BUILT FOR SPEED:
THE ARMY'S INTEGRATED VISUAL AUGMENTATION SYSTEM (IVAS):
A MIDDLE TIER ACQUISITION CASE STUDY

AMIR. H. ETEMADI, PHD, PRINCIPAL INVESTIGATOR

John Kamp, DEng, Investigator

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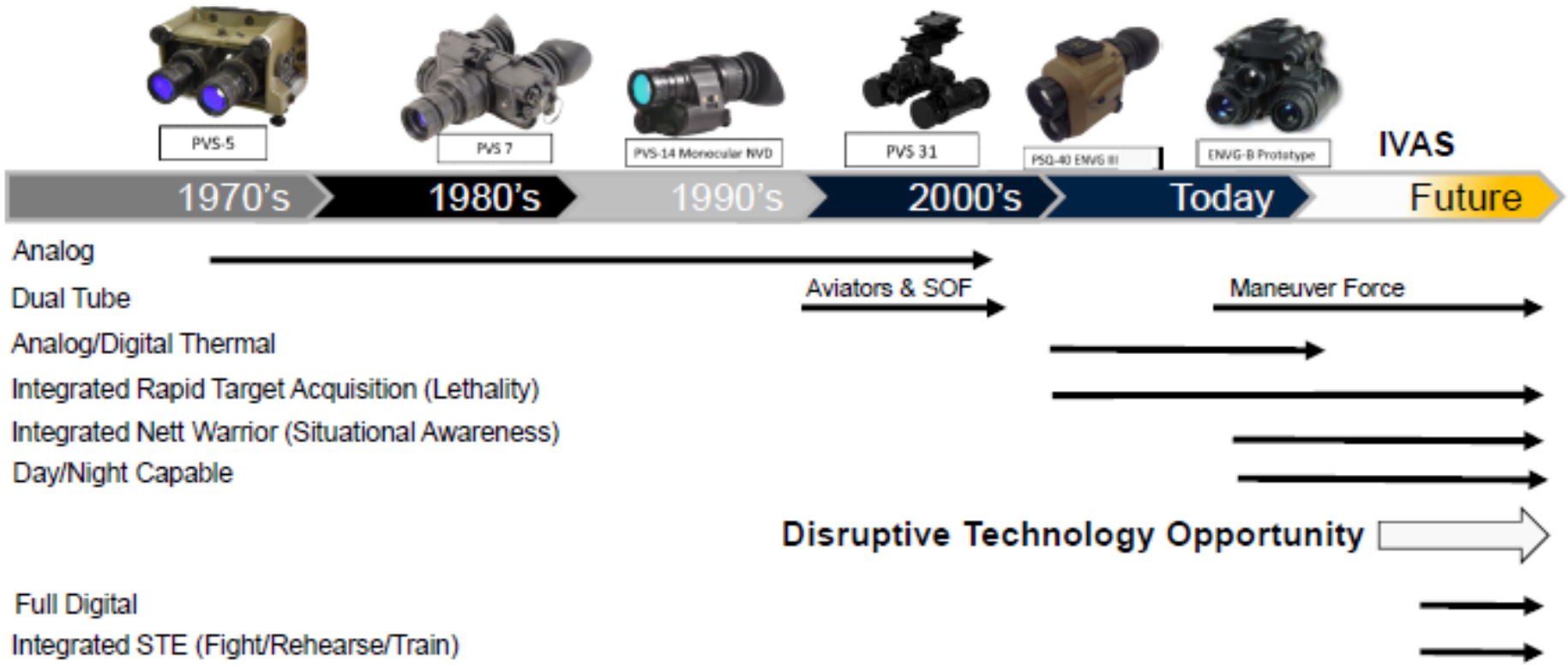
Abstract

- This case study examines how the Army used Middle Tier Acquisition processes to rapidly accelerate development and fielding of the Integrated Visual Augmentation System (IVAS).

- After decades of precursor developments, the Army adapted emerging commercial virtual reality goggles for field conditions and use.

