



Aviation Technology Locomotive

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AVIATION TECHNOLOGY LOCOMOTIVE



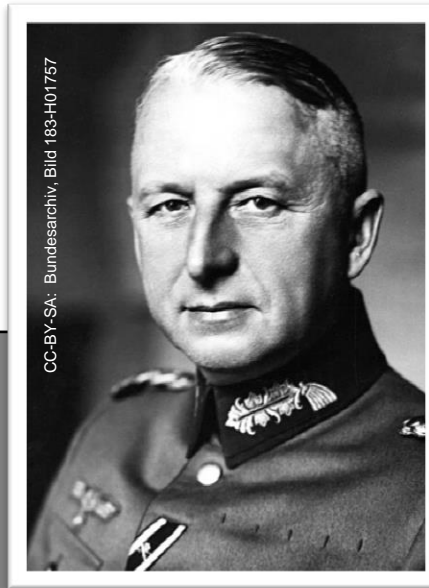
***“All modern aircraft have four dimensions:
span, length, height and politics.”***

Sidney Camm

Where are the leaders of tomorrow...Today?!

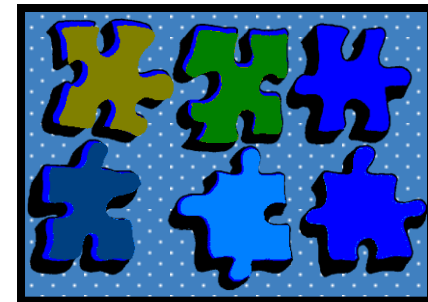
von Manstein's four types of officer

Hardworking	Fire them – dangerous, they have the energy and lack of judgment to ruin everything	Keep them – they make good, highly effective staff officers
	They do no harm – leave them alone	Potentially, strategic thinkers – keep as potential key leaders
Lazy	Stupid	Clever



Background – *The Puzzle Pieces*

- The Army Executive lead in rotorcraft - appeared to lose its way
 - Comanche wrong-minded (LHX roots), unaffordable and cancelled
 - V-22 was a USMC program
 - The St Louis-Huntsville move damaged the structure
- The NAVAIRSYSCOM at Patuxent River
 - F/A-18D/E and JSF have drained energy – impacted future vision capacity
 - Natural conservatism – A-12 experience, carrier approach speed mill-stone and JUCAS
 - 12-Carrier Strike Groups, BAMS and USMC aviation
- Air Force, AFRL retain serious development capability
 - Politicized – protection for F-22, deep strike, Druyun affair, tanker and Wynne/Moseley
 - UAV evolutionary challenge to traditional Orbat
 - Potentially, remains somewhat visionary – but has bad days
- NASA – At 50 - this aviator is prematurely old
- Industry – no longer the vision/vigor of Kelly Johnson/Ben Rich



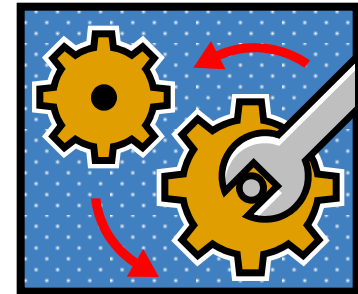
Advanced Aviation Issues

- Less encumbered by demands of the present day needs or Force Structure issues than the Services - looking to future systems
- Challenges to this:
 - The intrinsic gravity of current wars that shift efforts to nearer term (e.g. Vietnam; Iraq)
 - Over-emphasis on the importance of assured transition has diminished the speculative pursuit of technical variety (vagaries and volatility of Service priorities)
 - Congressional interest and limited capacity to accept high failure rate in the effort to secure speculative capability improvements and breakthroughs (what price the Lynn doctrine of high risk and 90% failures?)
 - Sapped confidence post advanced programs (e.g. OFW and Black Swift)
- DARPA remains a relative *oasis* for technology starts – able to look beyond the traditional development cycle for aviation 20-25 years in the future
- DARPA has led significant aviation initiatives (Have Blue; CALF; Amber; A160)
 - New platforms act as technology locomotives – stimulate the questions (why, what and how), galvanize and secure advances
 - But...only if technology choices are good ones – not marginal value



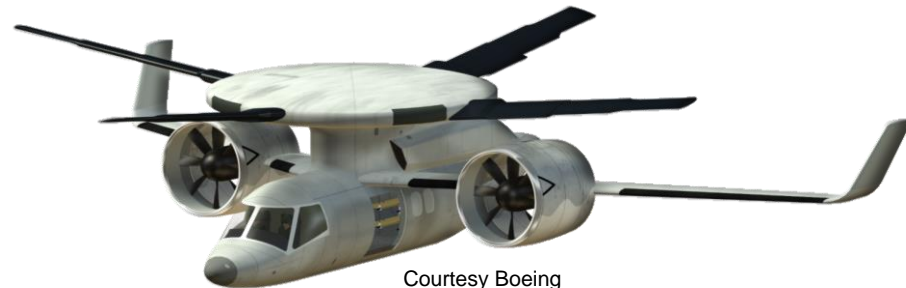
New Approach

- Find leadership for a national aviation recovery initiative with a new vision
- Strategy - draw broadly on an idea of earlier USD (AT&L) – “develop key technologies to be available on the shelf” and pending their need
 - Strongly capability focused – not requirements
 - Diminishes immediate pressure to transition; favors high risk/pay-off
 - Provides more design options – responsive to meet rapidly developing future threats
 - Affordability, variety and multipliers
 - Discriminates – filters bad ideas early
 - Platforms are the technology Locomotives
- Stimulate and prove capabilities having the potential to be in operational service in ~20 years time (next generation)
- Establish key high end of the food chain platforms:
 - Affordability - between \$20-100M each
 - New approaches where the pay-off remains uncertain
 - Asymmetric value – incorporate multiple tiered technologies



7 Aviation Demonstrator Programs

1. Morphing aircraft – contradictory missions
2. Diesel-Turboshaft – Helo retrofit
3. Next generation PHM – on condition maintenance
4. DiscRotor – FW high speed/Helo hover efficiency
5. LTA integrated Buoyancy-Propulsion system
6. SeaCatcher – Task Group Organic Armed ISR
7. Smart autonomy – tactical maneuver



Courtesy Boeing

Summary

- Platform demonstrators are effective technology locomotives (e.g. PHM under JSF; Forester under A160 platform)
- By any historical measure, DoD is not investing forward aggressively enough to develop a range of advanced new platforms that will tug technologies forward in anticipation of 2023-33 military capability needs
- Recent lost platform programs such as OFW and Black Swift – undermine confidence – Industry cannot provide the leadership so, who will?
- Propose new development strategy to provide ‘shelter’ or rationale for a set of affordable large scale demonstrators - “develop key technologies to be available on the shelf”