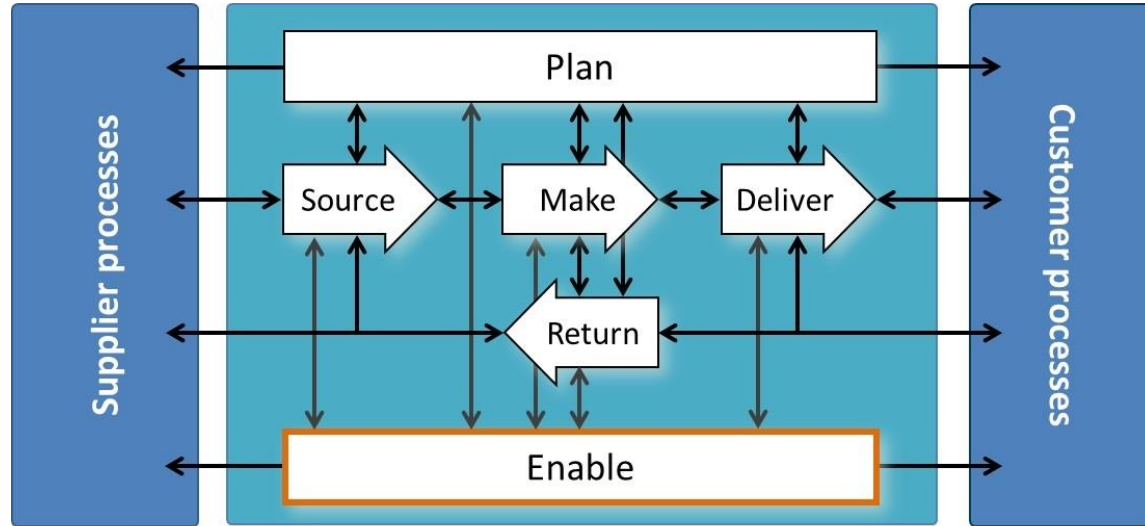
Your Air Force

Growing readiness woes: Only 7 in 10 Air Force planes are ready to fly

By: Stephen Losey April 2, 2017



DoD SCOR and the ASD Suite address the full lifecycle



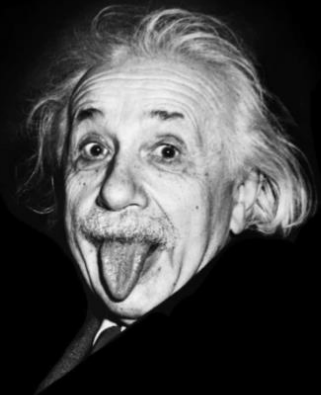
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Observations from the trenches...

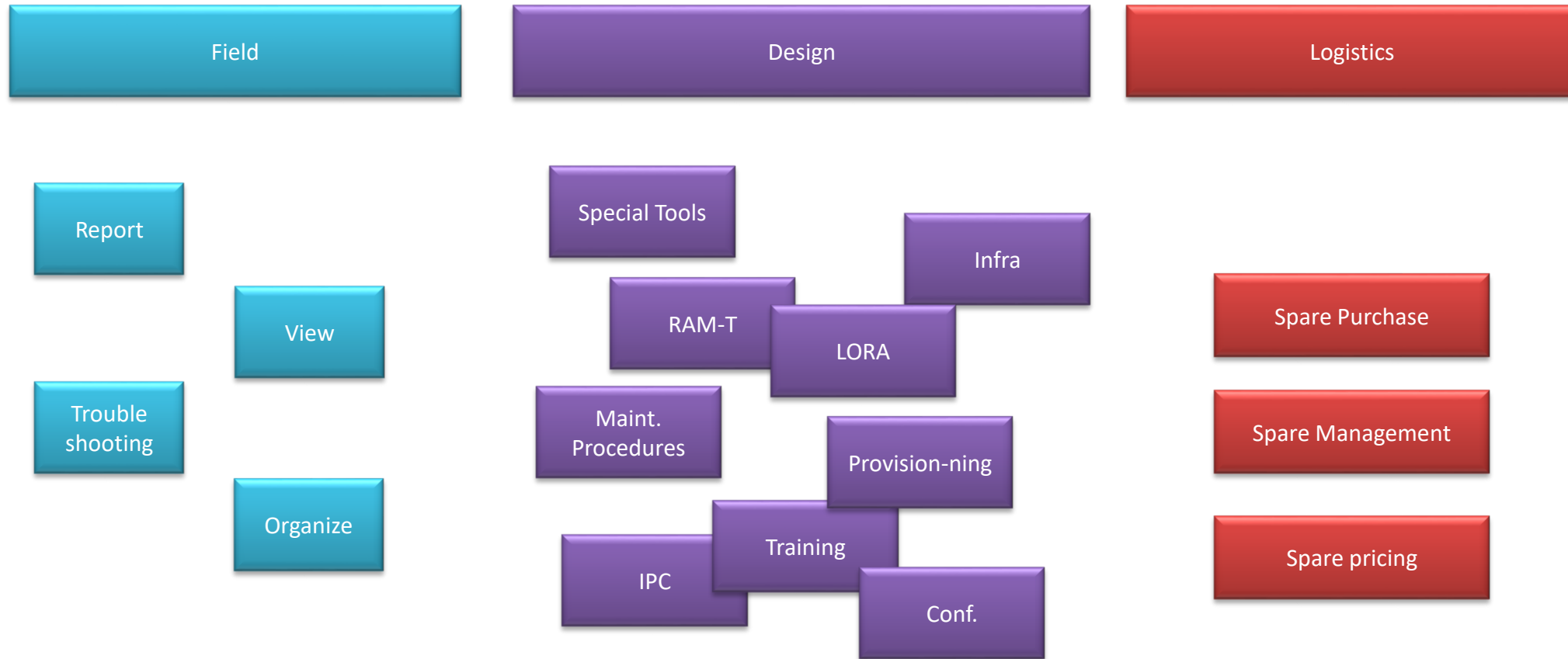
- Its not a technology problem
- It's a mindset, process and policy problem
- People are risk averse - "its easier to do what we did on the last program...."
- But that isn't going to crack this nut...