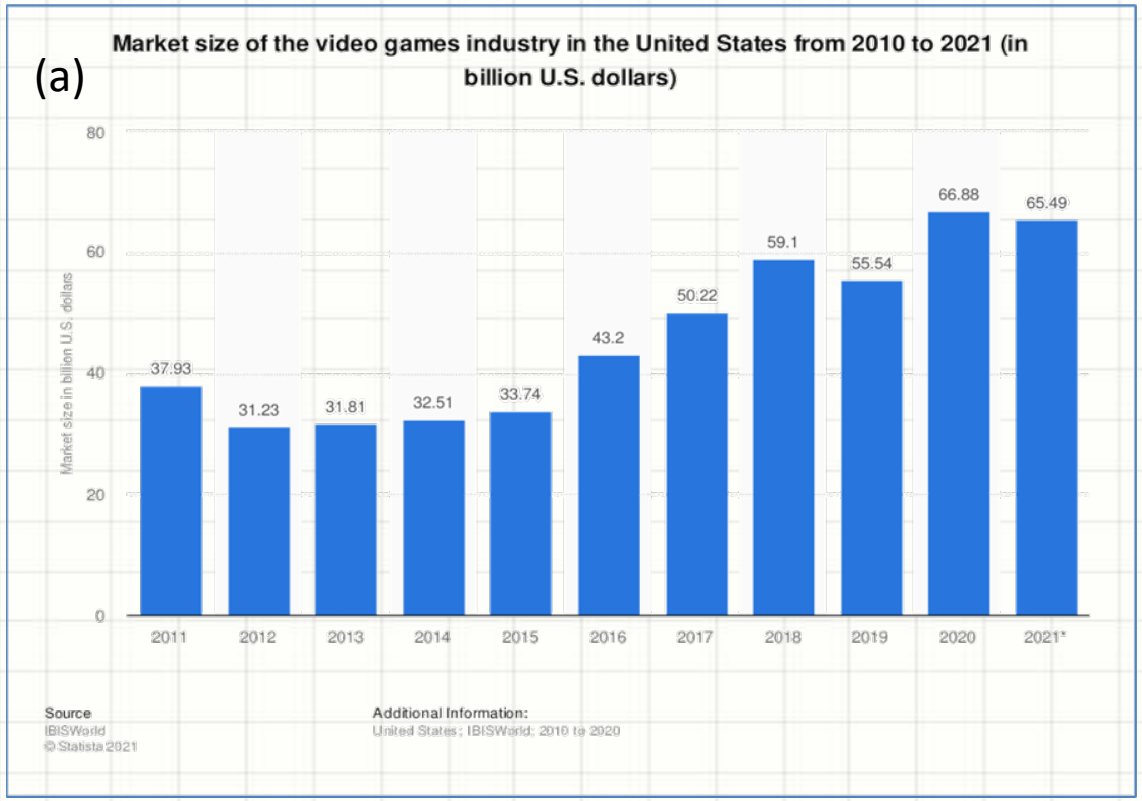
- We used publicly-released data from 2018 to 2021 consisting of budget submissions, program-related reporting, and contemporaneous press releases to describe how the Army used Middle Tier Acquisition authorities to accelerate IVAS development, testing, and fielding.

