

EWA



Electronic Warfare Associates – Australia

*Australia's Electronic Warfare &
Information Security Specialists*

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INFORMATION OPERATIONS

The Impact on C4I Systems

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“The history of command can ... be understood in terms of a race between the demand for information and the ability of command systems to meet it.”

Martin Van Creveld, Command in War



Themes

- Information: Timely, Accurate, Relevant
 - Information Superiority
- Reducing the OODA cycle
 - Decision Superiority
- C – I – A ... Information Assurance
 - True Spectrum Dominance of the Battlespace



Command and Control

- C4I systems
 - *Decision Support* to the Commander (User)
 - Enabled by technological developments
 - Changing Doctrine
 - New Threats
- Inputs and Outputs
 - Intelligence / Information
 - Orders / Actions



Information Operations

CORE CAPABILITIES

Electronic Warfare

Computer Network Operations

Military Deception

PSYOP

Operational Security

RELATED CAPABILITIES

Public Affairs

Civil-Military Operations

SUPPORTING CAPABILITIES

Information Assurance

Physical Security

Physical Attack

Counterintelligence

INTELLIGENCE SUPPORT

Draft USDOD Directive 3600.1



IO and C4I

- IO delivers to the C4I System:
 - Collaborative Information Sources
 - Information and System Protection
 - COA options – Deception, PSYOP, EW
 - Learning / Surveillance
- Increases **Information Superiority**



Information Superiority

- Have better information than your adversary
- Information: Timely, Accurate, Relevant
- Appreciation process

“Information operations integrate all aspects of information to support and enhance the elements of combat power, with the goal of dominating the battlespace at the right time, at the right place, and with the right weapons or resources.”

Frater & Ryan



Decision Superiority

- Execute your command before your adversary executes theirs
 - Exert Friendly Commander's will on the Battlespace
- Assessments (BDA)
- Replanning (branches and sequels)
- Utilises the benefits of technology and human capacity – **C4I Systems**



Shortening the OODA Cycle

- F2T2EA - Find, Fix, Track, Target, Engage and Assess
 - Determine the situation in the AO
 - Combining Wide Area and Focal SA
 - Determine COAs
 - Execute commands to secure the objective
 - Targeting and Delivery options
 - Assess Mission
- Command from an Air Operations Centre



What about Assurance?

- What if the enemy knows what you know?
- What if you have been deceived?
- What if your systems are owned by the enemy?
- What if you don't even know it is happening?



Consequences

- Poor / Invalid Information
- Poor / Invalid / Dangerous Decisions
- System compromise
- Misuse of Assets
- Loss of Assets



Information Security

- CONFIDENTIALITY
- INTEGRITY
- AVAILABILITY



Solutions?

- Security in Design
- Security Operations / Monitoring
- Raise–Train–Sustain your Security Capability
- Go on the Offensive



Security Engineering

- Build it right – “fit for purpose”
- Best Practice
- Standards
- Tools
- Certification (ITAF Rel 3.1 / SSE-CMM)
- Review and Improve
- Resource



Threat Detection & Response

- Operations / Monitoring
 - Policy
 - Procedures
 - Tools
 - People
 - Systems
 - Knowledge
- CND / CNA



Security Capability

- Identify (ISO/IEC 17799, 21827)
- Training – evolving and smarter threats
- Continuous Improvement
- IO – offensive IO provides intel on an adversary's capabilities
- Be aware this is a continuous cyclic process:
 - Threat / fix / improved threat and so on...



Conclusion

- IO enables Information Superiority
- Contributes to shorter OODA cycles in the C4I environment
 - Decision Superiority
- All is worthless without security...
 - C – I – A
 - Continuous process...
 - don't be caught napping!

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Any Questions?

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