

# National Defense Industrial Association Systems and Mission Engineering Conference

November 2022

## Data Centricity: Multi-Directional Flow of Specialty Engineering Data Throughout the Life Cycle

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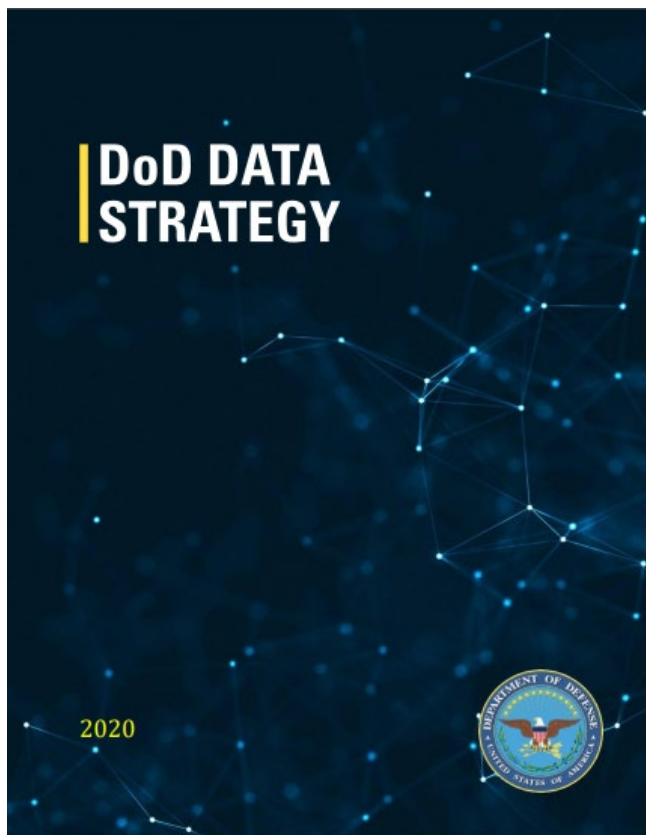
Office of the Under Secretary of Defense for Research and Engineering

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# DoD Is a Data-Centric Organization



David L. Norquist, Deputy Secretary of Defense  
2020

- **"Unleashing data to advance the National Defense Strategy"**
- **Guiding Principle #5: Enterprise-Wide Data Access and Availability**  
**"DoD data must be made available for use by all authorized individuals and non-person entities through appropriate mechanism."**
- **"Data underpins digital modernization and is increasingly the fuel of every DoD process, algorithm, and weapon system."**

**"We have a very large AI challenge ahead of us but in order to do this, we have to get the data right"**

Craig Martell, Pentagon CDAO, 2022 Intelligence & National Security Summit (C4ISRNET September 15)