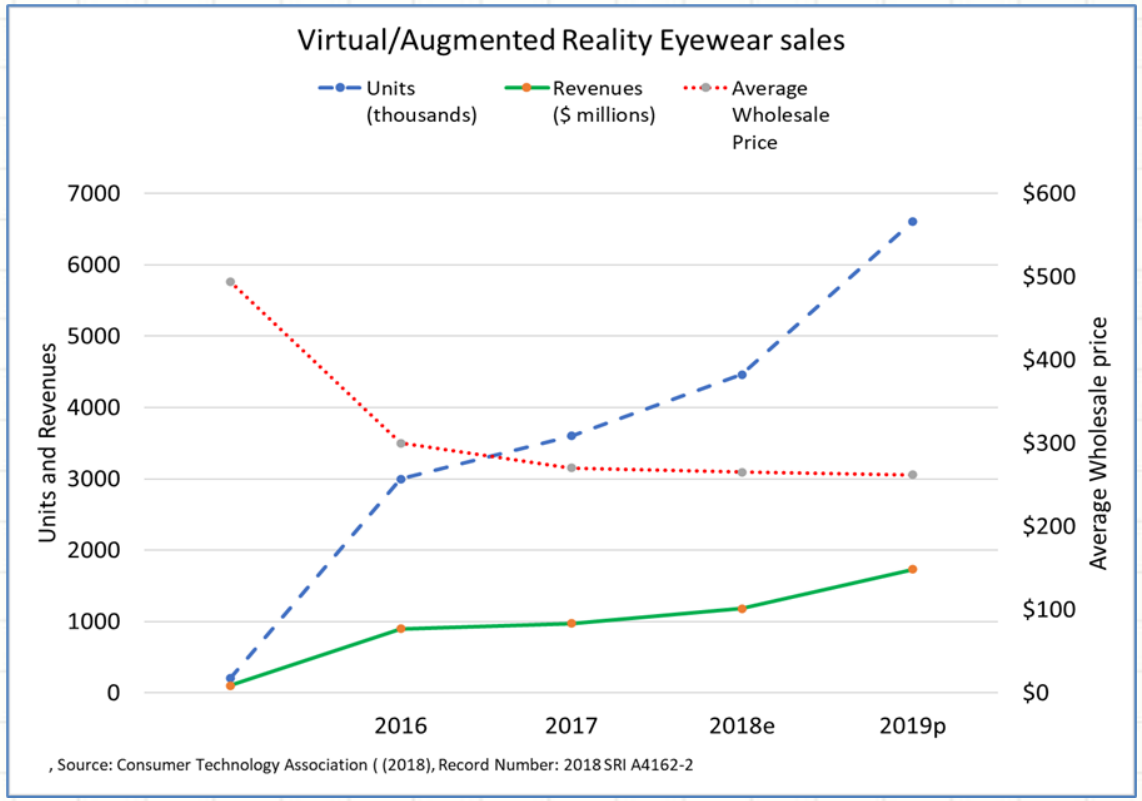
A long time coming



Commercial development of augmented reality goggles

(a)





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Some important points

- Commercial proxies in the market
  - 2014, Microsoft purchased key intellectual property from the Osterhout Design Group for virtual reality headsets
  - 2014 Azure cloud computing platform would embrace open standards (
  - 2018, Microsoft had sold about 50,000 headsets with an estimate unit price of about $3,500
- Army was able to spend most of its effort ruggedizing the system and developing user-focused applications

- Soldier touchpoints
  - stimulated contractor innovation
  - frequent interactions resulted in rapid incremental changes meeting user needs
- Novel control methods
  - government-owned architecture\
  - using government furnished equipment to segment technical risk
  - aligned payments with measurable progress events such as soldier touchpoints and capability set deliveries.

Army spend

- Note the initial large obligation, consistent with award, and the subsequent payments, consistent with soldier touch points and capability set deliveries and transition to rapid fielding.

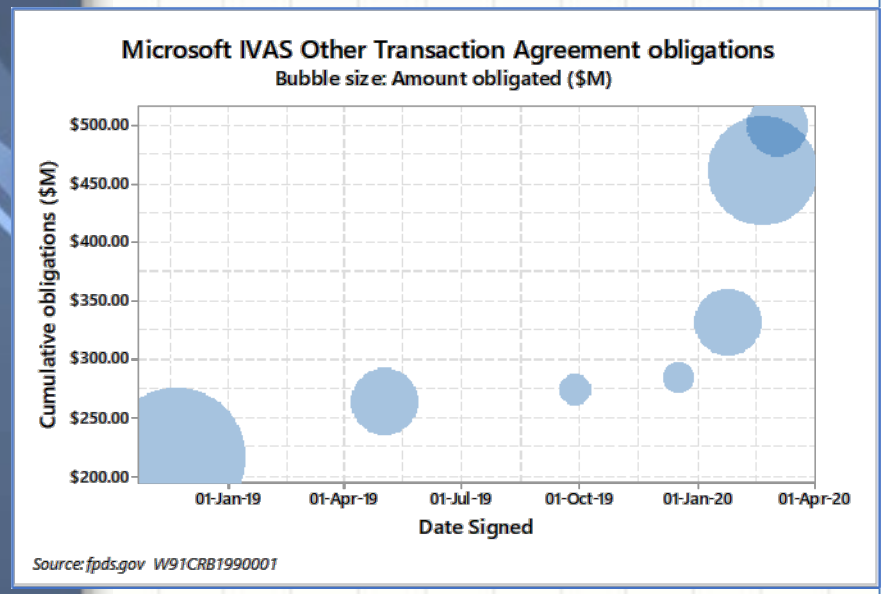

Table 1. Army funding of Microsoft by Fiscal Year ($K)

