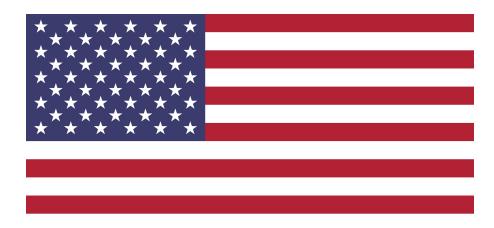


Responding to China's Existential Threat to Global Order - Sustaining U.S. Leadership via Grand Strategic Thinking

Dr. Dale L. Moore
The Moore Group LLC







### Disclaimer

The views expressed in this presentation are the presenter's opinions, ideas and views only and are provided only for consideration



# **Key Questions**

#### Part I Covered:

- What is China's Strategic Intent Really?
- What Indicators exist and what Patterns are forming?
- How does China's Mindset differ from the U.S. and its Allies?
- What are the Risks to the existing Global Order?

#### Part II will cover:

- What is the World Order?
- Part I "Quick Look" Summary
- Grand Strategic Context
- Grand Strategic Thinking
- U.S. National Grand Strategies Proposed
- U.S. National Grand Strategies re. China Proposed
- Areas of Focus for Future Success

#### **Bottom Line**

How Are We Going to Successfully Compete in the 21st Century?



### World Order

#### Global Relations, Rules and Institutions

## Working Definition:

 The concept held by a region or civilization about the nature of just arrangements and the distribution of power thought to be applicable to the entire world, resting on a set of commonly accepted rules that define the limits of permissible action and a balance of power that enforces restraint where rules break down, preventing one political unit from subjugating all others." (Henry Kissinger)

#### • Elements include:

- Constitutive Norms
- Scope and Depth
- Operating Principles
- Specific Regimes, Institutions and Organizations

# • Future World Order Objectives (suggested):

- Preserving Conditions for Sustained Human Existence
- Minimizing Risk of War
- Managing the Movement of Goods, Capital, Information and People
- Respecting Human Rights

# Strategy Unleashed

# Big Picture Issues – "Quick Look" Snap-Shot

- China's CCP Compensating for "100 Years of Humiliation"
  - Expanding Militarily and Economically, Top-Down Leadership, State-Run, Strategically-Minded, In Debt, Getting Older, Increasingly Fragile i.e. a House-of-Cards
  - One Belt One Road, South China Sea, Taiwan, Regional Hegemony
  - Surveillance State Social Credit Score, Pollution, Food, Water, Inequality
  - USTR Section 301 Report re. IP Theft, Cyber Crimes, Inappropriate Trade Policies
- Russia Autocracy Compensating for Dissolution of the Soviet Union
  - Extraction-focused Economy the size of Texas, Sanctions Hitting Very Hard, Oligarchs, Inequality
  - Military is Source of Prestige, Nuclear Capabilities/Treaty Violations, Antagonistic
  - UN Security Council, China, Ukraine, Syria, Turkey, Iran, Belarus
  - Focused on Undermining Western Values and Alliances inc. NATO & EU
  - Ukraine is a festering sore point Crimea is a 'Crown Jewel' they do not want to give up
  - Kremlin's Playbook 2 see: https://www.csis.org/features/kremlin-playbook-2
- U.S. Economic Sustainability and Budget Deficit, Infrastructure, Political Divisions/Social Media
- U.S. and Global Concerns re. Climate Change, COVID, Migration, Biodiversity Loss
- Globalization and Inequality
  - Populism, Nationalism, Authoritarianism, Poverty, Haves vs. Have Nots
- Corruption & Ideology Governments and Democratic Institutions Under Attack
- Terrorism and Organized Crime Cyber/Dark Web & Info Operations/PsyOps
- Fourth Industrial Revolution/Industry 4.0
  - Exponential Acceleration & Convergence of Technologies vs. Resistance to Change

# Strategy Unleashed

# **Recent Headlines**

'Sound the alarm': National debt hits \$30 trillion as economists warn of impact for Americans

# Soros Says China's Real Estate Crisis, Omicron Threaten Xi's Rule

- Billionaire says Xi faces opposition within Communist Party
- Comments delivered days before start of Olympics in Beijing

# Threat to US from China 'more brazen, more damaging than ever before' says FBI director

No country presents a broader threat to American economic security, says Christopher Wray

#### Where attacks and explosions have been reported across Ukraine



Note: Extent of Russian-backed separatist-controlled area based on reporting as of Jan. 24, 2022.

