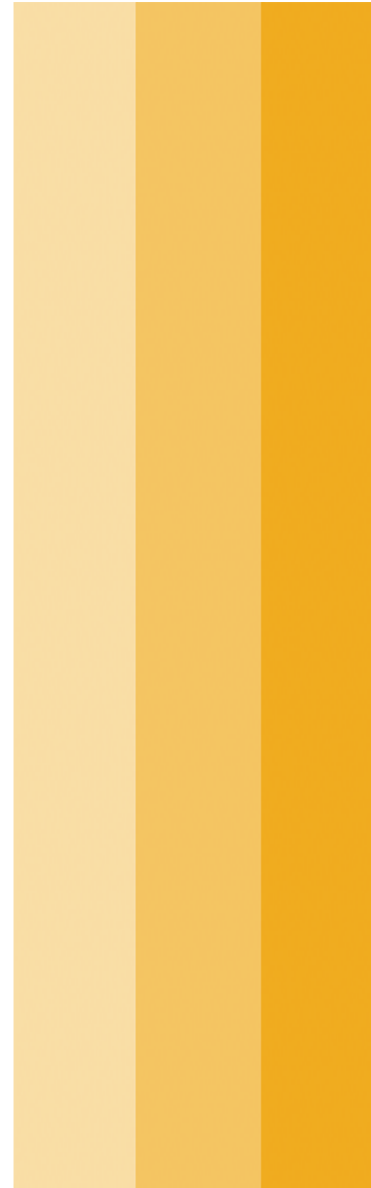


# **A First Look at Digital Maintenance Operations with Penn State's Applied Research Lab**



**Aaron Spak,  
Digital Transformation  
and Innovation Leader,  
Penn State Applied  
Research Laboratory**



# A First Look at Digital Maintenance Operations with Penn State's Applied Research Lab

Aaron J. Spak

R&D Engineer

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# Pennsylvania State University is...

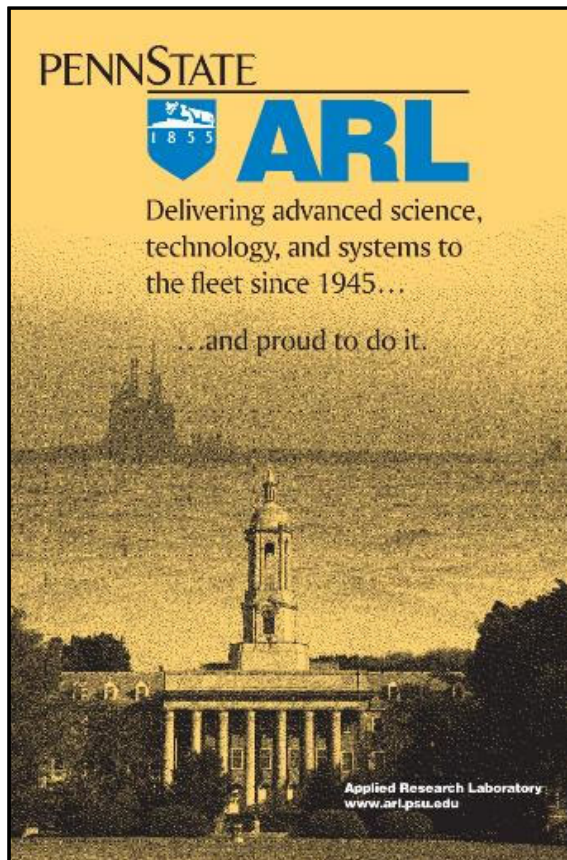
- 97,000+ students across 24 campuses
- 2017 Research Budget = \$863M
  - Federally Funded = \$524.3
- The Applied Research Lab is the largest research unit