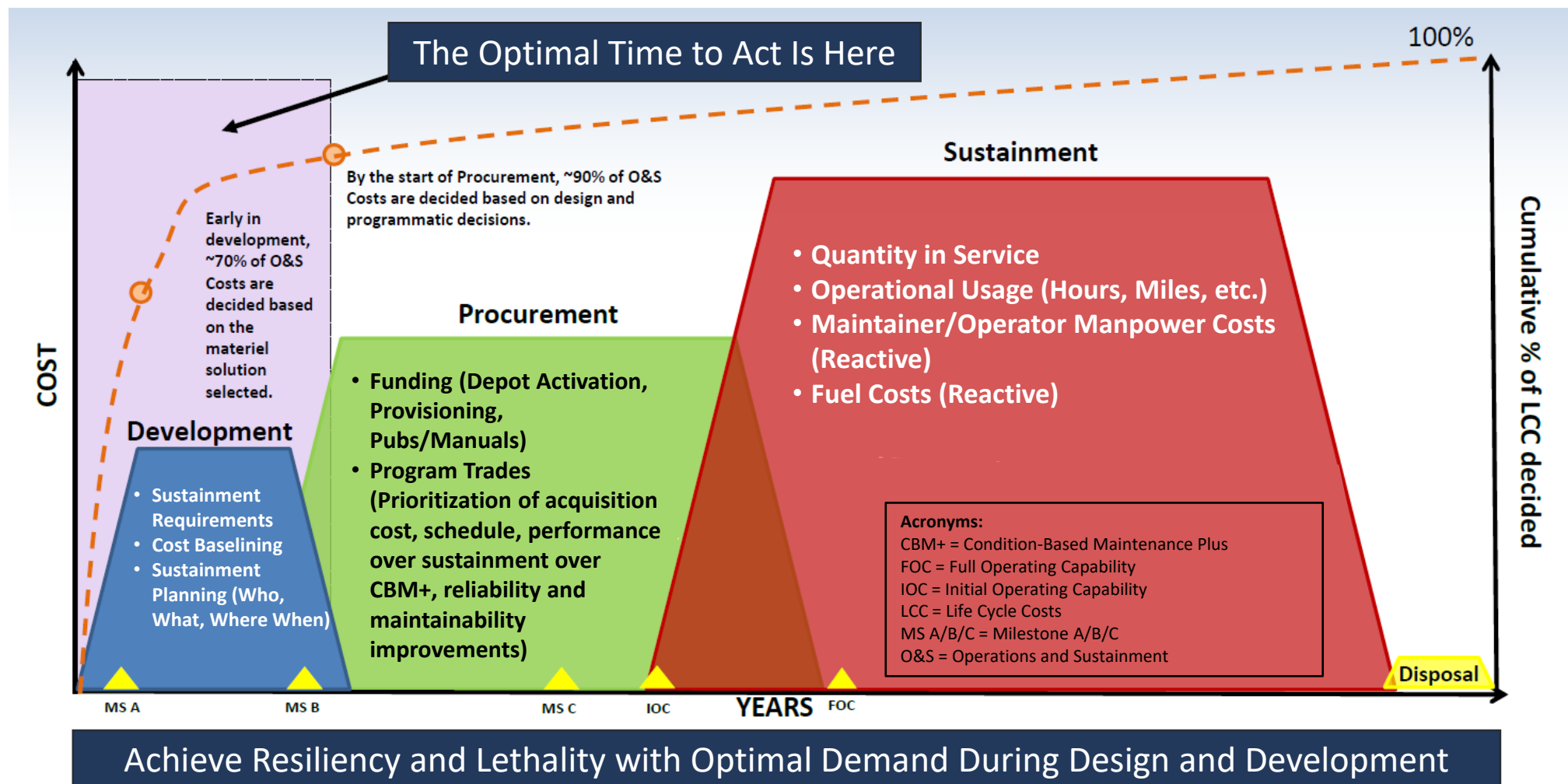
## *Increasing Complexity and Challenges*



Source: 2022 PSM Workshop, RDML Dion English, SC, USN



# “Bake In” Data During System Design



Source: 2022 PSM Workshop, Principal Deputy Assistant Secretary of Defense (Sustainment)

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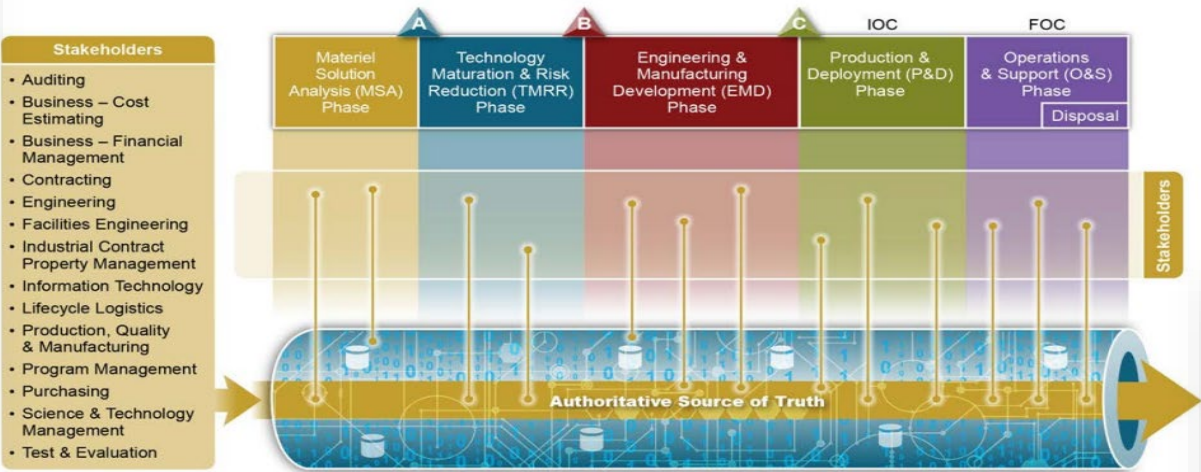