Source: Ukrainian Interior Ministry, Ukrainian Ministry of Defense, US Embassy in Ukraine, CNN reporting, Institute for the Study of War, Maps4News, Google Maps
Graphic: Henrik Pettersson, CNN

#### Expect a Navy Fleet Plan of 500 Ships, CNO Says

Adm. Gilday says recent exercises and several years of analysis are helping the service converge on numbers for its long-range shipbuilding plan.

# Taiwan nervous that China may take advantage amid Russia-Ukraine crisis



Chess pieces are seen in front of displayed China and Taiwan's flags in this illustration (REUTERS)

#### Putin Admits He's Worried NATO Could Help Ukraine Get Crimea Back

BIGGEST FEAR

Allison Quinn News Editor
Published Feb. 01, 2022 12:40PM ET

#### **RUSSIA ATTACKS UKRAINE**

In the biggest attack by one state against another in Europe since World War Two, Russia launched an <u>all-out invasion of Ukraine</u> by land, air and sea - a confirmation of the worst fears of the West.



## Why Does Ukraine Matter?

#### How the independent, sovereign, democratic nation of Ukraine ranks:

1st in Europe in proven recoverable reserves of uranium ores;

2nd place in Europe and 10th place in the world in terms of titanium ore reserves;

2nd place in the world in terms of explored reserves of manganese ores (12% of the world's reserves);

2nd largest iron ore reserves in the world (30 billion tons);

2nd place in Europe in terms of mercury ore reserves;

3rd place in Europe (13th place in the world) in shale gas reserves (22 trillion cubic meters)

4th in the world by the total value of natural resources;

7th place in the world in coal reserves (33.9 billion tons)



#### Ukraine is an agricultural country:

1st in Europe in terms of arable land area;

3rd place in the world by the area of black soil (25% of world's volume);

1st place in the world in exports of sunflower and sunflower oil;

2nd place in the world in barley production & 4th place in barley exports;

3rd largest producer and 4th largest exporter of corn in the world;

4th largest producer of potatoes in the world;

5th largest rye producer in the world;

5th place in the world in bee production (75,000 tons);

8th place in the world in wheat exports;

9th place in the world in the production of chicken eggs;

16th place in the world in cheese exports.

Ukraine can meet the food needs of 600 million people.

#### Ukraine is an industrialized country:

1st in Europe in ammonia production;

2-e Europe's and 4th largest natural gas pipeline system in the world

3rd largest in Europe and 8th largest in the world for nuclear plant capacity

3rd place in Europe and 11th in the world in terms of rail network length

3rd place in the world in production of locators/locating equipment;

3rd largest iron exporter in the world

4th largest exporter of turbines for nuclear power plants in the world;

4th world's largest manufacturer of rocket launchers;

4th place in the world in clay exports

4th place in the world in titanium exports

8th place in the world in exports of ores and concentrates;

9th place in the world in exports of defence industry products;

10th largest steel producer in the world (32.4 million tons)."