**PennState**  
Smeal College of Business



# ARL supports DoD as a designated trusted agent.

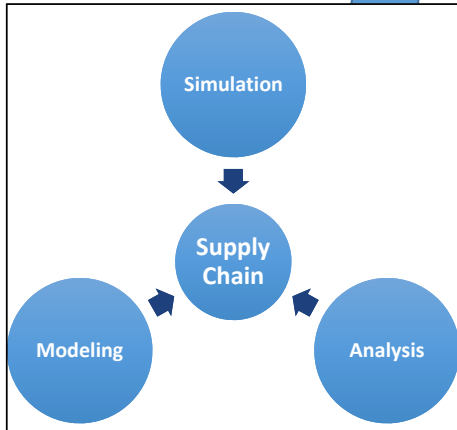


- Established in 1945 by the Navy post WW II
- Largest interdisciplinary research unit at Penn State ~1200 faculty/engineers, staff, students
- Designated an University Affiliated Research Center (UARC) by DoD in 1996
- Technology areas
  - Undersea Weapons
  - Undersea Vehicles / UUV's
  - Hydrodynamics and Structures
  - Acoustics & Quieting
  - Comms and Information
  - Power and Energy
  - Navigation
  - Materials / Manufacturing / Logistics**
- ARL “maintains a special long-term strategic relationship with Navy/DoD for technology development and engineering applications.”

*Developing our future workforce*

# Enterprise Systems research spans multiple areas for DoD

Systems Integration Lab (SIL): Prototyping, Analysis, and Integration



Operations Research

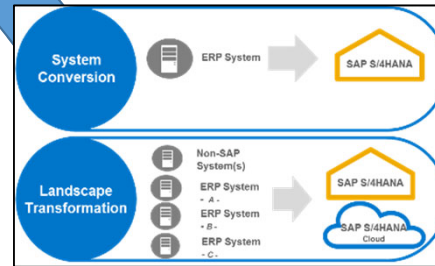
**PennState**  
Applied Research Laboratory



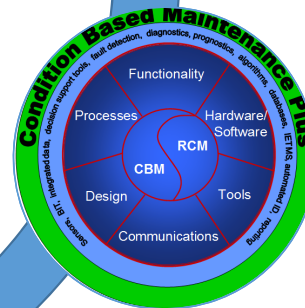
**SAP Screen Personas**  
Developed through Personalization, SAP Screen Personas provides a simple and drag-and-drop approach to modify every screen in SAP GUI. Screens are made from screen elements and used as screen chunks, widgets.



Defense Forces & Public Security (DFPS) and SCM



HANA Transition Planning



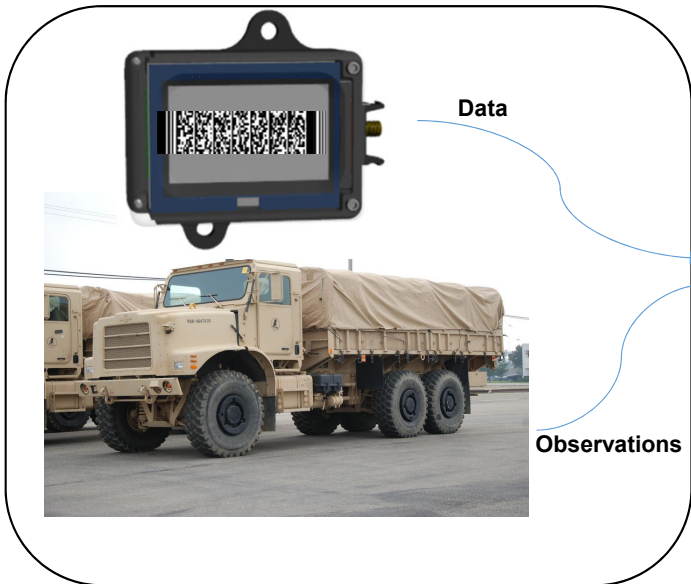
User Experience

**PennState**  
Applied Research Laboratory



Mobility tools improve user experience and save time.

