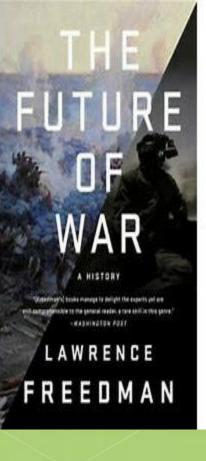
CYBERSPACE VIRGINIA B. WATSON, Ph.D. NOVEMBER 2019 DKI APCSS

OUTLINE

INSIDE THE 'REVOLUTION'

#complexworld

"The world isn't run by weapons anymore, or energy, or money. It's run by ones and zeroes, little bits of data. It's all just electrons...there's a war out there, old friend, a world war. And its not about who's got the most bullets. It's about who controls the information: what we see and hear, how we work, what we think. It's all about the information."



Freedman, Lawrence. <u>The</u> <u>Future of War</u>, cited from the movie script of *SNEAKERS* (1992). NY: Hachette Book Group, 2017: 234.

- Universal access, utility, penetration
 - Information revolution
 - "Levels" playing field
 - Expanded modalities of power and change
- Major source of innovation: civilian/private sector
 - High speed of invention, dissemination
 - Time-Space collapse
 - Convergence with other advanced technologies
- Conceptual Upheavals
- Geopolitics-Technology-Security nexus
- A new moral order

New battleground

- -Information/data as 'weapon'
- -Expands scope of harmful activities that do not conform to established conceptions of war
- -Objective: Cognitive
- -Effect: Manipulation

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https://www.amazon.com/Perfect-Weapon-Sabotage-Fear-Cyber/dp/0451497899

LikeWar

The Weaponization of Social Media

P. W. Singer Emerson T. Brooking

https://www.amazon.com/LikeWar-Weaponization-P-W-Singer/dp/1328695743

CASE STUDIES

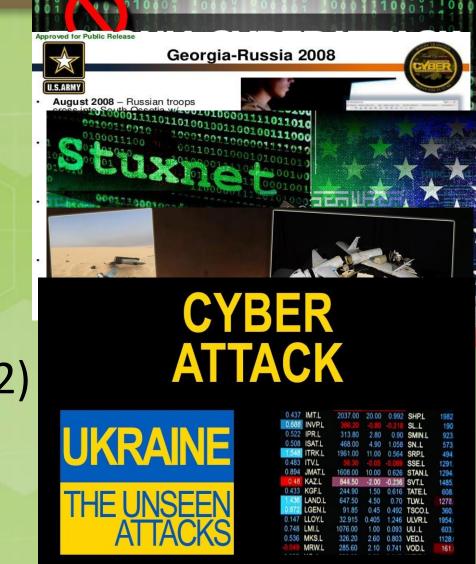
Estonia (2007)

Georgia (2008)

Stuxnet (2010)

Saudi ARAMCO (2012)

Ukraine (2015)



LESSONS LEARNED

Hybrid war and the Gray Zone

- May not be violent, absence of injuries
 Fails to meet conditions of war
- Perpetrators can be non-state actors (exposes existing legal shortcomings)
- Non-state actors were 'stand alones', not part of state operations
- -Blurred lines: Military-civilian targets

Offense 'easier' than Defense:

- More options
- Defending against a cyberattack
 - -Unpredictable
 - -Undetectable
 - -Complexity of defense systems
 - -'Supply-chain' as source of risks

- Strategic Challenges

 Enemy on "Permanent Resident" status
 - Conceptualization of cyberattacks
 Counter? Response? End?
 Cooperation?
 - Big concepts: war, peace, power, stability, etc.
 - Dual-use nature of technology

'INSIDE THE REVOLUTION': BLURRED LINES

War and Peace

- Military Civilian
- Regular Irregular
- Conventional Unconventional
- State Non-state
- Legitimate Criminal
- Real Virtual
- Domestic International

"Good" – "Bad"

IN THE AFTERMATH OF THE RELATIVE **CERTAINTY OF DOCTRINE, TRAINING,** TACTICS, ADVERSARY, AND KNOWN TERRAIN OF THE COLD WAR, OUR MILITARY TODAY IS IN A SENSE OPERATING WITHOUT A **CONCEPT OF WAR AND IS SEARCHING DESPERATELY FOR THE NEW "UNIFIED FIELD** THEORY" OF CONFLICT.