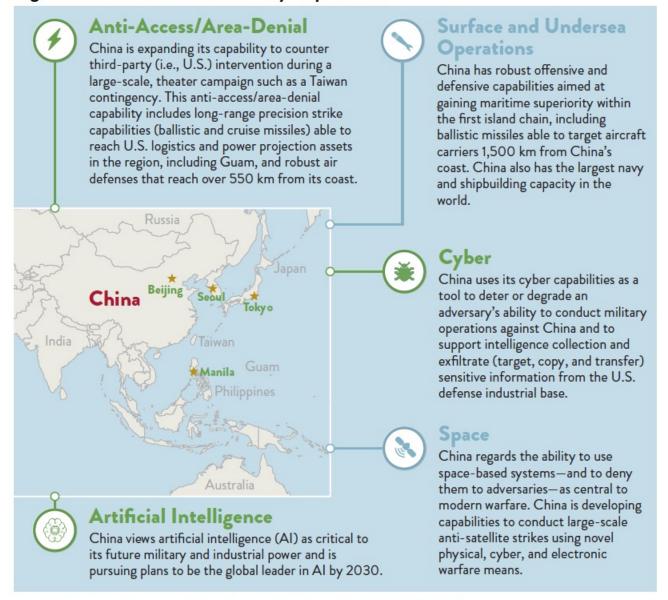
**Source: Andriy Futey** 

**Ukrainian Congress Committee of America Ukrainian World Congress** 



# GAO National Security Snapshot – February 2022 "Challenges Facing DOD in Strategic Competition with China"

Figure 1: Selected Chinese Military Capabilities



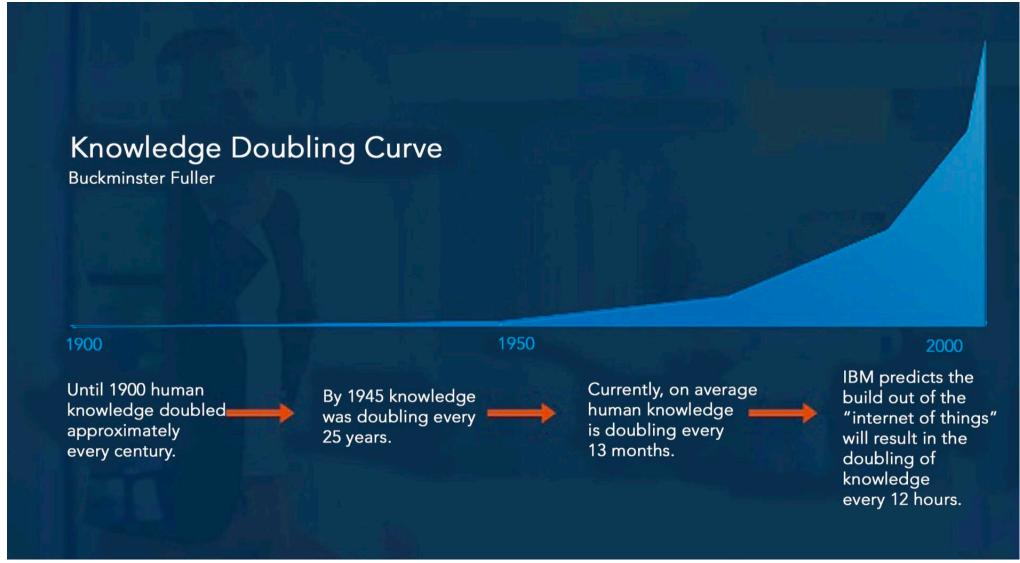
### **Advanced Contested Battlespace Threats – Kinetic and Non-Kinetic**

Strategy Unleashed





### **Knowledge Doubling Demands Accelerated Learning @ Scale to Stay Competitive**



The Moore Group LLC © 2022



# Fourth Industrial Revolution

"The scale, scope and complexity of how technological revolution influences our behavior and way of living will be unlike anything humankind has experienced."

Key **Exponentially Accelerating** Technologies:

- Big Data and Analytics
- Internet of Things
- 5G Telecommunications
- Mobile & Cloud Computing
- Nano- and Neuro-technologies
- 3D Additive Manufacturing/Digital Thread
- Augmented Reality/Virtual Reality/Mixed Reality
- Blockchain Technologies
- Machine Learning/Artificial Intelligence
- Quantum Technologies
- Synthetic Biology

Founder and Executive Chairman
World Economic Forum

What Does this Mean?

What are We Doing About it?

What Does our Future Look Like?

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# White House Critical and Emerging Technologies February 2022

#### Critical and Emerging Technologies List

The following critical and emerging technology areas are of particular importance to the national security of the United States:

- Advanced Computing
- Advanced Engineering Materials
- Advanced Gas Turbine Engine Technologies
- Advanced Manufacturing
- Advanced and Networked Sensing and Signature Management
- Advanced Nuclear Energy Technologies
- Artificial Intelligence
- Autonomous Systems and Robotics
- Biotechnologies
- Communication and Networking Technologies
- Directed Energy
- Financial Technologies
- Human-Machine Interfaces
- Hypersonics
- Networked Sensors and Sensing
- Quantum Information Technologies
- Renewable Energy Generation and Storage
- Semiconductors and Microelectronics
- Space Technologies and Systems



"In the next decade, we will experience more progress than in the past 100 years."



–Peter Diamandis,Cofounder of Singularity University



"If you are not changing as fast as the world around you, the end is near"

Jack Welch Former GE CEO

"If you don't like change, you're going to like irrelevance even less."

Gen(ret.) Eric Shinseki Former Army Chief of Staff



# Strategic Thinking

"The purpose of strategic thinking is to discover novel, imaginative strategies which can re-write the rules of the competitive game; and to envision potential futures significantly different from the present"

(Heracleous, 1998)

"Strategic thinking is characterized by a switch from seeing the organization as a splintered conglomerate of disassociated parts competing for resources, to seeing and dealing with the corporation as a holistic system that integrates each part of the relationship to the whole."

