

Session: 17334

**JSSAP Science and Technology Advisory Council
2015 ARMAMENT SMALL ARMS FORUM**

June 3, 2015



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**Chairman, Joint Service Small Arms
Program Science and Technology Advisory
Council (JSTAC)**



Today's Agenda

- Purpose
- Mission of the JSSAP Organization – JSTAC Intersection
- JSSAP Lean Six Sigma Update
- JSSAP Science and Technology Advisory Council
- The Creation of the Joint Small Arms Technology Development Strategy (JSATDS)
- Top Technical Challenges
- Key Takeaways



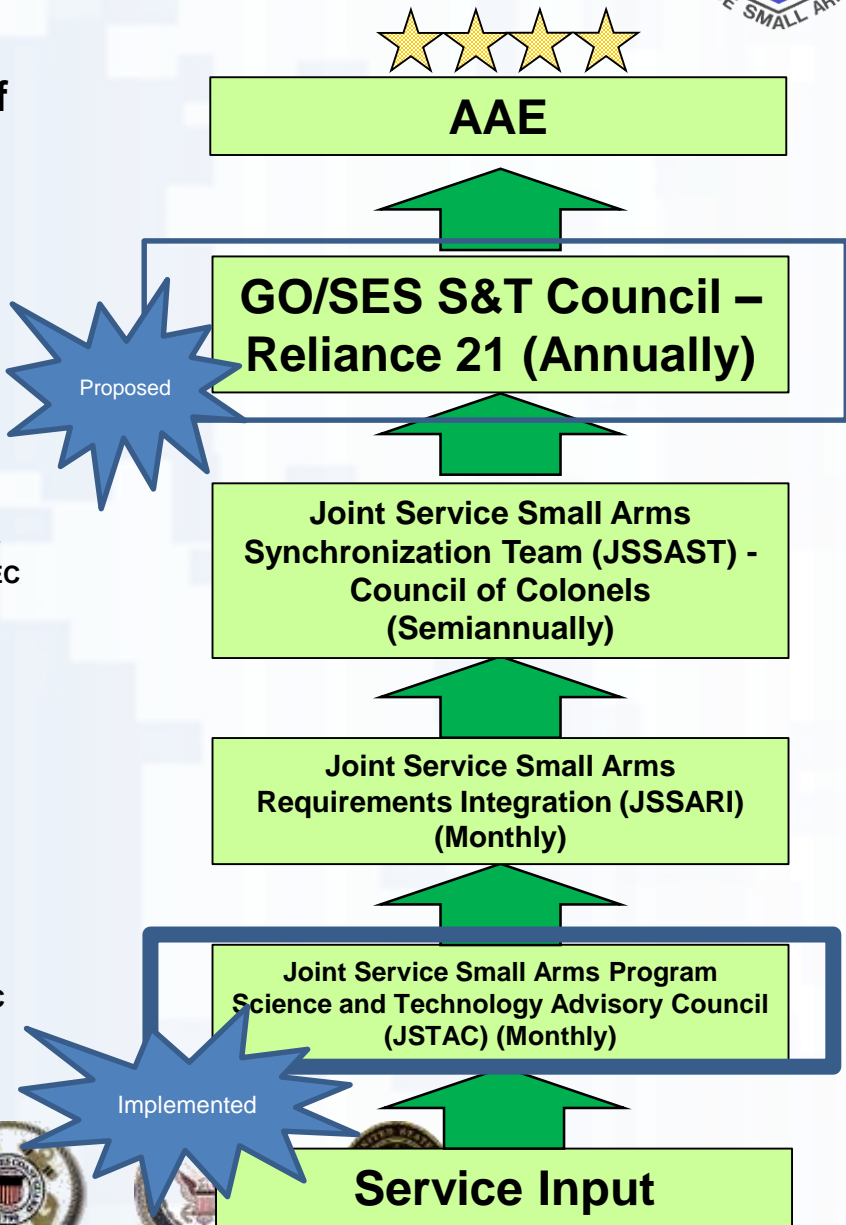
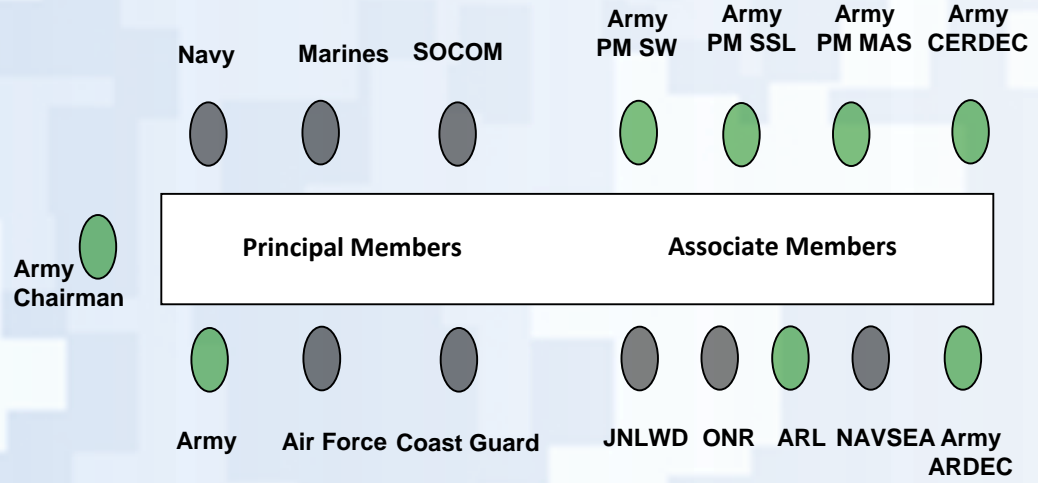