PSC Description	2018	2019	2020	2021	Total
INFORMATION TECHNOLOGY COMPONENTS	$10	$0	$0	$0	$10
INFORMATION TECHNOLOGY SOFTWARE	$9,141	$2,566	$24	$0	$11,731
IT AND TELECOM-PROGRAMMING	$0	$60,620	$112,987	$153,255	$326,862
IT AND TELECOM- SYSTEM ACQUISITION SUPPORT	$0	$2,916	$21,474	$4,792	$29,182
IT AND TELECOM-TELECOMMUNICATIONS NETWORK MANAGEMENT	$11,140	$5,131	$3,430	$4,901	$24,601
SUPPORT- MANAGEMENT: OTHER	$114,922	$90,245	$23,707	$0	$228,874
SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	$399	$7,828	$27,559	$15,417	$51,204
Total	$135,612	$169,307	$189,180	$178,366	$672,465

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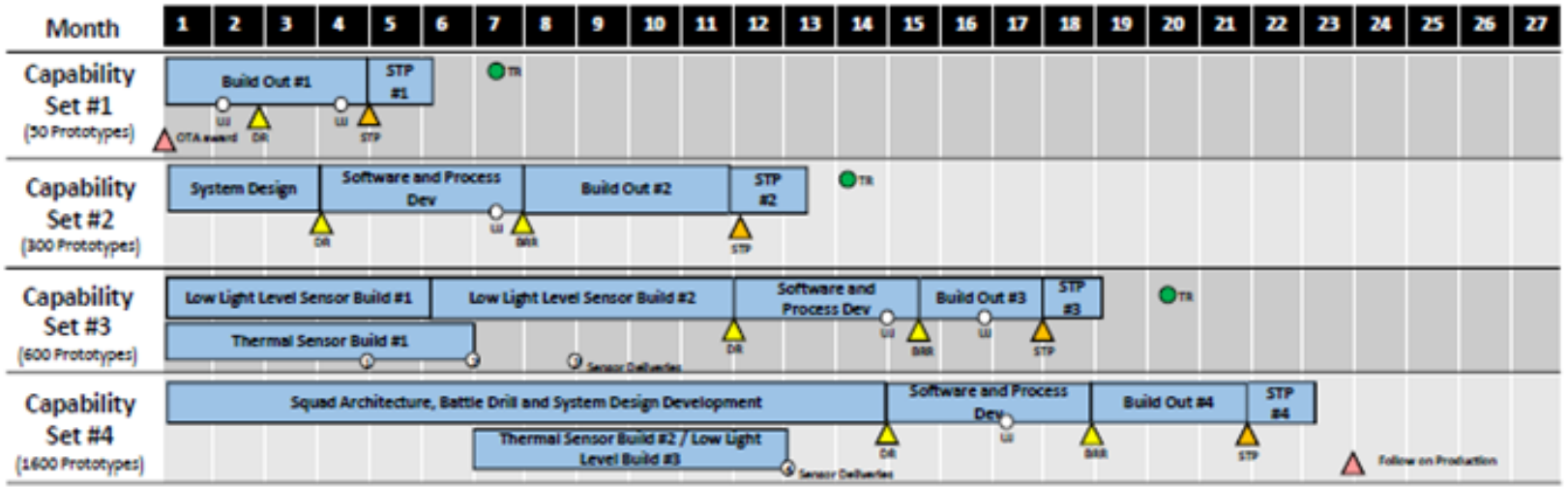
Deliberate plan to get product to users – quick-turn feedback

Planned schedule 2018 IVAS Industry Day



Technology Readiness Start Point

- Representative model or prototype system, that is tested in a relevant environment.
- Examples include testing a prototype in a high-fidelity laboratory environment or in a simulated operational environment.

