

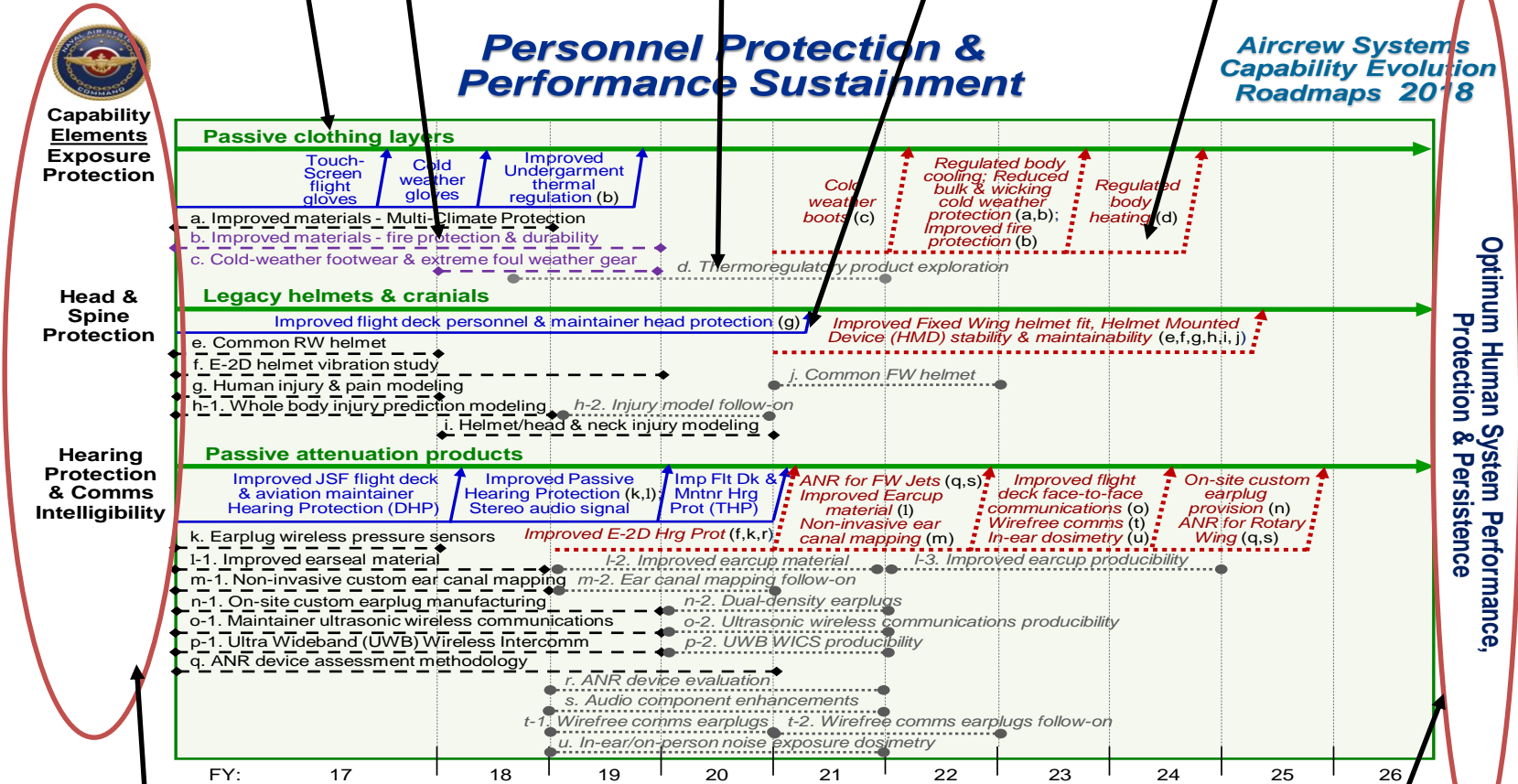
Aircrew Systems Roadmap Conventions

Bold green font entries represent current baseline states

Black dashed lines with regular black font show funded advanced research & technology development activities; Grey dashed lines italic font = Unfunded

Solid lines and font represent funded capability enhancements. Blue = Naval; (Purple = Joint)

Red dotted lines with italic red font represent unfunded potential capability developments