# Lesson Learned: Ecosystem Needed



U.S. Air Force photo by Jill Pickett  
HIGH MACH, Vol 67, No 12



Authoritative Source of Truth, Digital Engineering Strategy

Photo By: Army Spc. Kayla Anstey, “Digital Transformation, AI Important in Keeping Battlefield Edge” June 9, 2022  
[960cyber.afrc.af.mil/News](https://960cyber.afrc.af.mil/News)

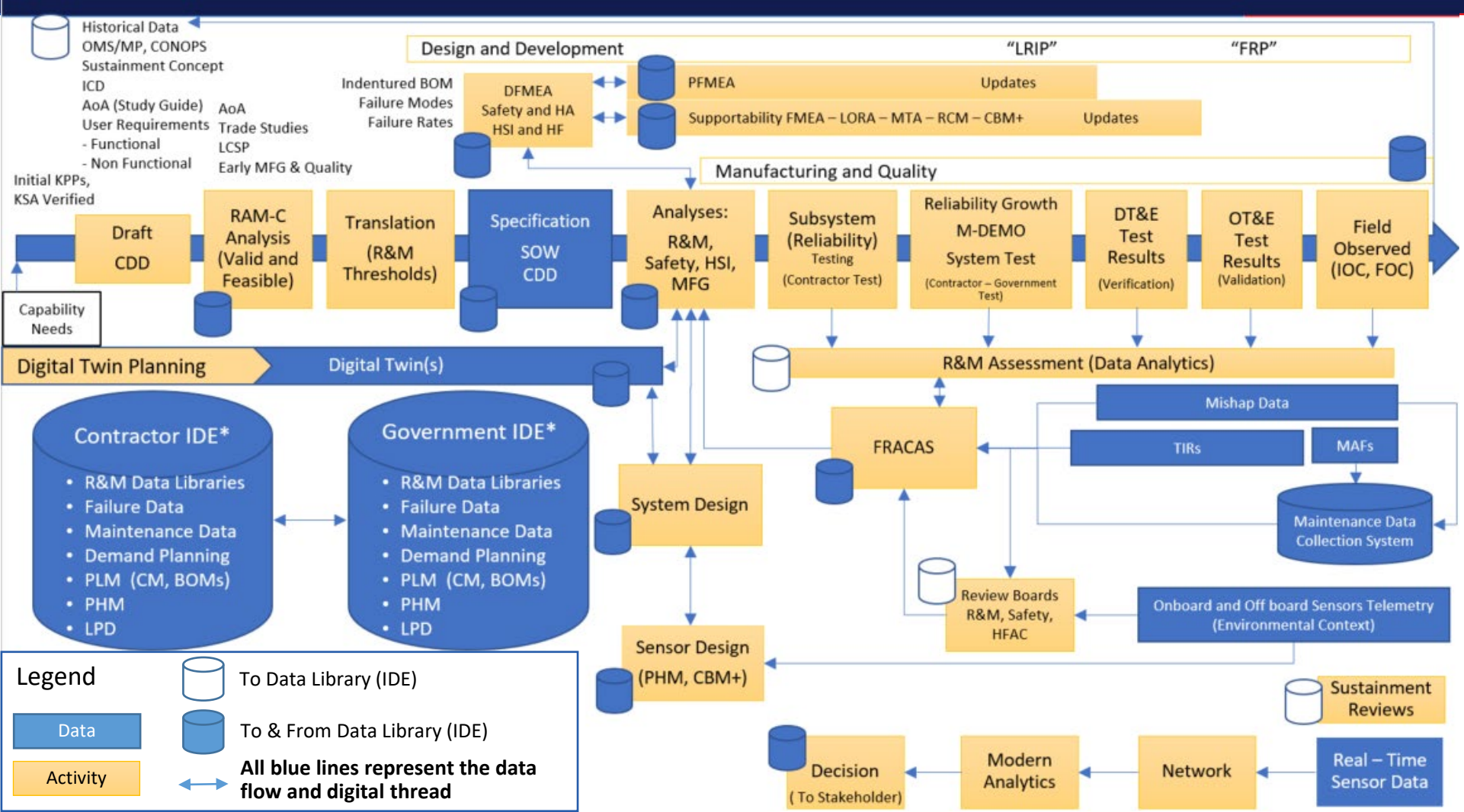


“Warfighters at all echelons require tested, secure, seamless access to data across networks, supporting infrastructure, and weapon systems out to the tactical edge”

