Information Security, Hybrid Warfare, Cyberspace

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Developments in Japan's Security

- National Defense Program Guidelines, FY 2019
  - Traditional domains: Land, Sea, Air
  - New: Space, Cyberspace, Electromagnetic Spectrum
    - "It has become essential that Japan achieve superiority in new domains"

- Forms of inter-state competition
  - Gray Zone
    - Also called "Measures Short of Armed Conflict"
  - Hybrid Warfare
    - Blur boundaries between military and non-military means

Continuum of Conflict
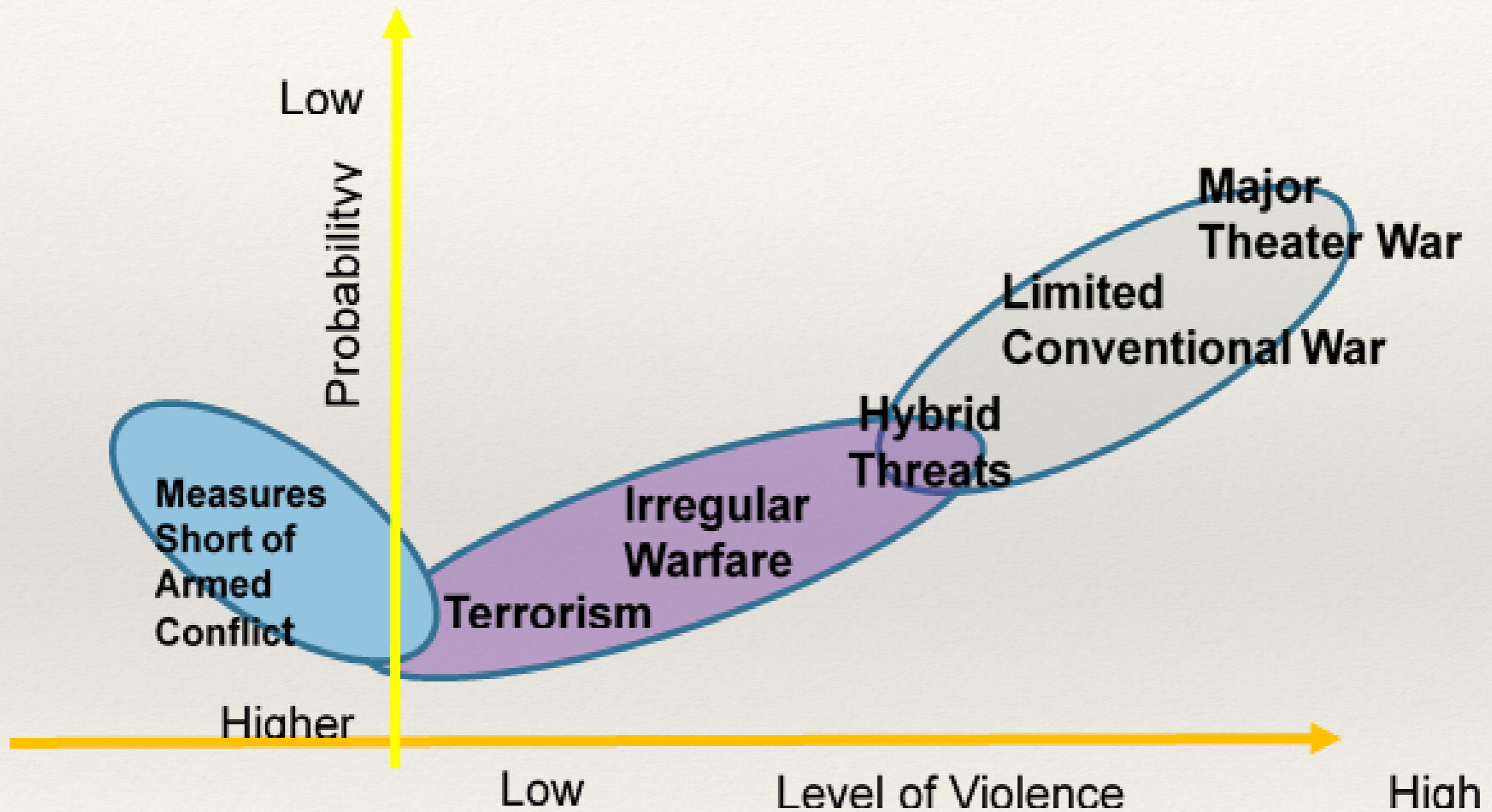
From Frank Hoffman, 2016
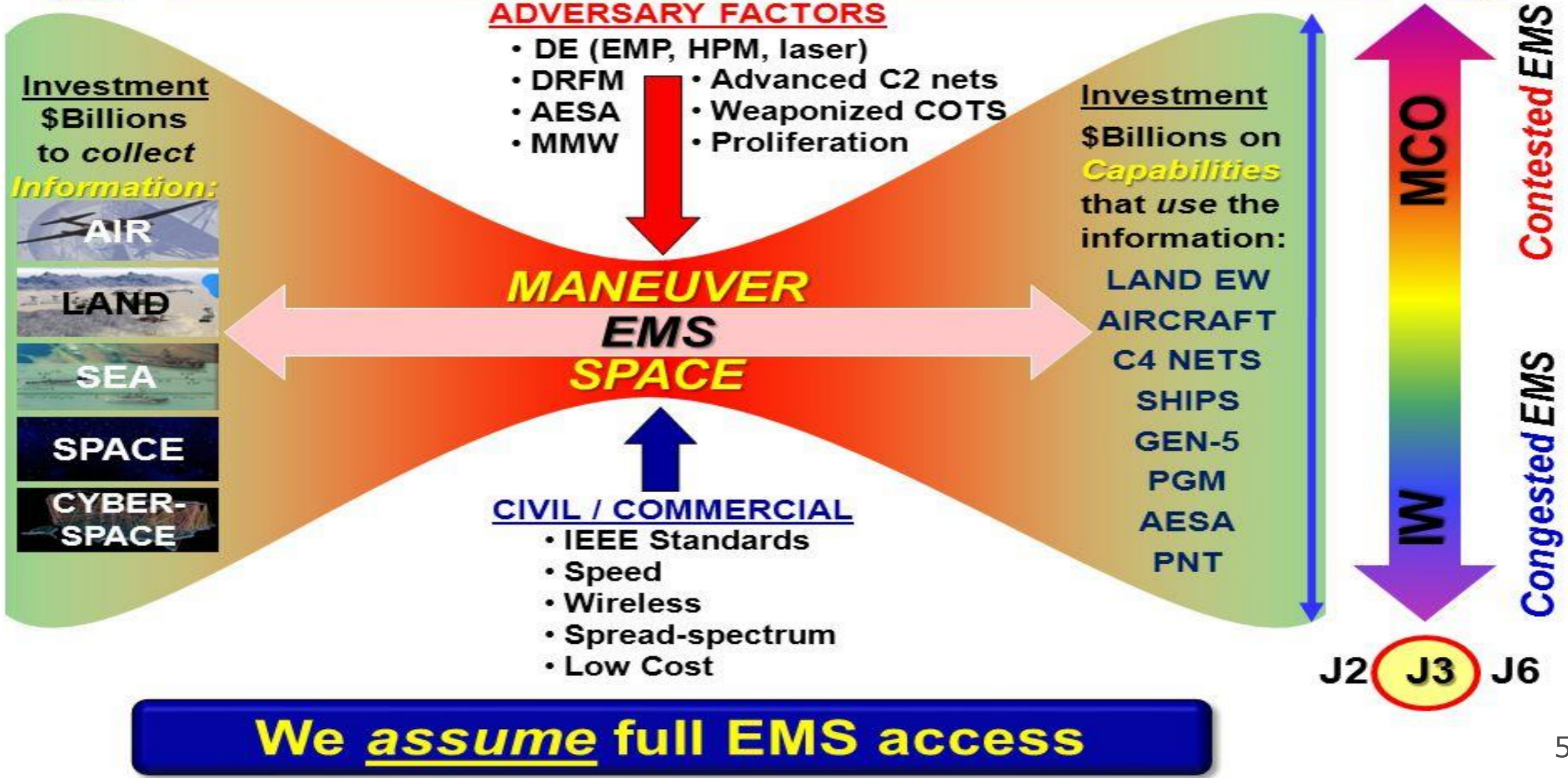
Cross–Domain Operations