Capability Baseline →	Adv Research Or Tech Dev	◆	Funded	→	Funded Capability Enhancement	↗	↗	↗	↗	↗
		●	Unfunded							
		Unfunded							

Capability Area Elements - attributes or functionalities

Desired future capability state



Personnel Protection & Performance Sustainment

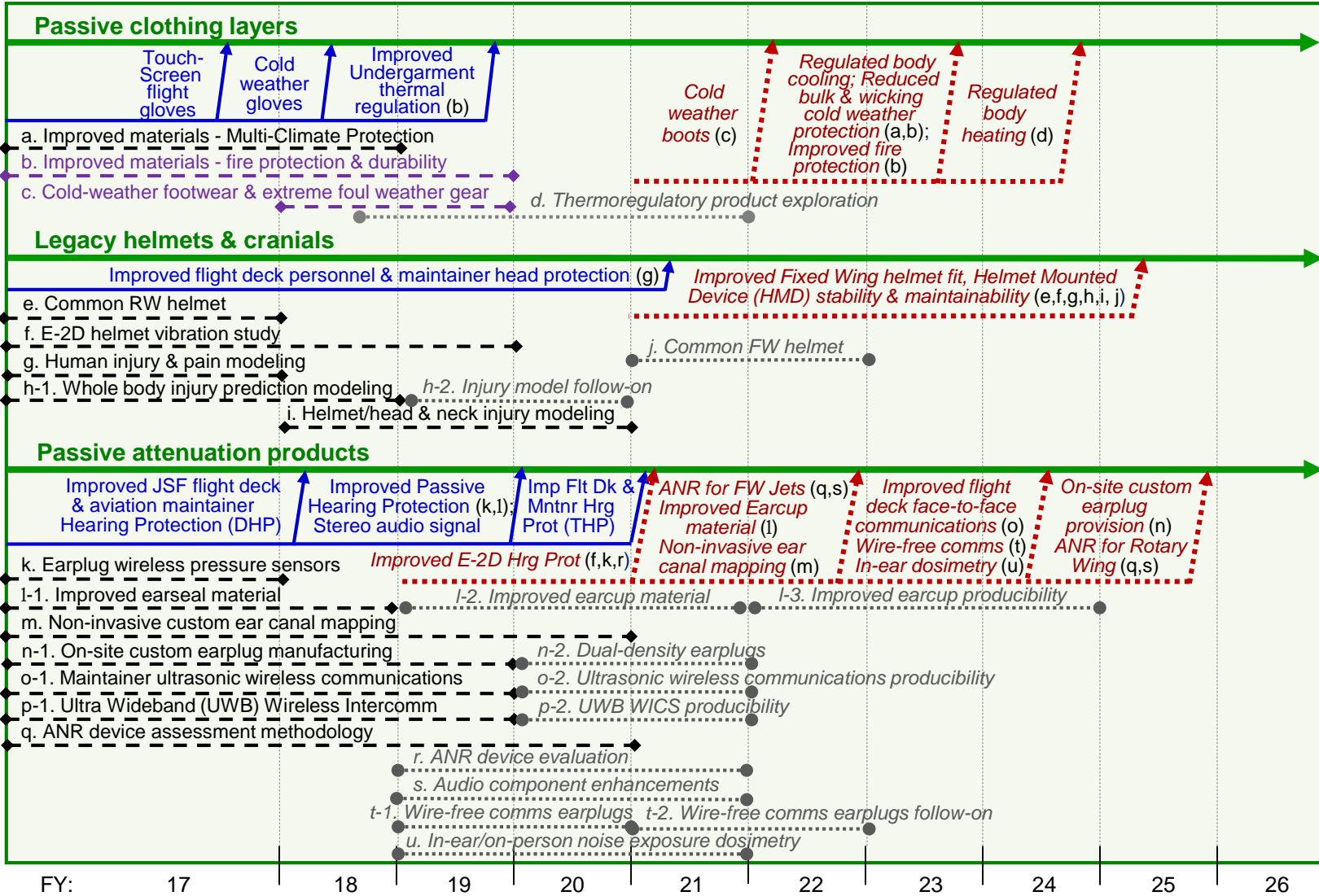
Aircrew Systems Capability Evolution Roadmaps 2018