Joint Small Arms Synchronization Team Framework

Mission

The JSSAST Charter identifies 5 principal areas of responsibility for the JSSAP Office:

1. Intensive Management of the DoD Small Arms Tech Base
2. Harmonization of Requirements
3. Transition to Project Managers for Engineering and Manufacturing Development
4. Long Range Plans and Strategies
5. Influence of International Small Arms Activities

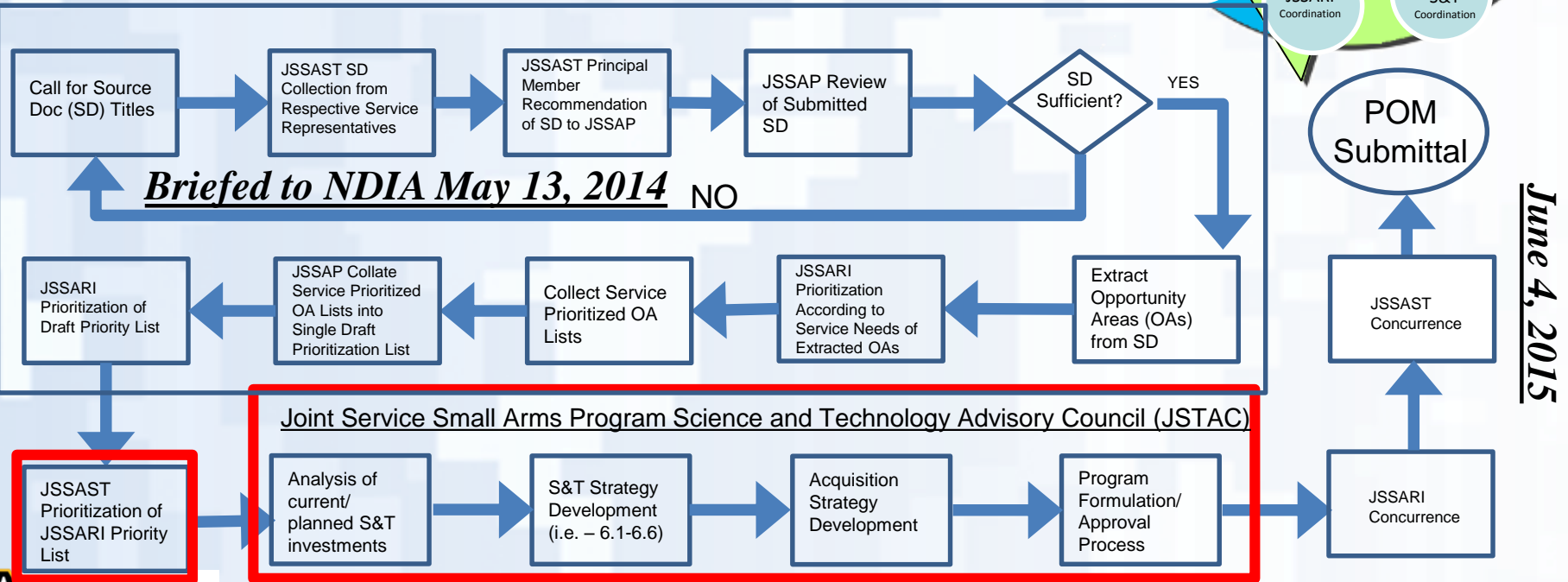
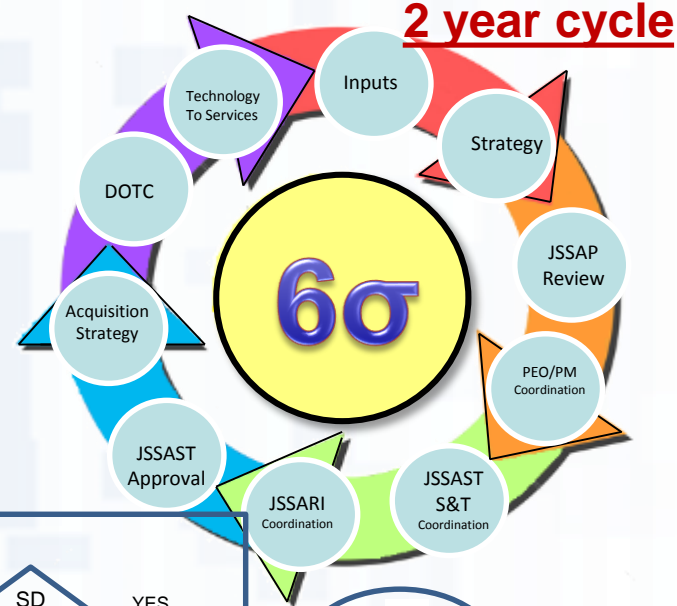




Shaping Our S&T

Approved JSSAP Lean Six Sigma Business Process:

- JSSAP updated their LSS process to increase Stakeholder participation, accommodate multiple inputs from Service partners, and enable a dynamic rebalancing mechanism to reflect current and future year fiscal uncertainty. This LSS process update has led to the formation of the JSTAC.



Joint Service Small Arms Program Science and Technology Advisory Council (JSTAC) Update



JSTAC Approved for Execution on June 11, 2014 by the JSSAST

JSTAC Charter Mission Essential Tasks

1. Establish a process for the timely exchange of Science & Technology information
2. Develop and maintain a Joint Service Small Arms Technology Development Strategy (JSATDS)
3. Maintain an awareness of the small arms Science & Technology portfolio
4. Maintain an awareness of both domestic and foreign technology and identify areas of possible exploitation
5. Recommend to the JSSAST prioritized plans, programs and strategies semi annually