- Operations conducted across <u>all</u> domains

  - Land, sea, and air PLUS, space, cyberspace, electromagnetic spectrum

- Defense must protect civilians also

  - Space, cyber and spectrum widely used by civilians

- Cyber attacks can disrupt critical infrastructures

  - "SDF will fundamentally strengthen its cyber defense capability, including capability to disrupt, during attack against Japan, opponent's use of cyberspace for attack.

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Control of EMS means Control of All Domains and Platforms

Congested & Contested EM Spectrum

ADVERSARY FACTORS
- DE (EMP, HPM, laser)
- DRFM
- AESA
- MMW
- Advanced C2 nets
- Weaponized COTS
- Proliferation

Investment $Billions to collect Information:
- AIR
- LAND
- SEA
- SPACE
- CYBER-SPACE

MANEUVER EMS SPACE

Investment $Billions on Capabilities that use the information:
- LAND EW
- AIRCRAFT
- C4 NETS
- SHIPS
- GEN-5
- PGM
- AESA
- PNT

CIVIL / COMMERCIAL
- IEEE Standards
- Speed
- Wireless
- Spread-spectrum
- Low Cost

MCO

IW

Contested EMS

Congested EMS

J2   J3   J6

We _assume_ full EMS access

Cybersecurity vs Cyber Resilience

❖ Security not just locking down to keep bad things from happening—prevent cyber penetrations

❖ Can't prevent all attacks. Need to keep fighting even though damaged and adapt to become stronger—"be prepared to bounce <u>forward</u> better"
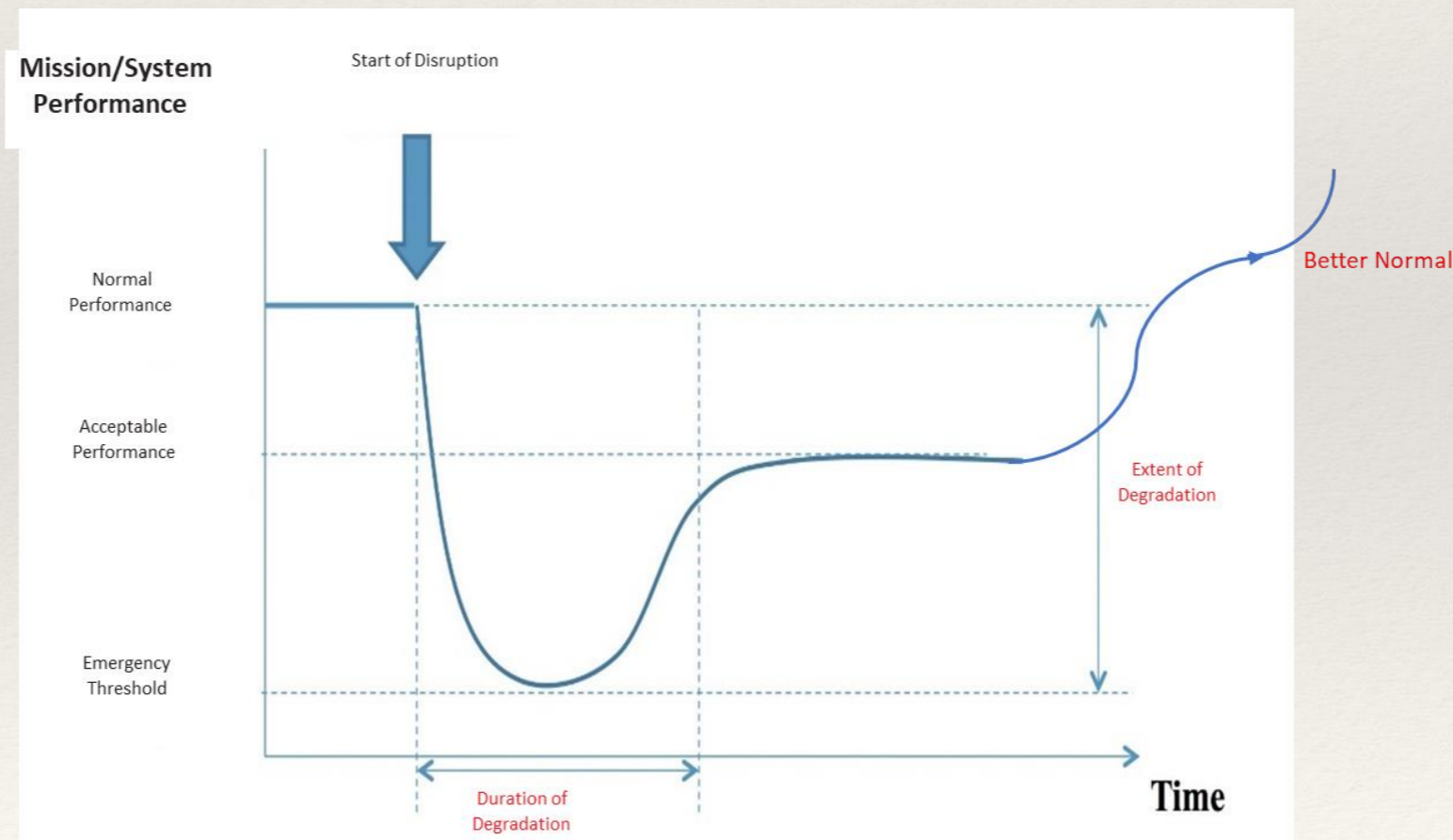

Figure 1. Conceptual diagram for measuring vulnerability and resilience (expanded from <u>KANG Shian Chin, et. al. (2014)</u>); based on Richards, Ross, Shah, & Hastings, 2009

Inter-Operability & Info Sharing

❖ Inter-operability is key to Mutual Security Treaty

❖ But, in a networked environment, a risk accepted by one is a risk imposed on all.