DoD Data Strategy, 2020



# Engineering Data in a DE Ecosystem

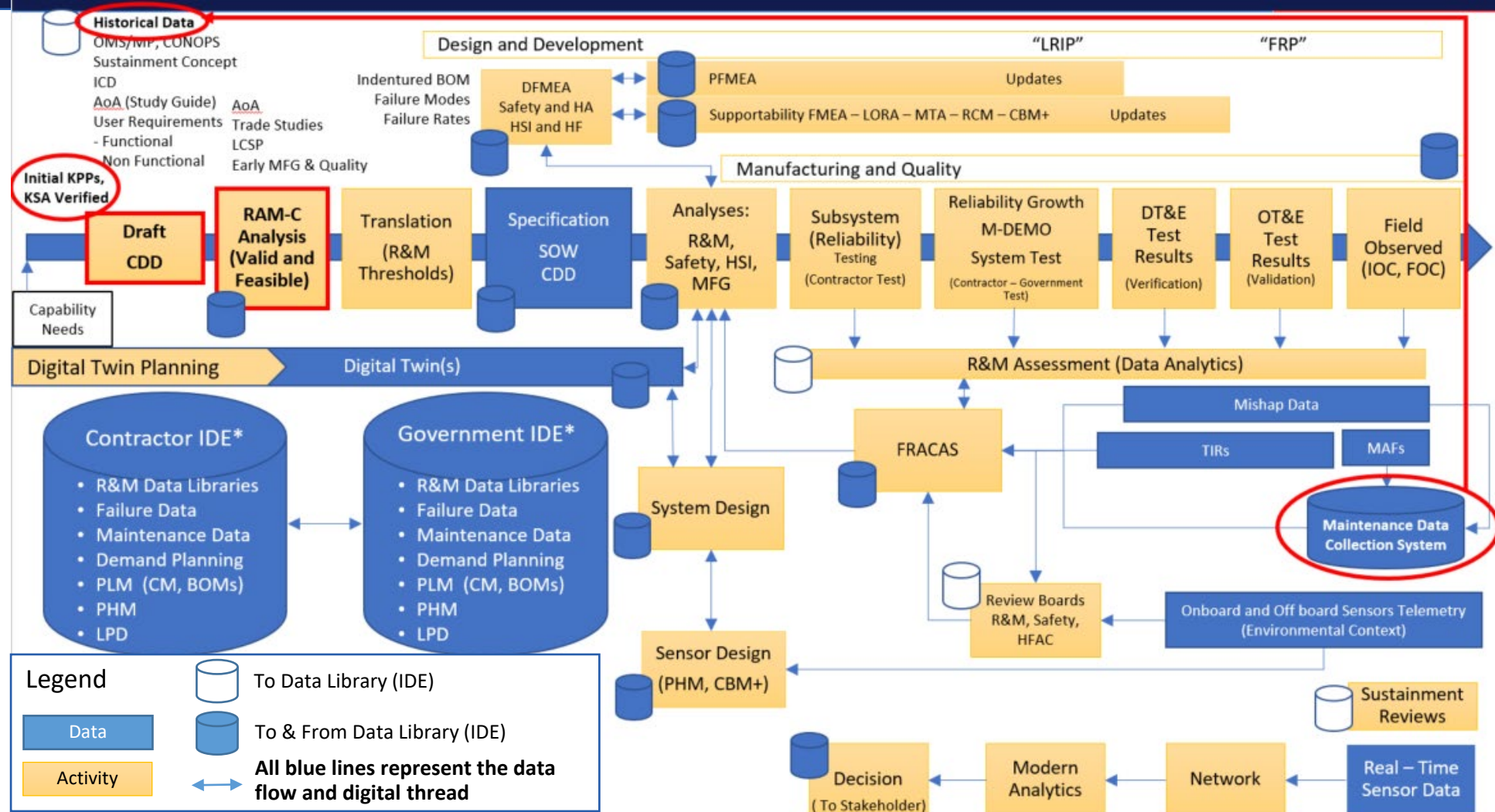


\*Contractually agreed to content, views, access, and delivery of data.