"Insanity is doing the
same thing over and
over again and expecting
different results"

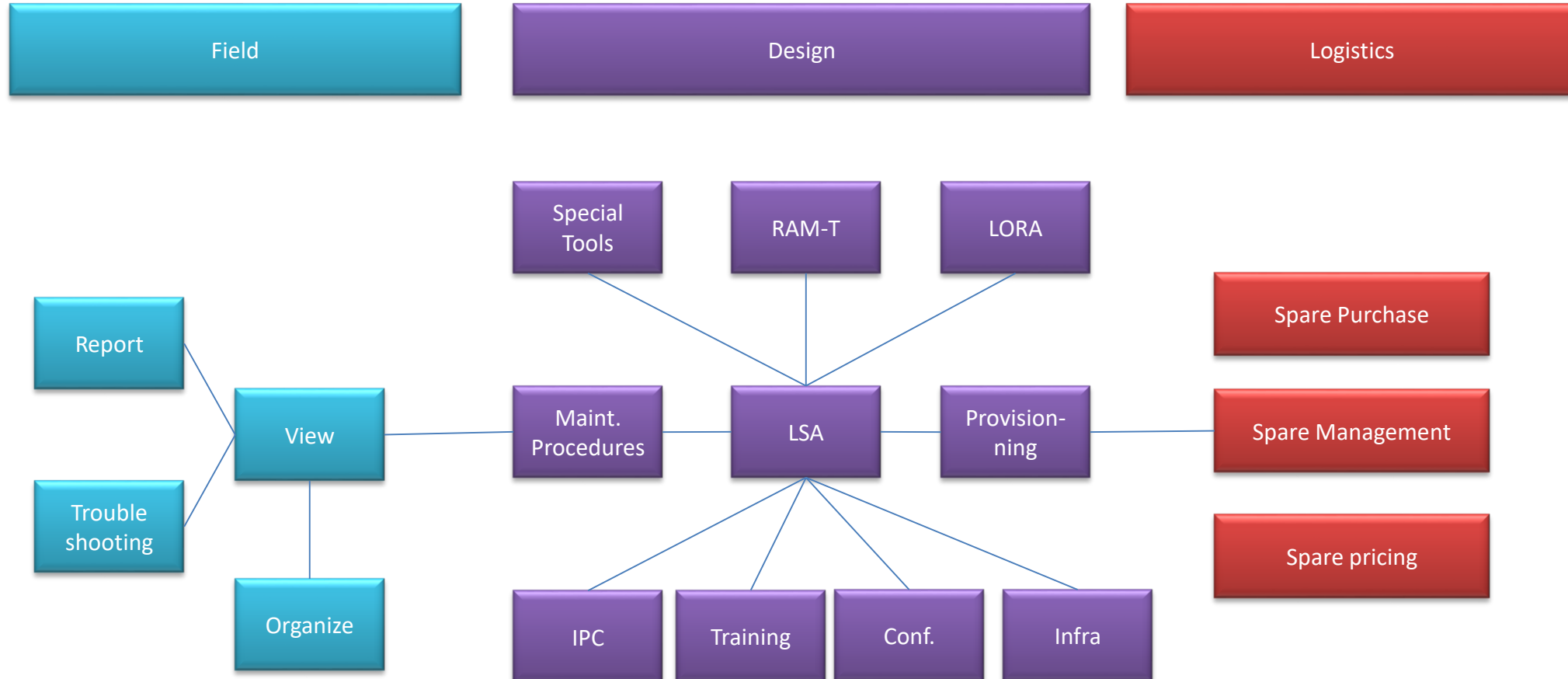
