Operational Challenges to EW effectiveness

Air Mshl Daljit Singh PVSM AVSM VM (Retd)

Indian Air Force

Sequence

- Flashback
- Technological Advances
- Present Scenario
- Current Developments
- Operational Approach
- Suggested Measures
- Other Aspects

Flashback :World War II

- Freya radar, Wurzburg, C2 Center, Neptune
- ECM – Mandrel, Carpet
- Integrated Air Defence (IADS)- Germany- Night fighters, AAA
- RWR- Naxos, Flensberg.

Flashback
Vietnam War

- SAM 2 shot down Phantom
- ECM equipment inducted, ECCM followed.
- Wild weasel missions with ARM
- PGM introduced
- RPVs and C2 elements inducted
- EA6B Prowler Stand Off Jammer
- Attrition rate reduced by 10 times.
- Phantoms without guns

Flashback- Yom Kippur War 1973

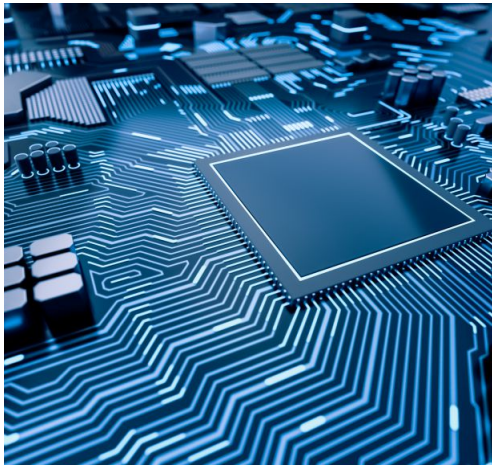
- **Surprise induction of SAM 6,Schilka & SA 7**
- **Counter measures took time**
- **Effective Review of tactics**
- **Israelis captured SA6 and Schilka to develop tactics.**

Flashback :Beka Valley 1982 First War of Lebanon

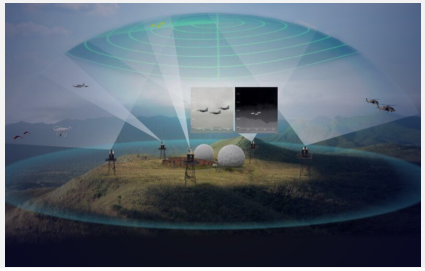
- Networked and coordinated campaign
- E2C early warning, Boeing 707, COMJAM deployed
- Decoys, UAVs and ARMs employed
- PGMs employed
- Template for subsequent wars.

Technological Advances

- Computational power
- Communication network
- Sensor technology
- EM spectrum exploitation
- Space based assets
- Non- kinetic systems



Present Scenario



- Integrated Air Defence Systems
- Net-centric Operations
- Multispectral sensors
- Airborne Sensors
- Long range SAMs/AAMs
- Laser weapons maturing
- Space domain

Current Developments

- EA- 18G – NGJ
- Eurofighter
- Saab Gripen- EAJP

Bottom line

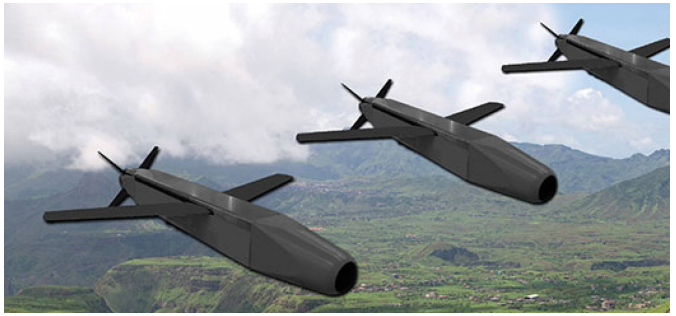
Modular, Scalable, open system architecture.

Upgraded Datalinks.

Multispectral Capability

Operational Approach

- Stand off weapons – ASSM(ER),SCALP/ STORM SHADOW SPICE
- Stealth technology
- Comprehensive EW suite
- Endgame Engagement



Suggested approach to EW effectiveness

- Exploit technology
- Networked SIGINT
- AI enabled analysis
- Networked EW action
- Endgame strategy
- Cognitive EW systems
- Option to choose the best array of arrows

Other Aspects

Realistically evaluate systems requirement- M&S

Consider upgradable capabilities

Realistic training

Data links are getting crucial for operations

Conclusion

- Need for advanced wide band EW systems .
- Open & Flexible Architecture
- Global EW Market forecast $30 Billion between 2018-2028.
- Growing need of indigenization and Collaborative Production
- Exploit technology with judicious operational concepts.


Thank you