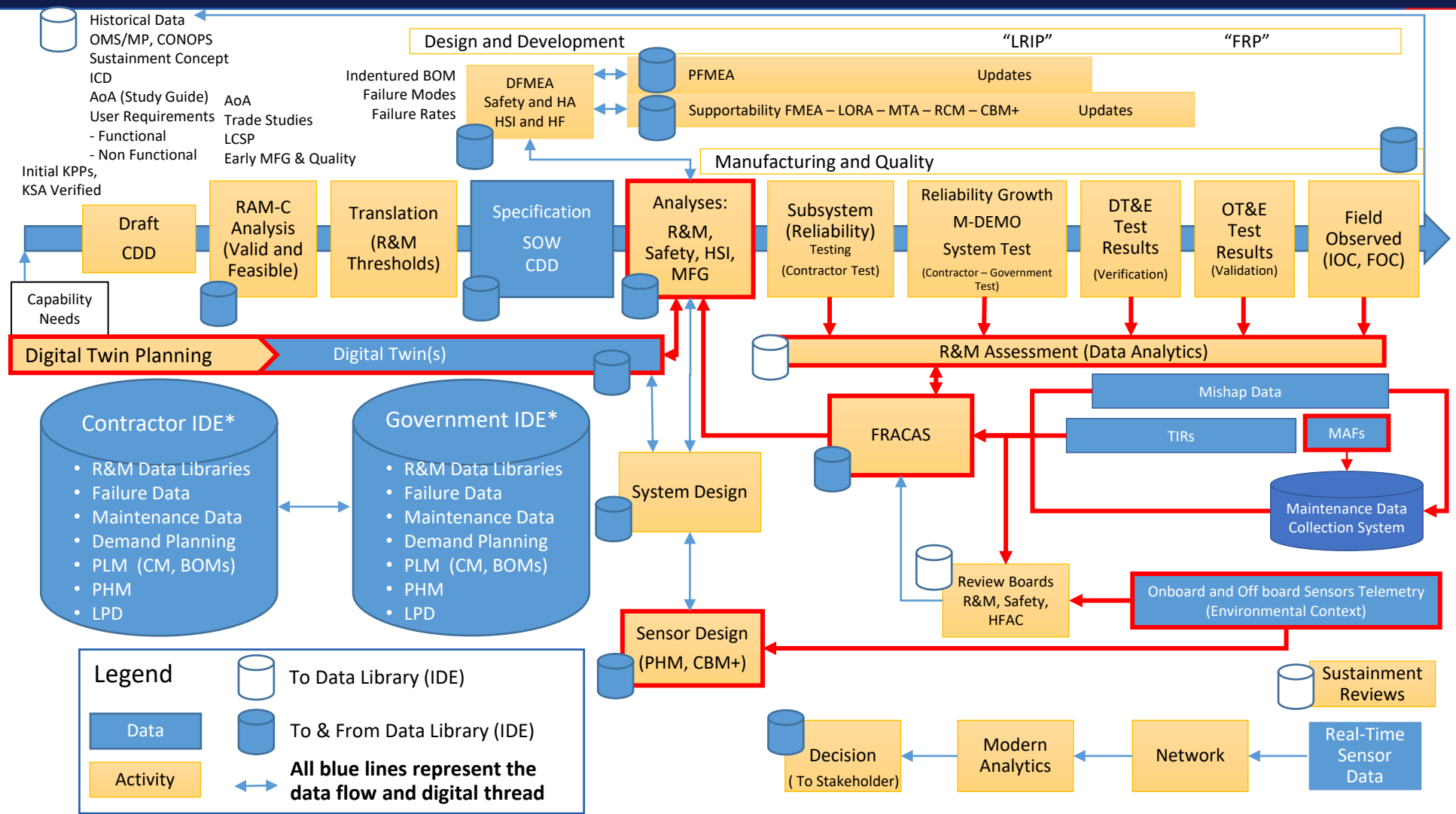
# Early Application in Engineering Data



\*Contractually agreed to content, views, access, and delivery of data.