Albert Einstein



Traditional system of support

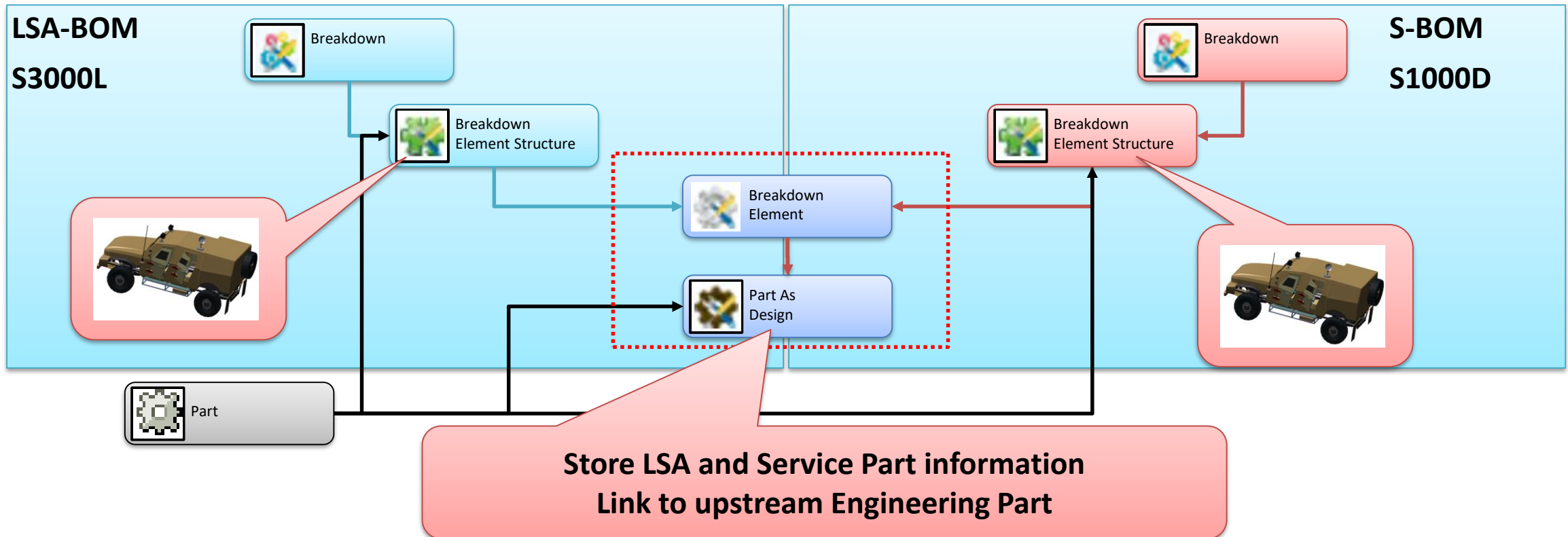


Introducing model based LSA initiative (S3000L)