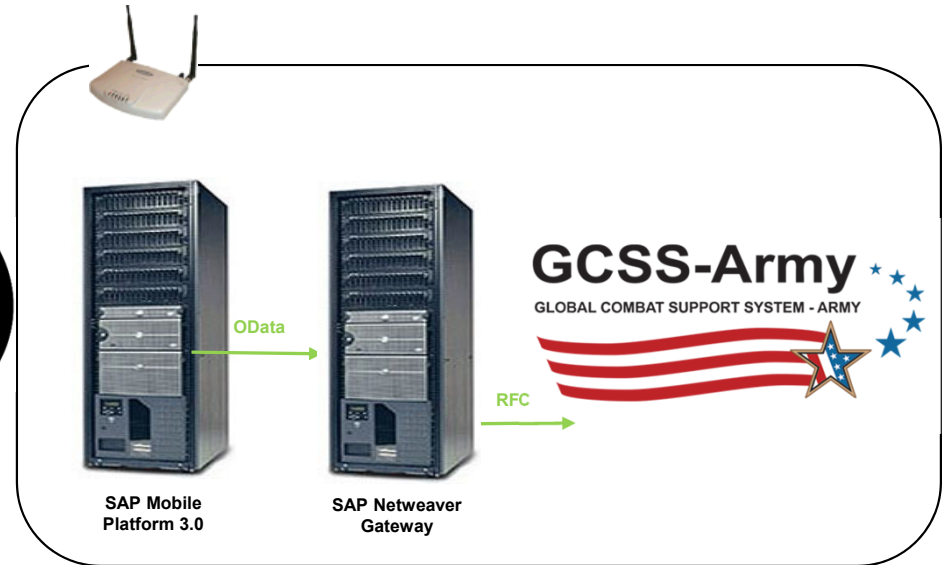
Demonstrate disconnected operations in support of digital logbook.