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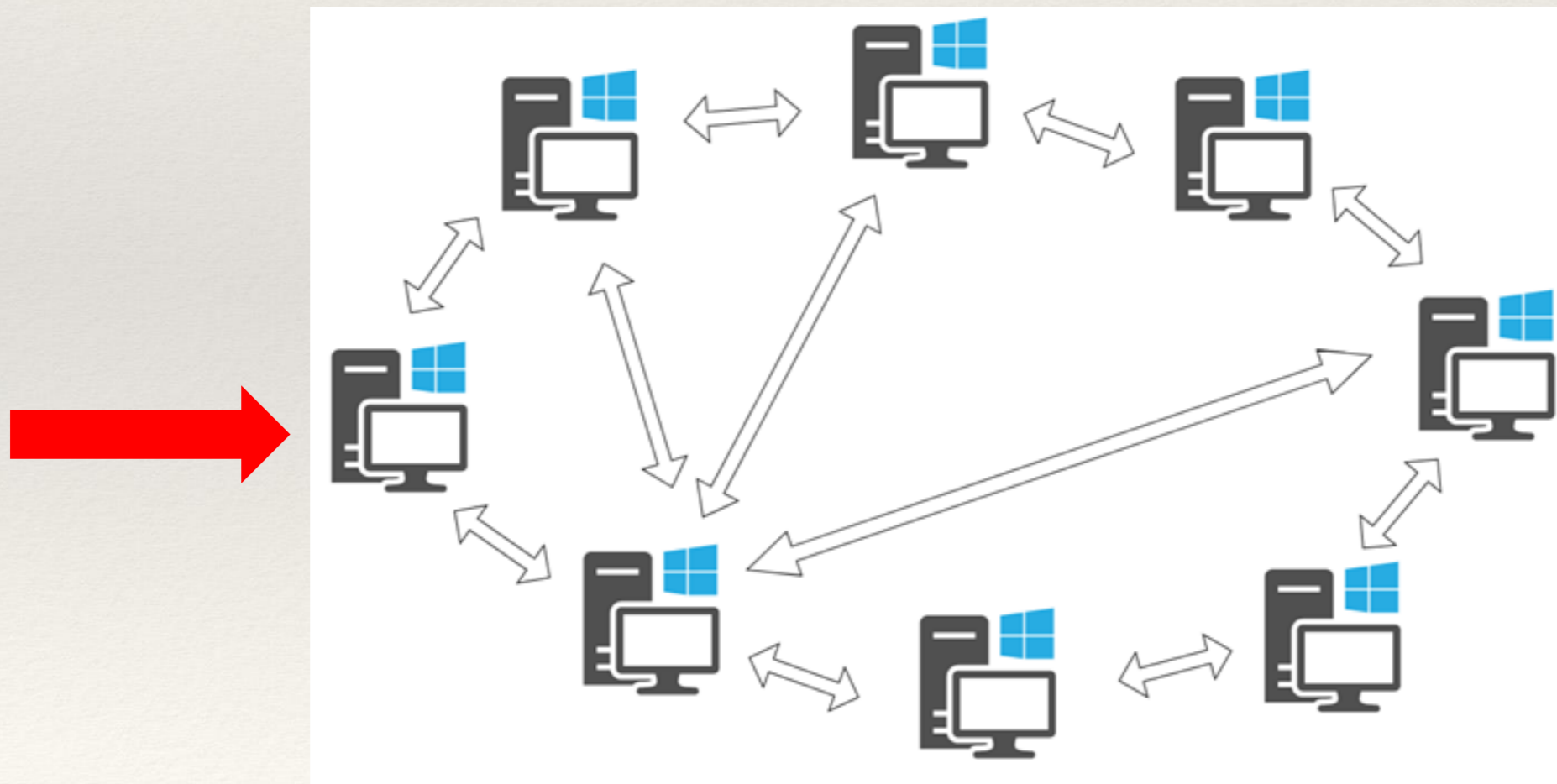
Strong Info Security in Japan is CRITICAL

- Not just cybersecurity

    - Japan needs to have a strong Information Security Program overall:

        - Designated Security Authority

        - Professional Cadre

        - Industrial Security

        - Personnel Security Program

        - Classified Courts

- Understand these may take work to set up in Japan

    - But without them U.S. may have to limit what info

        it can share

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