Optimum Human System Performance, Protection & Persistence

Capability Elements
Exposure Protection

Head & Spine Protection

Hearing Protection & Comms
Intelligibility



Capability Baseline → Adv Research Or Tech Dev ●-----● **Funded** **Funded Capability Enhancement** ↗ **Unfunded Potential Capability Development** ↗ **Joint Initiative**



Combat Operations Survivability & Persistence

Aircrew Systems
Capability Evolution
Roadmaps 2018

Persistent and Survivable
Dynamic Combat Operations

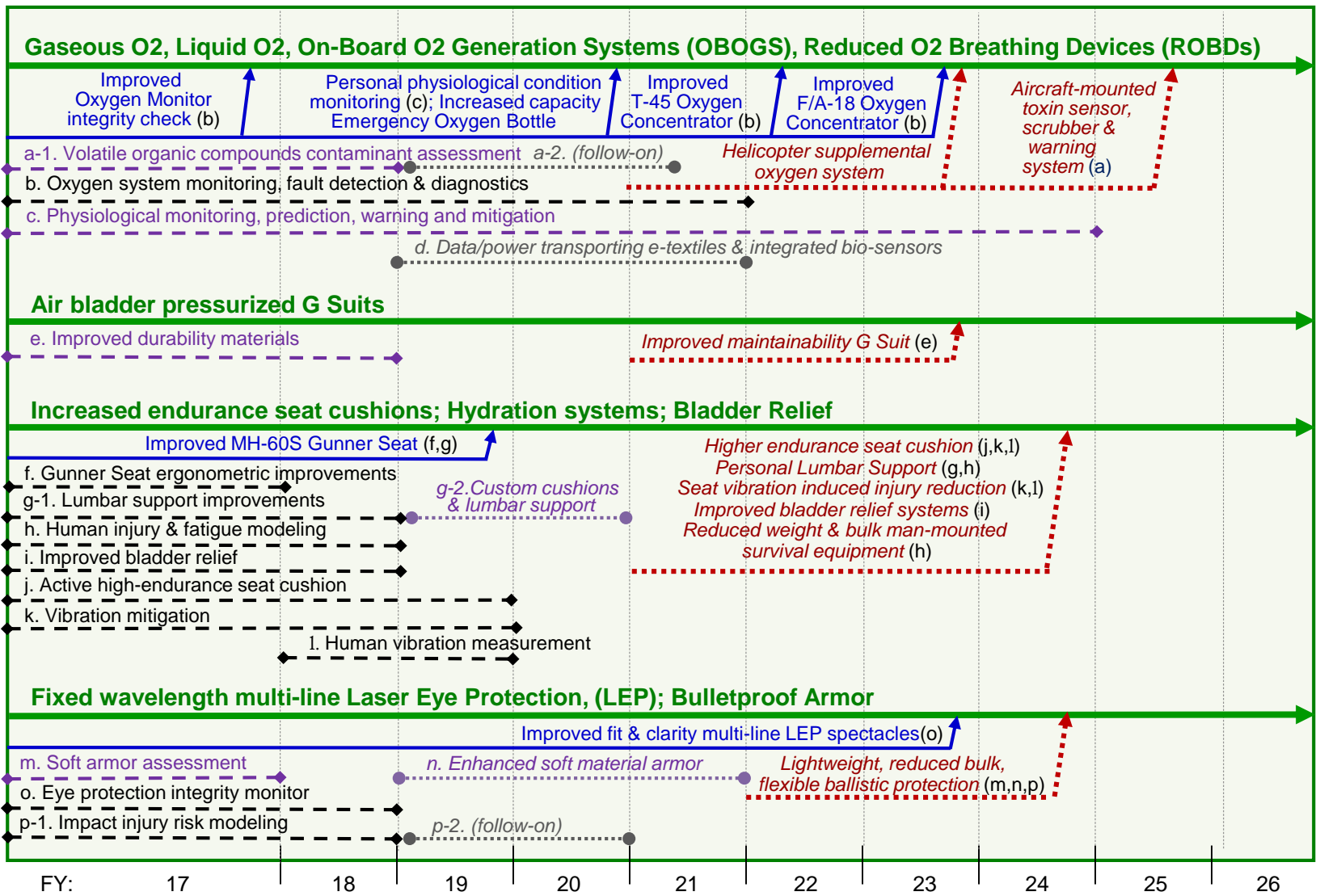
Capability
Elements

Oxygen
Provision

Air
Combat
Maneuver
Support

Extended
Mission
Endurance

Threat
Defense



Capability Baseline →	Adv Research Or Tech Dev ●-●	Funded Unfunded	Funded Capability Enhancement ↗	Unfunded Potential Capability Development ↗	Joint Initiative
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Visual Situational Awareness & Heads Up Cueing/Targeting