JSTAC Participants

1. Army (ARCIC, ARDEC, ARL, ASA ALT, CERDEC, MCoE, PM MAS, PM SSL, PM SW, PEO Soldier, PEO Ammunition, RDECOM RFEC)
2. Navy (ONR, Navy Small Arms Programs, Naval Surface Warfare Center Crane)
3. Air Force (USAF HQ Security Forces Center)
4. Marines (PM MERS, PM IWS, S & T lead MARCORSSCOM, USMC Capabilities Development Directorate)
5. Coast Guard (Specialized Capabilities CG-721)
6. SOCOM (SORDAC S&T, SOF AT&L, PEO-SW)
7. Other Agencies: DARPA, JNLWD



JSATDS Strategy Formation



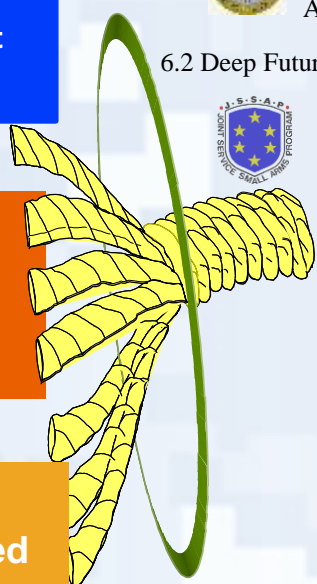
Service Approved Requirement Documents

Army SMP Deep Dives Format

Recognizes Emerging Requirement Documents

DA BA/Taxonomy

JSSAST Approved Opportunity Areas



6.2 Weapon System/Enablers
ARDEC



6.2 Ammunition
ARL



6.2 Optics & Fire Control - ONR



6.2 Deep Futures



6.2 Scalable Effects
JNLWD



International Activities



6.3 System Integration and Demonstration Program
JSSAP



6.2 Training & Human Performance
USMC

Opportunity Area	Priority	Category
Engage Threat Personnel with Precision Fires from 0 to 500m	1	1
Engage Threat Personnel with Precision Fires from 500 to 1000m	2	1
Engage Threat Personnel with Precision Fires from 1000 to 2000m	3	1
Engage Threat Personnel with Precision Fires from 2000 to 3000m	4	1
Engage Threat Personnel with Precision Fires from 3000 to 4000m	5	1
Engage Threat Personnel with Precision Fires from 4000 to 5000m	6	1
Engage Threat Personnel with Precision Fires from 5000 to 6000m	7	1
Engage Threat Personnel with Precision Fires from 6000 to 7000m	8	1
Engage Threat Personnel with Precision Fires from 7000 to 8000m	9	1
Engage Threat Personnel with Precision Fires from 8000 to 9000m	10	1
Engage Threat Personnel with Precision Fires from 9000 to 10000m	11	1
Engage Threat Personnel with Precision Fires from 10000 to 11000m	12	1
Engage Threat Personnel with Precision Fires from 11000 to 12000m	13	1
Engage Threat Personnel with Precision Fires from 12000 to 13000m	14	1
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Engage Threat Personnel with Precision Fires from 14000 to 15000m	16	1
Engage Threat Personnel with Precision Fires from 15000 to 16000m	17	1
Engage Threat Personnel with Precision Fires from 16000 to 17000m	18	1
Engage Threat Personnel with Precision Fires from 17000 to 18000m	19	1
Engage Threat Personnel with Precision Fires from 18000 to 19000m	20	1
Engage Threat Personnel with Precision Fires from 19000 to 20000m	21	1
Engage Threat Personnel with Precision Fires from 20000 to 21000m	22	1
Engage Threat Personnel with Precision Fires from 21000 to 22000m	23	1
Engage Threat Personnel with Precision Fires from 22000 to 23000m	24	1
Engage Threat Personnel with Precision Fires from 23000 to 24000m	25	1
Engage Threat Personnel with Precision Fires from 24000 to 25000m	26	1
Engage Threat Personnel with Precision Fires from 25000 to 26000m	27	1
Engage Threat Personnel with Precision Fires from 26000 to 27000m	28	1
Engage Threat Personnel with Precision Fires from 27000 to 28000m	29	1
Engage Threat Personnel with Precision Fires from 28000 to 29000m	30	1
Engage Threat Personnel with Precision Fires from 29000 to 30000m	31	1
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Engage Threat Personnel with Precision Fires from 31000 to 32000m	33	1
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Engage Threat Personnel with Precision Fires from 38000 to 39000m	40	1