Capability Set Deliverables

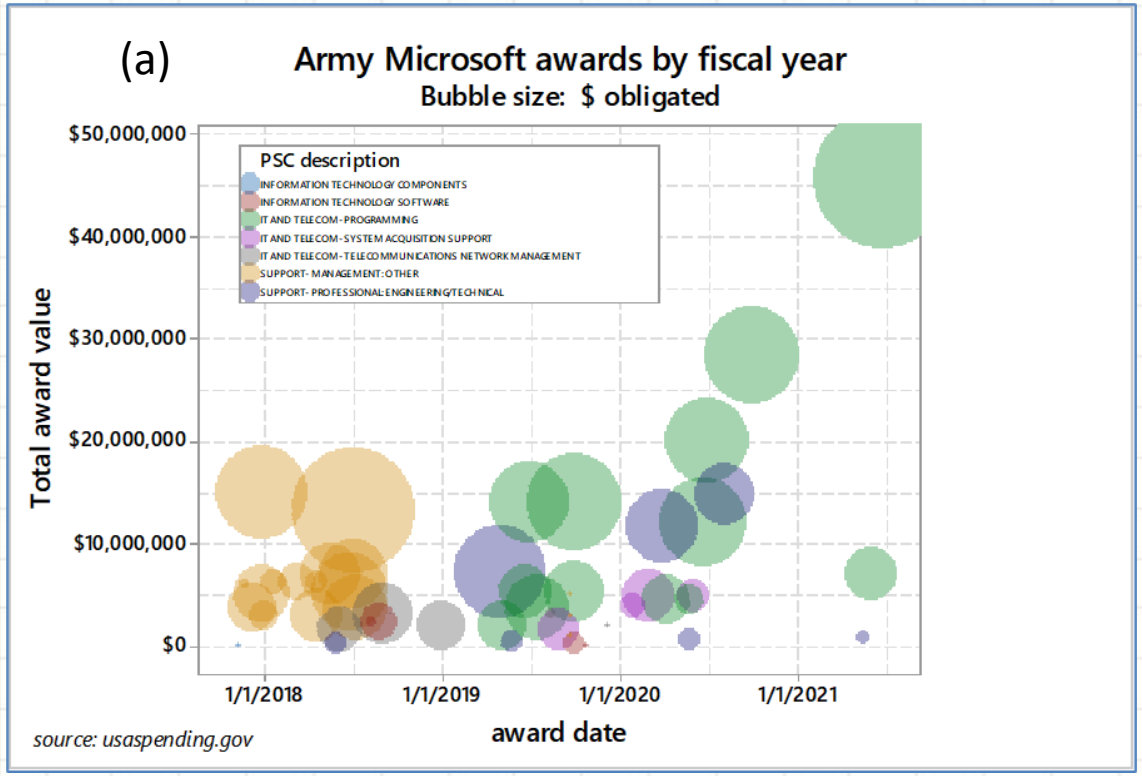
- Prototypes (Hardware and Software)
- Software Development Kit
- Engineering Reports
- Test Plans, Procedures & Reports
- Financial Reports
- Program Management Documentation

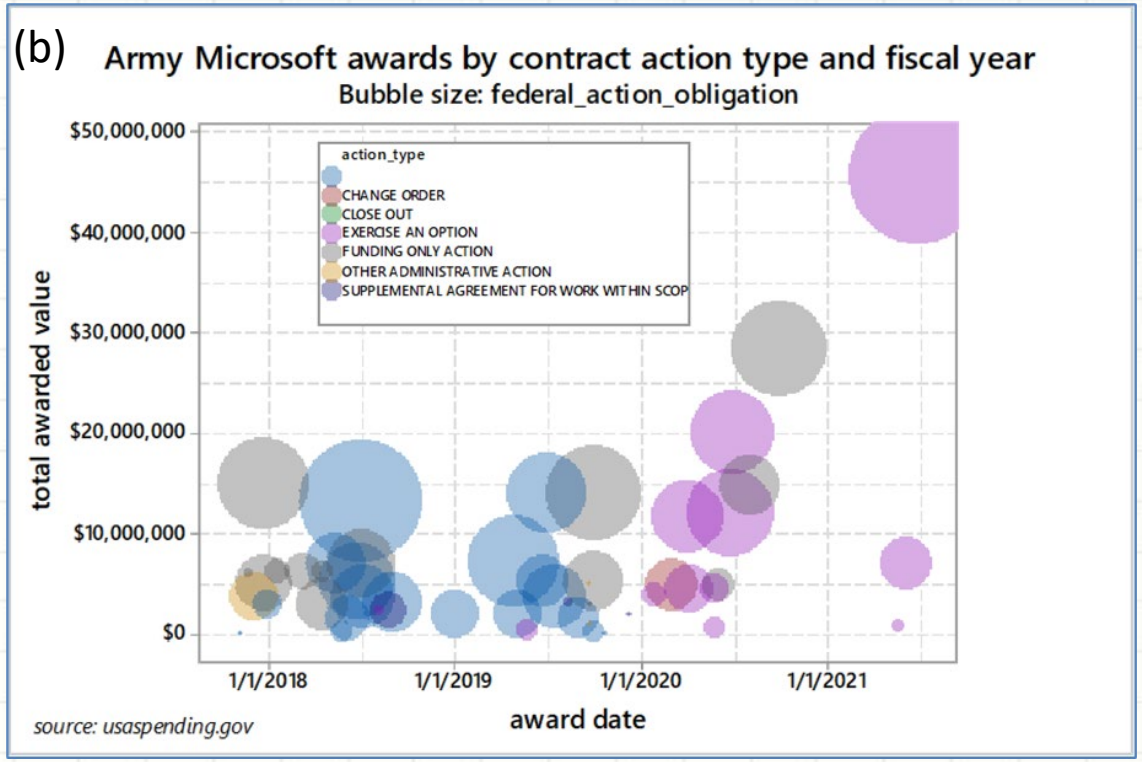
UJ – User Jury
STP – Soldier Touch Point
DR – Design Review
TR – Test Report
BRR – Build Readiness Review