Aircrew Systems Capability Evolution Roadmaps 2018

Optimum Day/Night Operations Safety & Maximum Tactical SA / Warfighting Effectiveness

Capability Elements

Night Vision

Gen 3 Image Intensification (I²) technology Night Vision Devices (NVD)

Improved visual quality I² tube NVGs (e)

Improved Rotary Wing digital night vision EVA (Enhanced Visual Acuity) Increment 1: enhanced low-light sensitivity, reduced scintillation, reduced halo effect, lighter weight,, improved fit, digital symbology overlay (a-d)

Enhanced digital SA - EVA Inc. 2 (f,g) [2027]

a. Color high brightness/resolution AMOLED micro-display

b-1. Reconfigurable AMOLED micro-display

b-2. (Follow-on)

c. Advanced micro-display technology development

d. Digital night vision test capability

e. Advanced analog I² tube analysis

f-1. Next Gen (ISIE-19) NIR digital sensor

f-2. (Follow-on)

g. Solid state multi-spectral extreme low light level sensor

Heads Up Flight Parameter Display

Day/night (either or) capable helmet mounted Heads Up Display

Improved Rotary Wing digital night vision EVA (Enhanced Visual Acuity) Increment 1: enhanced low-light sensitivity, reduced scintillation, reduced halo effect, lighter weight,, improved fit, digital symbology overlay (a-d)

Enhanced digital SA - EVA Inc. 2 (f-i) [2027]

h. See-through display technology development

i. Automatic Tinting for display visor development

Heads Up Cueing & Targeting

Day/night (either or) helmet mounted cueing

360° spherical electro-optical SA (JSF Distributed Aperture System)

Next generation day/night tactical helmet: high resolution, all-weather multi-spectral display with tactical data overlay (a-d,f-k)

j. Human Vision Test System Technology Transfer

k. Field of view effectiveness study

FY: 17 18 19 20 21 22 23 24 25 26

Capability Baseline →

Adv Research Or Tech Dev ◀ - ◆

Funded Unfunded ● - - ●

Funded Capability Enhancement ↗

Unfunded Potential Capability Development ↗

Joint Initiative



Chemical Biological Defense Exposure Protection & Persistence

Aircrew Systems Capability Evolution Roadmaps 2018

Capability Elements

Hazard Detection

Passive paper sensors

a. Chemical agent detection system

Standoff point chemical agent detection

Skin Exposure Protection

Legacy protective clothing

Lighter weight, lower bulk, improved protection coveralls

Uniform Integrated Protection Ensemble (UIPE) products [gloves, booties, socks, future garment solutions]

Respiratory Exposure Protection

Legacy Chem Bio masks & filters

Improved common respiration protection (Joint Service Aircrew Mask – JSAM) for Rotary Wing (JSAM RW) and Strategic Aircraft (JSAM SA)

Improved common respiration protection for Tactical Aircraft (JSAM TA)

Exposed Personnel, Equipment & Aircraft Care

Skin wipes; Soap & water aircraft decontamination

Joint Service Equipment Wipes (JSEW)

Multi-platform and Equipment Recovery Force System (MERFS)

Full Aircrew Protection and Persistent, Effective Air Combat Operations in a Chem Bio Environment