Engage Threat Personnel with Precision Fires from 39000 to 40000m	41	1
Engage Threat Personnel with Precision Fires from 40000 to 41000m	42	1
Engage Threat Personnel with Precision Fires from 41000 to 42000m	43	1
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Engage Threat Personnel with Precision Fires from 44000 to 45000m	46	1
Engage Threat Personnel with Precision Fires from 45000 to 46000m	47	1
Engage Threat Personnel with Precision Fires from 46000 to 47000m	48	1
Engage Threat Personnel with Precision Fires from 47000 to 48000m	49	1
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Engage Threat Personnel with Precision Fires from 56000 to 57000m	58	1
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Engage Threat Personnel with Precision Fires from 58000 to 59000m	60	1
Engage Threat Personnel with Precision Fires from 59000 to 60000m	61	1
Engage Threat Personnel with Precision Fires from 60000 to 61000m	62	1
Engage Threat Personnel with Precision Fires from 61000 to 62000m	63	1
Engage Threat Personnel with Precision Fires from 62000 to 63000m	64	1
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Engage Threat Personnel with Precision Fires from 65000 to 66000m	67	1
Engage Threat Personnel with Precision Fires from 66000 to 67000m	68	1
Engage Threat Personnel with Precision Fires from 67000 to 68000m	69	1
Engage Threat Personnel with Precision Fires from 68000 to 69000m	70	1
Engage Threat Personnel with Precision Fires from 69000 to 70000m	71	1
Engage Threat Personnel with Precision Fires from 70000 to 71000m	72	1
Engage Threat Personnel with Precision Fires from 71000 to 72000m	73	1
Engage Threat Personnel with Precision Fires from 72000 to 73000m	74	1
Engage Threat Personnel with Precision Fires from 73000 to 74000m	75	1
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Engage Threat Personnel with Precision Fires from 77000 to 78000m	79	1
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Engage Threat Personnel with Precision Fires from 79000 to 80000m	81	1
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Engage Threat Personnel with Precision Fires from 81000 to 82000m	83	1
Engage Threat Personnel with Precision Fires from 82000 to 83000m	84	1
Engage Threat Personnel with Precision Fires from 83000 to 84000m	85	1
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Engage Threat Personnel with Precision Fires from 85000 to 86000m	87	1
Engage Threat Personnel with Precision Fires from 86000 to 87000m	88	1
Engage Threat Personnel with Precision Fires from 87000 to 88000m	89	1
Engage Threat Personnel with Precision Fires from 88000 to 89000m	90	1
Engage Threat Personnel with Precision Fires from 89000 to 90000m	91	1
Engage Threat Personnel with Precision Fires from 90000 to 91000m	92	1
Engage Threat Personnel with Precision Fires from 91000 to 92000m	93	1
Engage Threat Personnel with Precision Fires from 92000 to 93000m	94	1
Engage Threat Personnel with Precision Fires from 93000 to 94000m	95	1
Engage Threat Personnel with Precision Fires from 94000 to 95000m	96	1
Engage Threat Personnel with Precision Fires from 95000 to 96000m	97	1
Engage Threat Personnel with Precision Fires from 96000 to 97000m	98	1
Engage Threat Personnel with Precision Fires from 97000 to 98000m	99	1
Engage Threat Personnel with Precision Fires from 98000 to 99000m	100	1
Engage Threat Personnel with Precision Fires from 99000 to 100000m	101	1