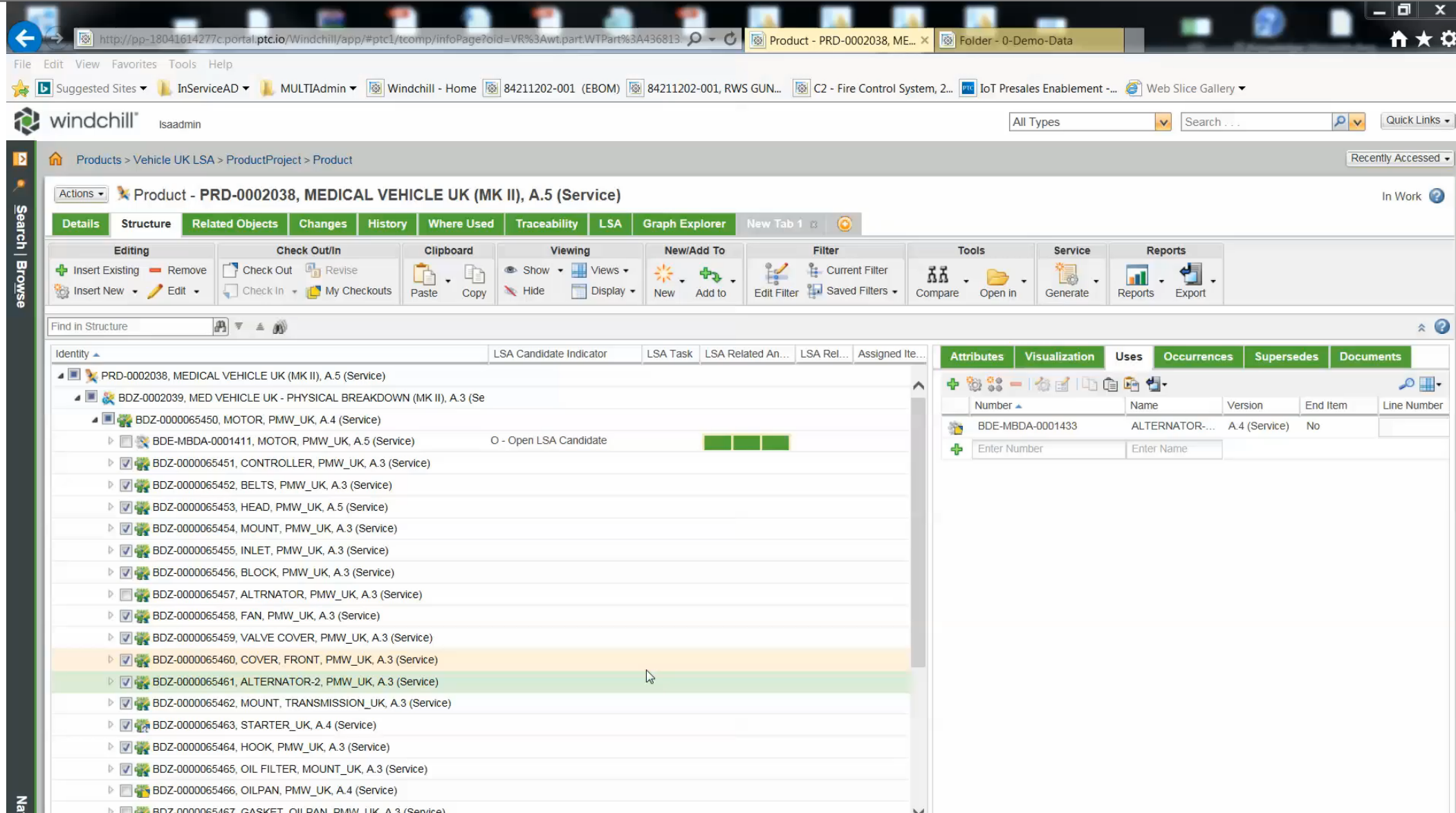


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Integrating PLM, S3000L and S1000D into this thread



LSA analysis – candidate items



The screenshot shows the Windchill software interface. The main window displays a tree view of product structure under 'Product - PRD-0002038, MEDICAL VEHICLE UK (MK II), A.5 (Service)'. The 'LSA' tab is active, showing a list of LSA candidates. The candidate 'BDZ-000065461, ALTERNATOR-2, PMW_UK, A.3 (Service)' is highlighted in green. The right-hand pane shows the 'Attributes' tab with a table of attributes.

Number	Name	Version	End Item	Line Number
BDE-MBDA-0001433	ALTERNATOR...	A.4 (Service)	No	
Enter Number	Enter Name			

LSA to S1000D – Data Module Generation

The screenshot shows the Windchill software interface for the S1000D 4.1 Information Structure. The main structure view on the left lists various components, with the 'Alternator' component (ID 14) highlighted. The right pane shows the 'Information Element List' for the selected component, displaying a table with the following data:

Name	Issue Number	In Work	Issue Type	State	Title
DMC-A1-A-01-00-10-1014-920A-A	000	01	new	Pending	Alternator - Change = Remove and install

LSA to Training – PPT Generation

The screenshot shows the Windchill software interface. The browser address bar displays the URL: `http://pp-18041614277c.portal.ptc.io/Windchill/app/#ptc1/tcomp/infoPage?oid=OR%3Acom.ptc.windchill.mpm1.pr`. The page title is "Operational Task - TSK-0003015, Alternator Remove and Install, 0003015, A.2". The interface includes a navigation menu on the left with "Search" and "Browse" options. The main content area shows a tree view of task resources and a table of task steps.