FY: 17 18 19 20 21 22 23 24 25 26

Capability Baseline →

Adv Research Or Tech Dev ◄ - ◄

Funded Unfunded ◄ - ◄

Funded Capability Enhancement ↗

Unfunded Potential Capability Development ↗

Joint Initiative



Ejection; Crash Survivability & Egress; Survival, Evasion & Recovery

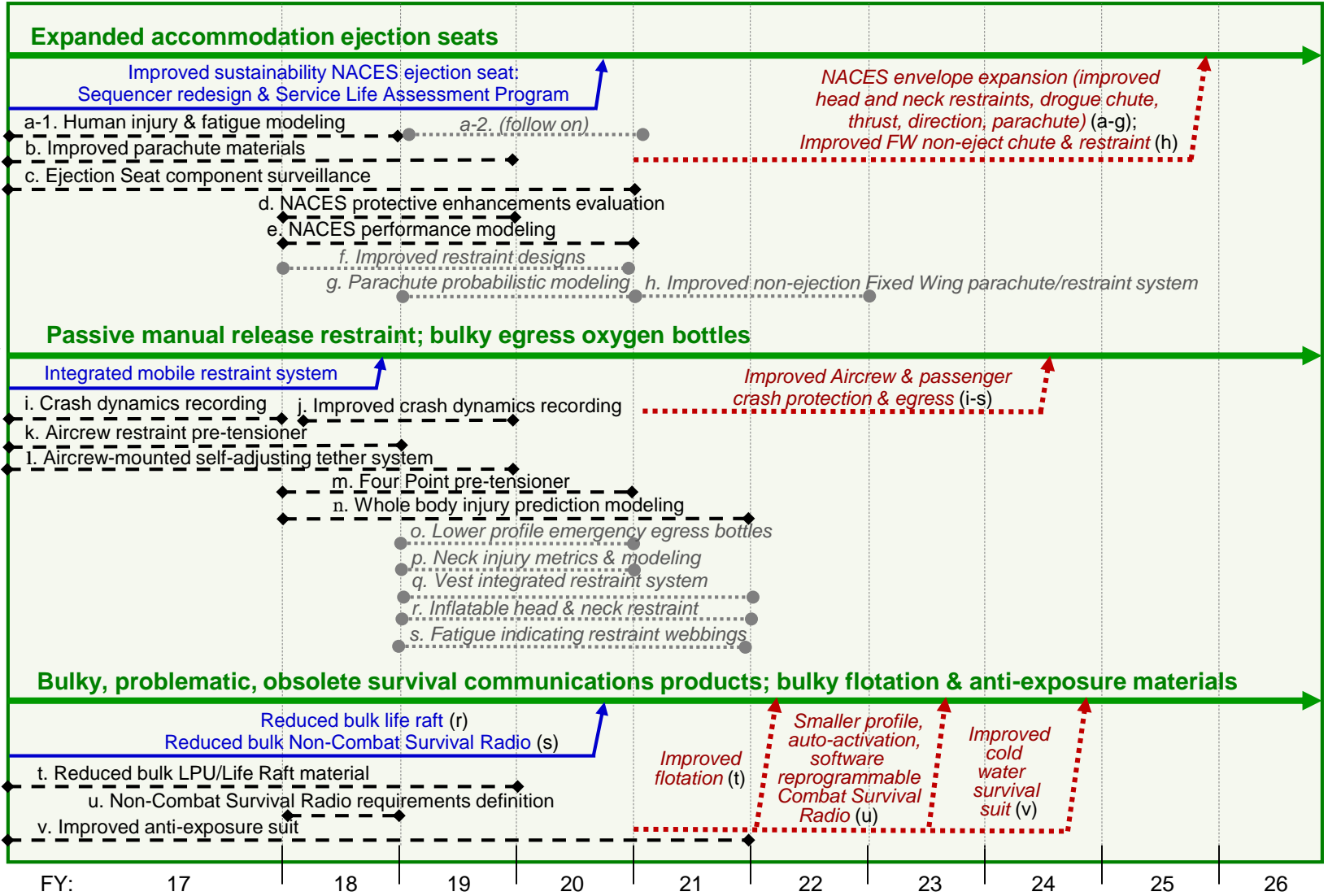
Aircrew Systems Capability Evolution Roadmaps 2018

Capability Elements
Ejection

Crash Survivability & Egress

Survival, Evasion & Recovery

Minimal Survivable-Crash Injuries and 100% Downed Aircrew Recovery



Capability Baseline →
 Adv Research Or Tech Dev ◆ - ◆
 Funded ● - ●
 Unfunded ● - ●
 Funded Capability Enhancement ↗
 Unfunded Potential Capability Development ↗
 Joint Initiative