SMP Process

JSSAST

Integrated Schedules/Resourcing

POM & LIRA

PEOs/Requirements

POM 18-22 Submission
Investing in the Highest Approved JSSAST Opportunity Areas

Joint Small Arms Technology Technical Challenges



<p>BA 6.2: Weapon Systems and Enablers</p>	<ul style="list-style-type: none"> • <u>Weapon systems</u>, as a whole, must be designed as a system • Most significant contributor to the weapon error budget is operator induced aim error • Higher recoil energies • Higher operating pressures and more muzzle energy often come with increased weapon signature and weight
<p>BA 6.2 Ammunition</p>	<ul style="list-style-type: none"> • Higher muzzle velocities and muzzle energies are needed for improvement in accuracy, range, and lethality • Lack of knowledge regarding levels of noise, flash, IR signatures, and what levels these signatures result in detections • Seeker navigation that allows the munition to adjust while in flight
<p>BA 6.2 Optics & Fire Control</p>	<ul style="list-style-type: none"> • Positive threat Identification at Range night/day • Low SWaP-C sensors integrated across all of or parts of the visual, near-short-mid-long wavelength infrared (Vis-NIR-SWIR-MWIR-LWIR) range of frequencies • Biometric sensors for Human Tagging, Marking, and Tracking
<p>BA 6.2 Scalable Effects</p>	<ul style="list-style-type: none"> • Desired operational impact with increased range – multi mission/ multi effects • Miniaturization of Directed Energy Technologies for Small Arms • Sensors and non-lethal weapons
<p>BA 6.2 Training & Human Performance</p>	<ul style="list-style-type: none"> • Cognitive Burden of S&T investments on the Soldier as a System • Objective system to measure and analyze the performance of the soldier together with his/her weapon, equipment, ammunition, and training
<p>BA 6.3 System Integration and Demonstration</p>	<ul style="list-style-type: none"> • Integration of 6.2 key enablers onto applicable platforms, and demonstrate them in relevant environments as in integrated system
<p>BA 6.2 Deep Future Plans</p>	<ul style="list-style-type: none"> • Advanced Propulsion • Electromagnetic Launch • Battery Tech – High Density. Lightweight, Fast Charging
<p>International Strategy</p>	<ul style="list-style-type: none"> • Avoiding Technological Surprise



Joint Small Arms Technology Development Strategy (JSATDS) - Synergistic S&T Investments - Small Arm Weapon Systems



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**JOINT SMALL ARMS TECHNOLOGY
DEVELOPMENT STRATEGY
FOR
JOINT SERVICE SMALL ARMS
SCIENCE AND TECHNOLOGY
INVESTMENTS**



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Weapon System Enablers	ARDEC
Ammunition	ARL
Optics & Fire Control	ONR
Scalable Effects	JNLWD
Training & Human Perf.	USMC
System Integration & Demo	JSSAP
Deep Future	JSSAP
International	JSSAP/RDECOM

Foundational Strategies in BA 6.2 and 6.3 That Will Lead To Dominant Future Capabilities

Final Thoughts

The JSATDS provides a great example of the Success of the JSSAP Organization and Stakeholders.

Key Takeaways:

1. JSSAP continues to fulfill its mission through a series of strategic engagements (JSSAST, JSSARI and JSTAC) with key stakeholders at multiple echelons at the service component level.
2. JSATDS section leads were provided from ARDEC, ARL, USMC, JSSAP, JNLWD, and ONR creating a Joint document from inception. This document serves as a partnership with shared accountability (creation and financial), with joint engagement, joint learning and decision making. The JSATDS supports the tenets of the chartered mission of the Joint Service Small Arms Program (JSSAP) office.
3. JSATDS summarizes by investment taxonomy and Army Budget Activity dollars, associated investments necessary to mitigate the JSSAST Top 50 Opportunity Areas, Supports Program Objective Memorandum FY18-22 submission to support the Dismounted Warfighter, portrayed through the lens of the Soldier Modernization Deep Dive.
4. The resultant POM 18-22 Strategy requires a significant increase in budget activity funds 6.2 & 6.3 to support near term product improvements and far term revolutionary investments in order to Maintain and Achieve Overmatch.