Source: sam.gov

Army spend

Funding consistent with agile, learning development process





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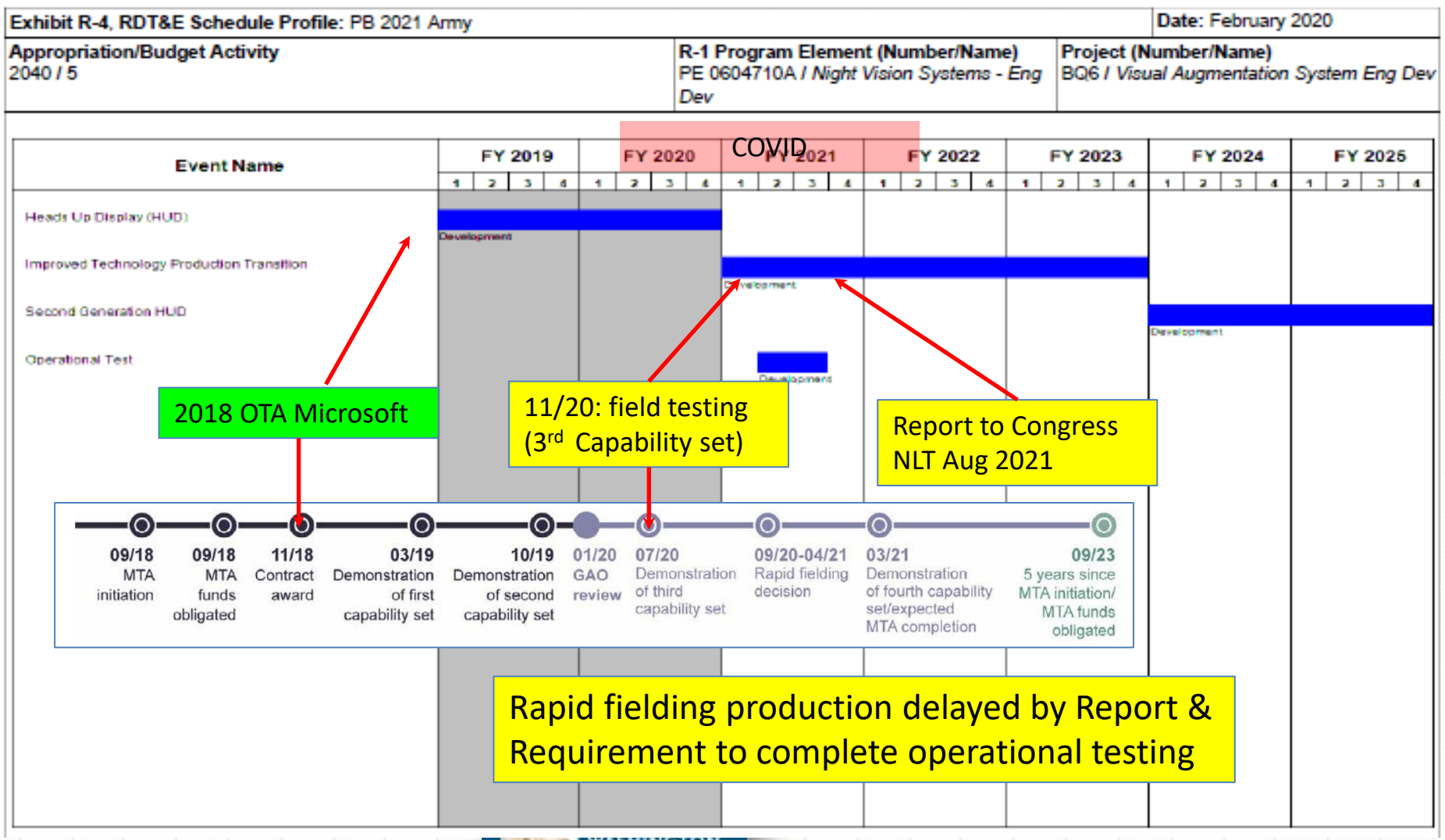
IVAS pushed schedule process