Task Details: Operational Task - TSK-0003015, Alternator Remove and Install, 0003015, A.2

Task Resources:

- 0000, A.2, Main Task Resources
 - SOCKET 1/2 INCH DRIVE 36MM A/F, A.2, 0000083909
 - 0010, 0000000802, A.2, Disconnect the Battery
 - 0020, 0000000804, A.2, Disconnect the Wires
 - 0030, 0000000806, A.2, Remove the Belt From the Pulley
 - 0040, 0000000803, A.2, Remove the Bolts
 - 0030, 0000000806, A.2, Remove the Belt From the Pulley
 - 0050, 0000000805, A.1, NO DESCRIPTION

Task Steps Table:

Label Number	Name	Number	Description	Long Description	Version
0000	0000-MainTaskRe...	0000000801			A.2 (Service)
0010	Name_0010	0000000802	Disconnect the Battery	First and most importantly; disconnect the battery. There may be	A.2 (Service)
0020	Name_0020	0000000804	Disconnect the Wires	Now that the battery is out of the way disconnect the wire or wi	A.2 (Service)
0030	Name_0030	0000000806	Remove the Belt From the Pulley	Somewhere on your vehicle there is a tensioner pulley. You'll r	A.2 (Service)
0040	Name_0040	0000000803	Remove Bolts	Once the belt is off just remove whatever bolts connect the alte	A.2 (Service)
	Name_0050	0000000805			A.1 (Service)

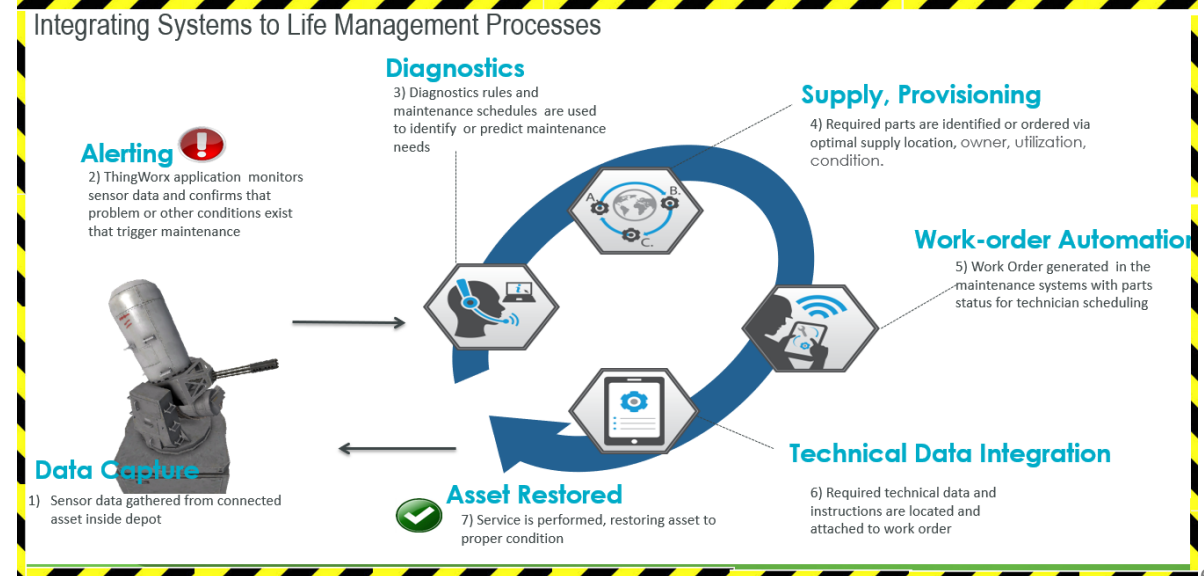
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Think outside the box.. Think with the end state in mind..

- We have to unlock every technological advantage we can for our customers...
- We have to unlock the value of breakthrough technology such as IOT and Augmented Reality to train and equip the next generation of maintainers
- This is only possible at scale, if we institute a robust digital thread for sustainment and lifecycle support.
- We need to re think the way we do logistics to allow this.

Augmented, Virtual Reality: Changing Airmen's learning experience

By Staff Sgt. Chip Pons, Air Education and Training Command Public Affairs / Published January 10, 2018



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Thank you
for your attention!

Questions?