**On/At Platform**



**Mobile Device**

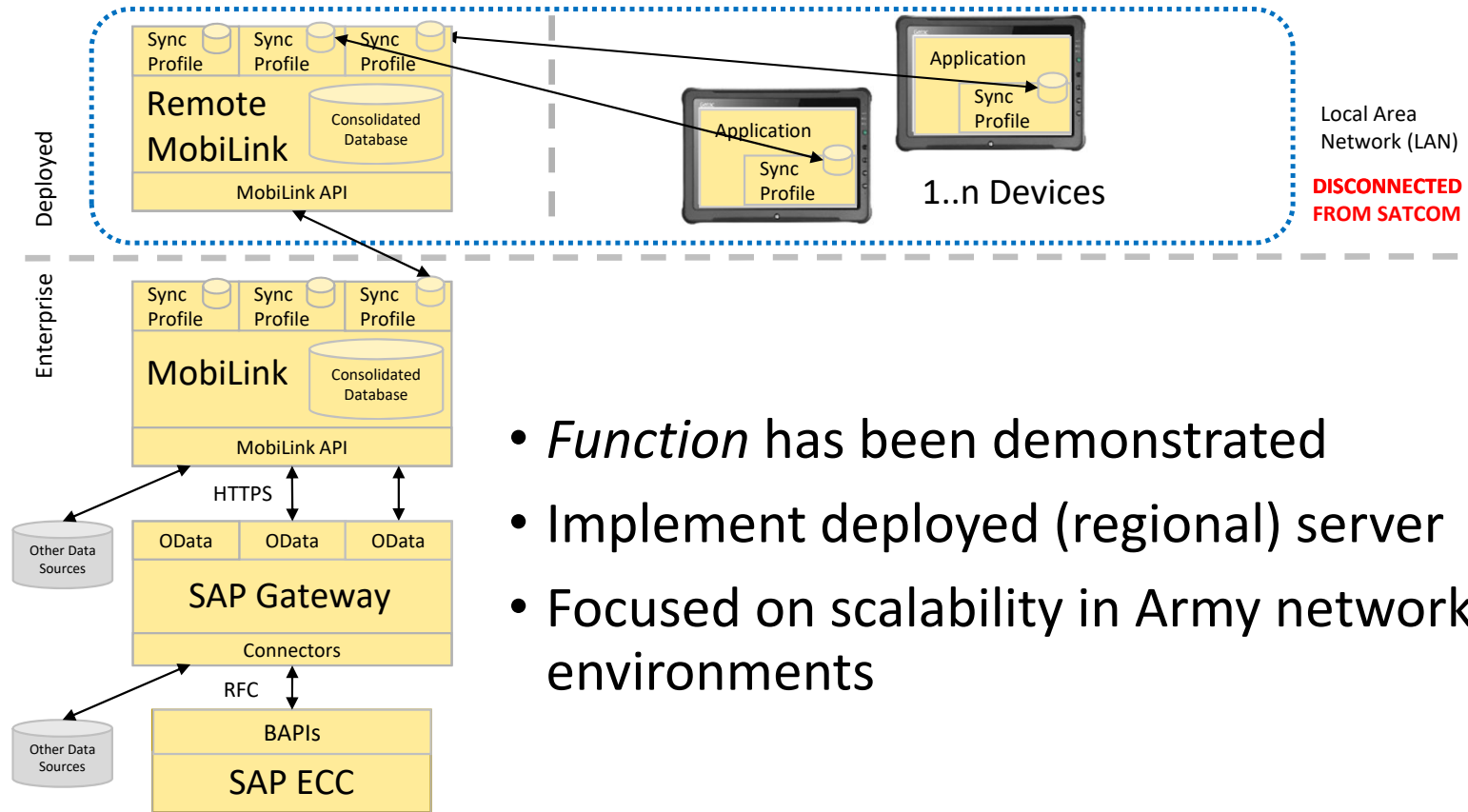


**Logistics Enterprise (PSU-ARL SIL)**





Next: Analyze performance in representative network.



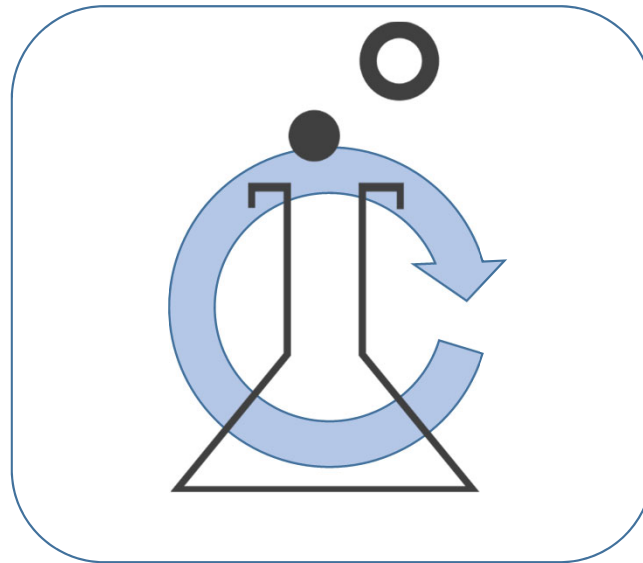
- *Function* has been demonstrated
- Implement deployed (regional) server
- Focused on scalability in Army network/SATCOM environments



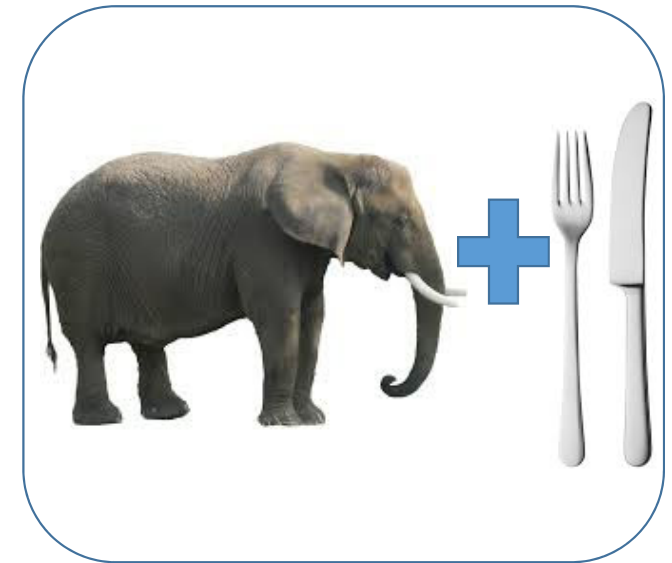
Achieve innovation with focused, collaborative learning.



**Facilitate** collaborative, interdisciplinary teams



**Learn** with rapid prototyping and feedback



**Focus** on one bite at a time to achieve scale