



EW Asia 2020
Fifth-Generation Manoeuvre: The RAAF Perspective
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AIR FORCE



5th Generation Technology

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graph TD; A[5th Generation Technology] --> B[Stealthy]; A --> C[Advanced Mission Systems]; A --> D[Advanced Weapons]; A --> E[Fusion];
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Stealthy

**Advanced Mission
Systems**

**Advanced
Weapons**

Fusion



5th Generation Technology

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5th Generation Air Power

**F-35A Lightning
II**

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5th
Generation
Technology

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graph TD; A[5th Generation Technology] --> B[Networked Force]; B --> C[Information Advantage];
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Networked
Force

Information
Advantage

“A fifth-generation Air Force is a fully-networked force that exploits the combat-multiplier effects of a readily available, integrated and shared battlespace picture to deliver lethal and non-lethal air power. A fifth generation Air Force will provide the joint and networked effects necessary to prevail against the increasingly complex and lethal threats of warfare in the Information Age.”

Technological
Superiority

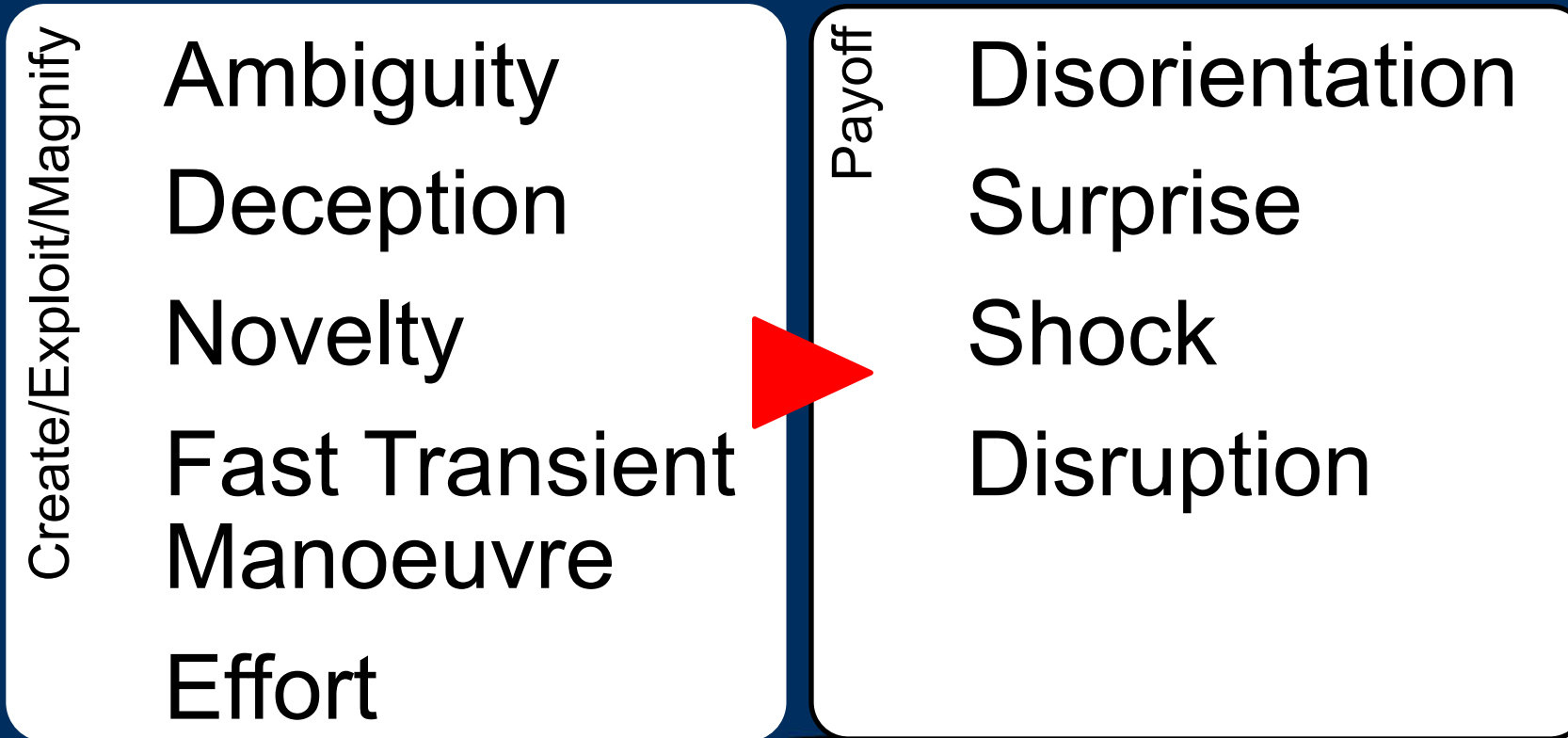
Situational
Awareness

Command
and Control

Manoeuvre

AIR FORCE

Manoeuvre Warfare



The EW Perspective

- Manoeuvre within the EMS.
- Deceive, deny, degrade.
- Network susceptibility.

EW as an effector as well as an enabler.