> -GENERAL DAVID BARNO [David W. Barno, '*Military Adaptation in Complex Operations'*, PRISM 1:1 (2009): 30.]

#cybercomplexity

International System: Disruptive ----> Revisionist

- Paradigm Shift
- Strategic Concepts (power, war, peace, etc.)
- Wholistic approaches
- New capabilities

Operating in a Networked world

- Network sensibility and language
 - –Invisible, interconnected
 - -Networked response to networked threats

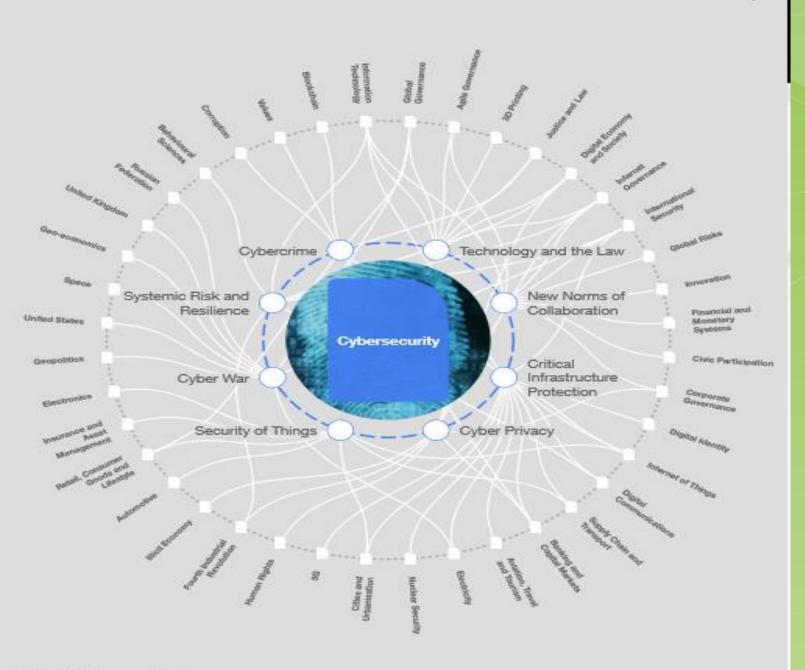
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Re-imagined state

Multi-dimensional, agile, vigilant, resilient

Central players

- Resilient
- Able to quickly integrate emerging/new technologies
- Has the most connections
- Has the power to set agenda/terms of engagement
- Controls data & information



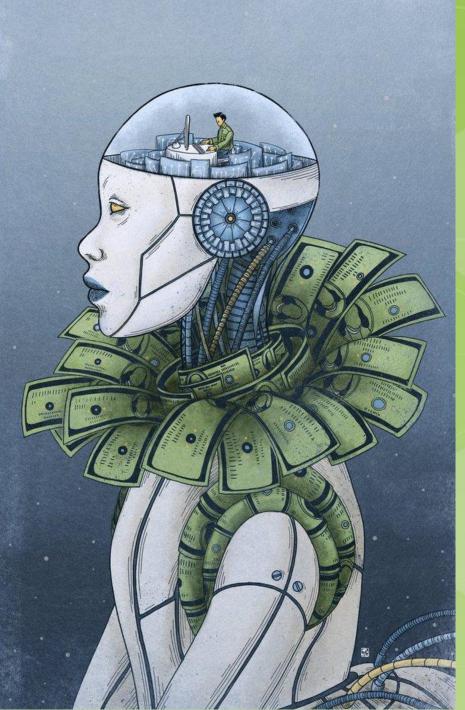
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#cybercomplexity

STRONG



POLITICAL and ECONOMIC ALIGNMENT



THANK YOU!

https://www.nytimes.com/2017/10/22/techno logy/artificial-intelligence-experts-salaries.html