# Failure Reporting Analysis and Corrective Action System (FRACAS) Feedback to the Digital Twin



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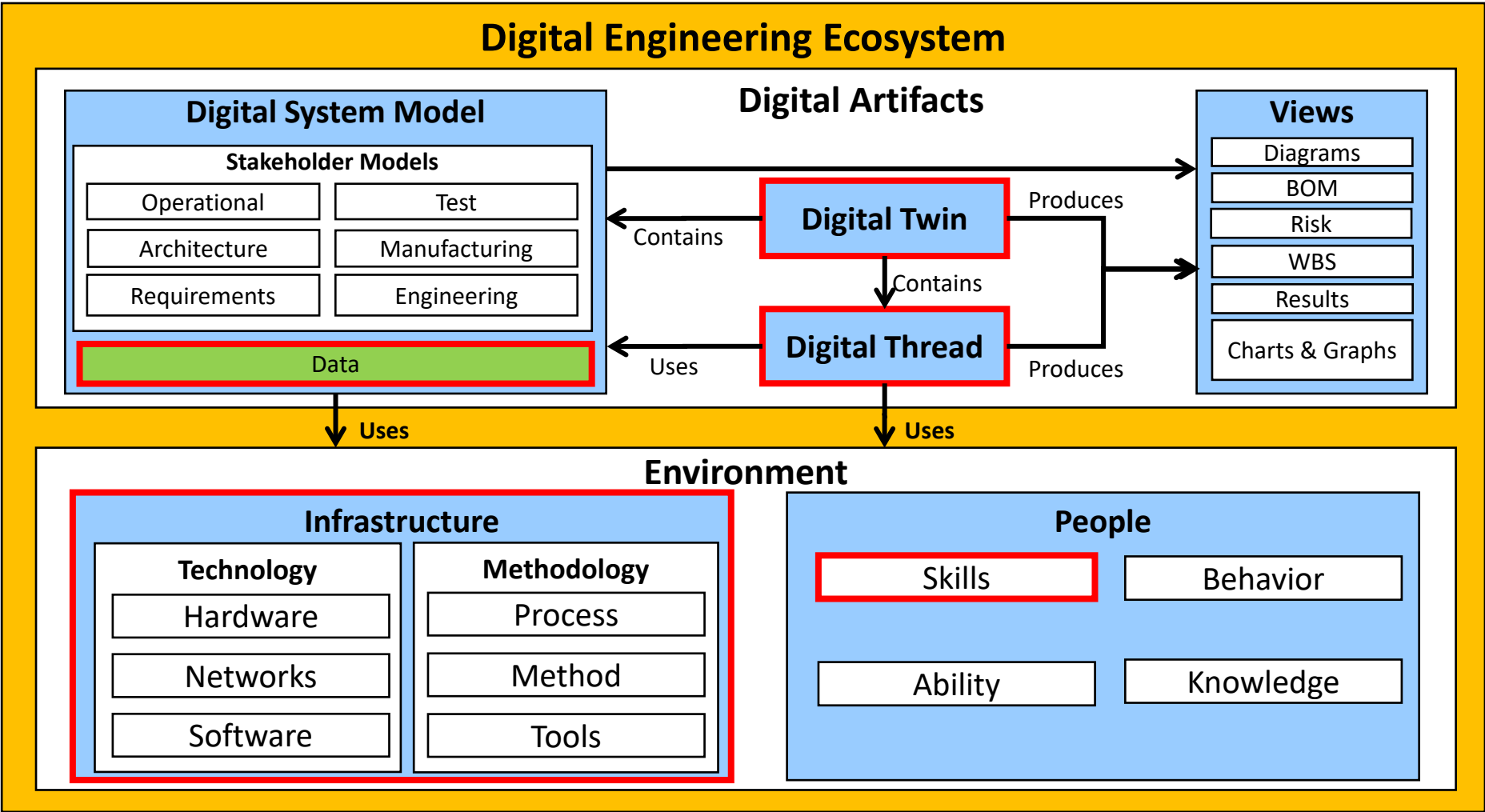
# Digital Engineering Ecosystem

**Infrastructure includes:**

- Compute & Storage
- HVAC
- DevSecOps Tools
- AI/ML/DT Tools
- Simulation Tools
- MLS/CDS Security
- Authority to Operate
- Budget

**Skill sets include:**

- IT, OT, PIT
- Information Assurance
- Data Engineers & Scientists
- System Admins
- High Performance Compute
- SW Developers
- Scrum Masters
- Security ISSO
- System Engineers
- HW Designers
- Specialty Engineers
- Budget





# Its All About the Data – Enhanced by AI



Photo By: Army Spc. Kayla Anstey, "Digital Transformation, AI Important in Keeping Battlefield Edge" June 9, 2022  
[960cyber.afrc.af.mil/News](https://960cyber.afrc.af.mil/News)

**... AI, Machine Learning, NLP ... to be continued**



# Contact

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