Technological
Superiority

Situational
Awareness

Command
and Control

Manoeuvre

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P-8A Poseidon



MQ-4C Triton



MC-55A
Peregrine

- Wide-Area Situational Awareness
- Rapid software upgradeability
- Space situational awareness



JORN

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- Connectivity
 - Data distribution
 - Resilience to degradation
 - Robustness to denial

 - Mission Data
 - Threat Capability
 - Own Capability
 - Operating Environment
 - Enables Precision

DGS-AUS

Technological
Superiority

Situational
Awareness

Command
and Control

Manoeuvre

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- Control of the tactical battlespace
- Multi-domain coordination
- Australia's proven distributed C2 capability



E-7A Wedgetail

C2

Electromagnetic

Space

Air

Maritime

Land

Cyber

Information

Electronic Warfare

- Multi-domain situational awareness
 - Air/land/sea/space/cyber/EMS
- Rapid planning capability
- Flexible architecture -> future upgrade
- Phase 2:
 - Ground-based AESA and passive radar network
 - Integrated Air and Missile Defence

Joint Battle Management System

Electromagnetic Battle Management

- The EMS is volatile.
- EM effects can be insidious.
- Risk of fratricide.
- Signature management.
- Spectrum shaping.
- Bandwidth allocation.

Technological
Superiority

Situational
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Command
and Control

Manoeuvre

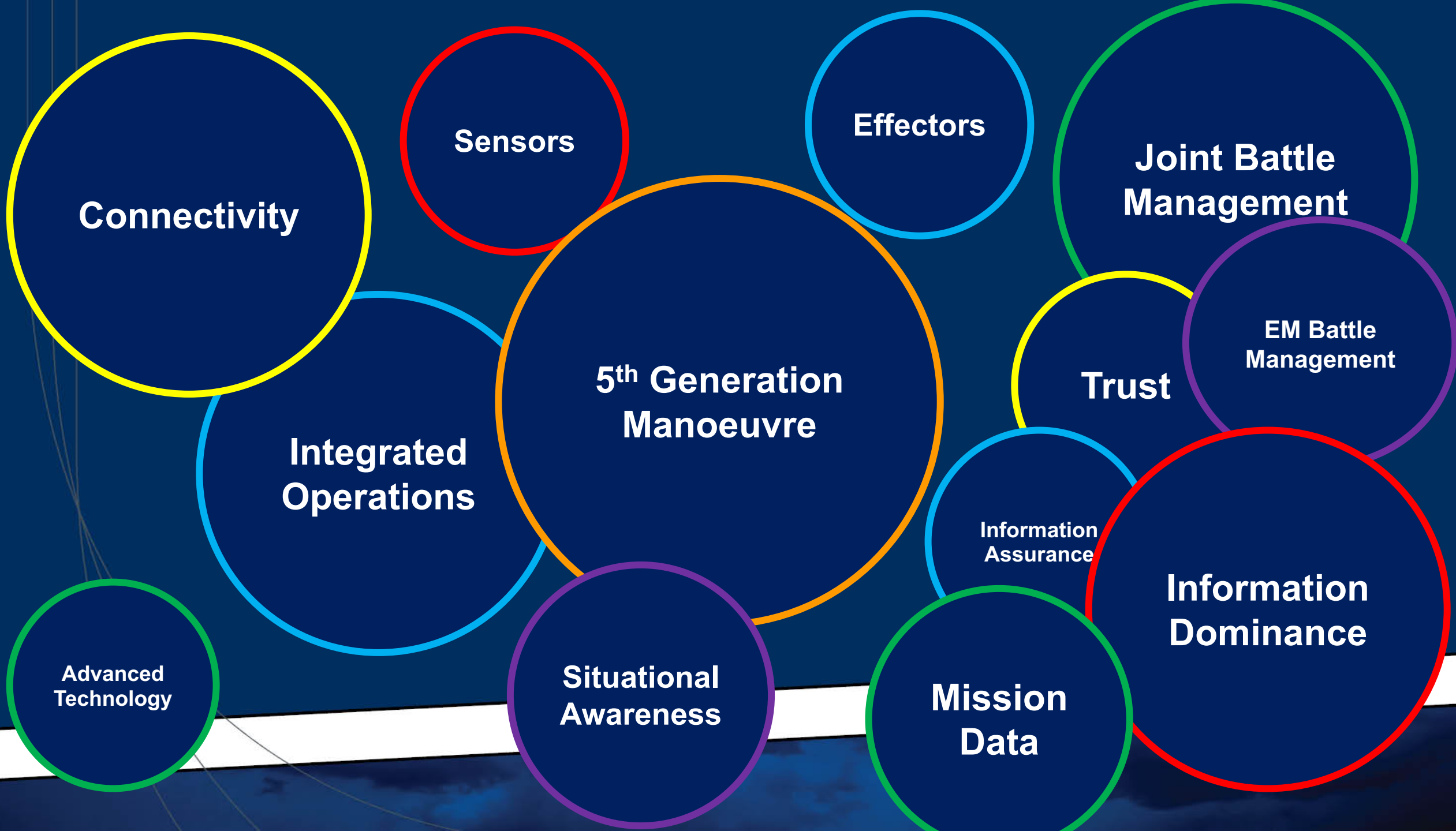
Manoeuvre in the EMS

- Stand-in jamming
- Stand-off jamming
- Escort jamming
- Non-kinetic effects
- EW effector, cyber effect

EA-18G
Growler

Challenges

- Integrating tactical and strategic networks.
- Integrating legacy systems with modern architecture.
- Dealing with data at varying classification levels.
- Information assurance.
- Automation and software assurance.
- Training for 5th gen warfare without 5th gen data.
- Recruiting a qualified workforce.



Connectivity

Sensors

Effectors

Joint Battle Management

EM Battle Management

Trust

Information Assurance

Information Dominance

Mission Data

Situational Awareness

Integrated Operations

5th Generation Manoeuvre

Advanced Technology