Summary - MTA innovations and practical applications

MTA Innovations	Practical applications
• Explicitly setting an objective duration	• Reduce TECHNICAL goals to meet window • Bound development by what is known and in use – including interfaces and standards • Segment integration risk
• Allowing service acquisition executives to bypass traditional requirements and acquisition processes • Revising funding approval thresholds, authorities, and applicability criteria • allowing direct transition to production under specific conditions	• Have sponsorship from the top and use the flexibility to overcome inevitable obstacles • Resource availability – incentive • Speed to award • Have a competent team (Gov't, Contractor, user) • Minimize production learning curve delays

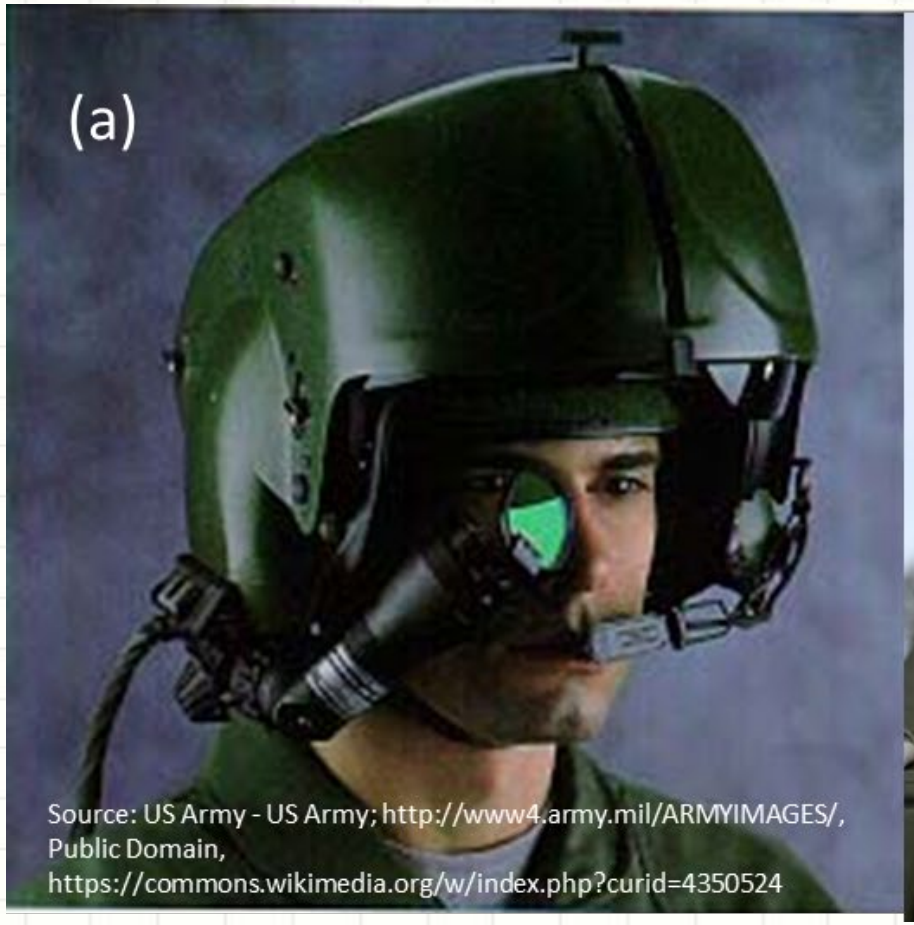
Army IVAS - turning MTA flexibility to advantage

- MTAs allow speed
  - Acquisition authorities such as commercial-like contracting methods
  - Acquisition tailoring
- may include
  - modular or Agile development methods or principles

- Statutes incentivize
  - Program offices and contractors towards technologies and products deliverable within MTA schedule limits
  - Commercial motivation is profit or loss instead of statutory limits
  - Technical risk constraints are driven by time-to-market and budget limits

Backup

Army Helmet-mounted displays



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Source: https://www.army.mil/article/243505/ivas_goggle_amplifies_mounted_capabilities