(Phil Hanford, 1995)







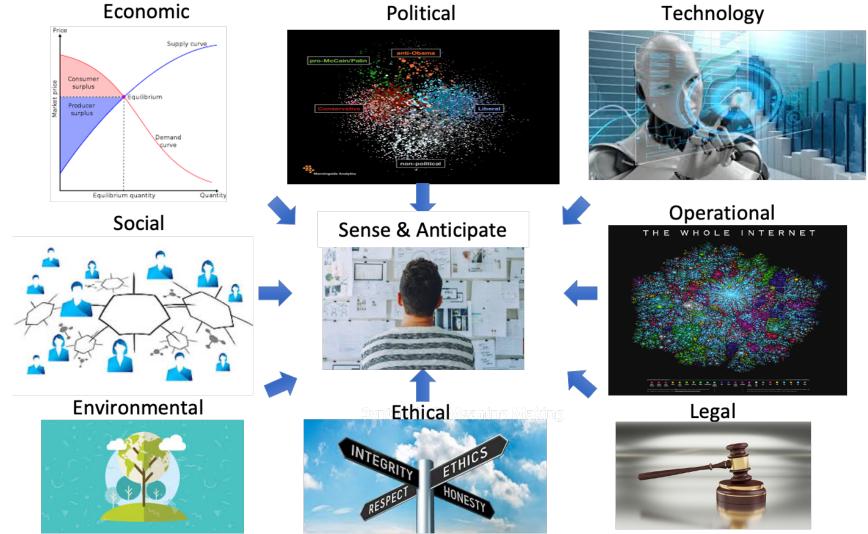


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# Take a Holistic Strategic View

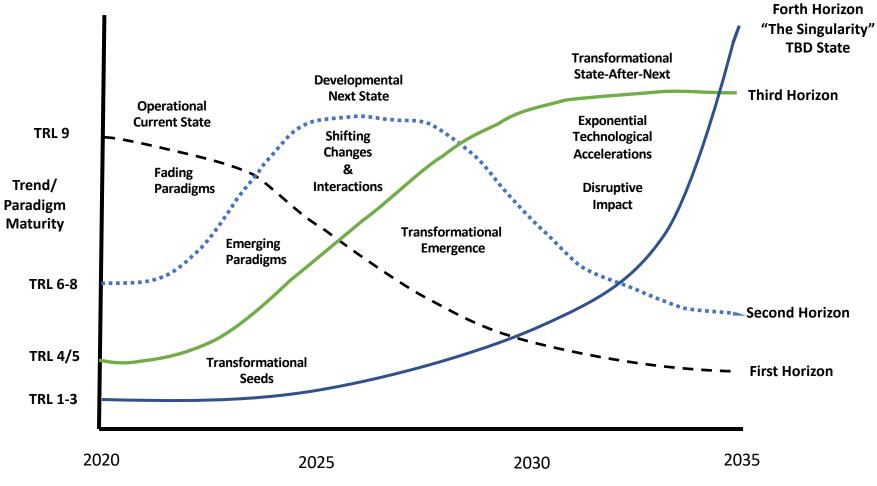
Strategy
Unleashed

Consider the Past, Present and Future, the Trends, Inter-relationships and Interdependencies (refers to developing "contextual intelligence" per. Dr. Joseph Nye)





# Big Picture, Long Term - Four Horizons Scanning



The Moore Group LLC © 2022

Based on: The Trend Forecaster's Handbook Martin Raymond, 2<sup>nd</sup> Ed., 2020

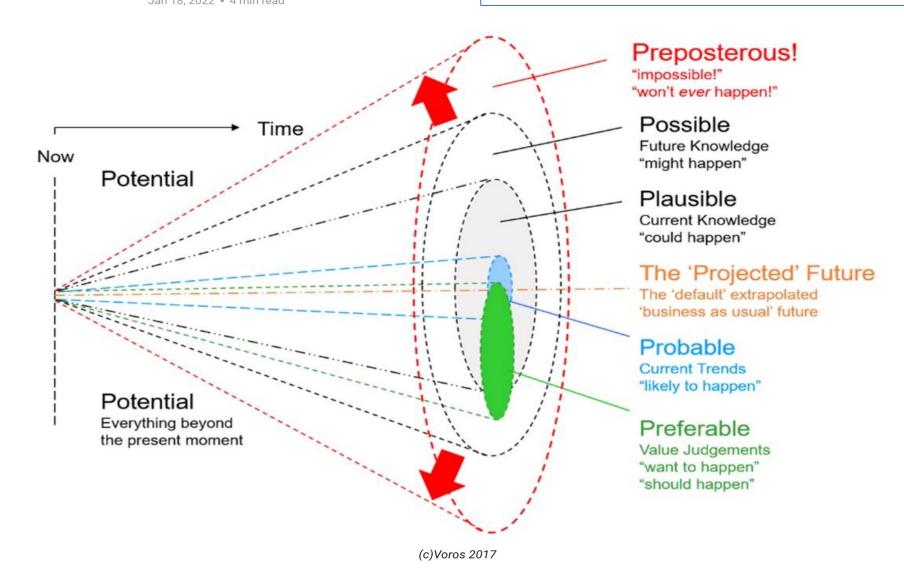


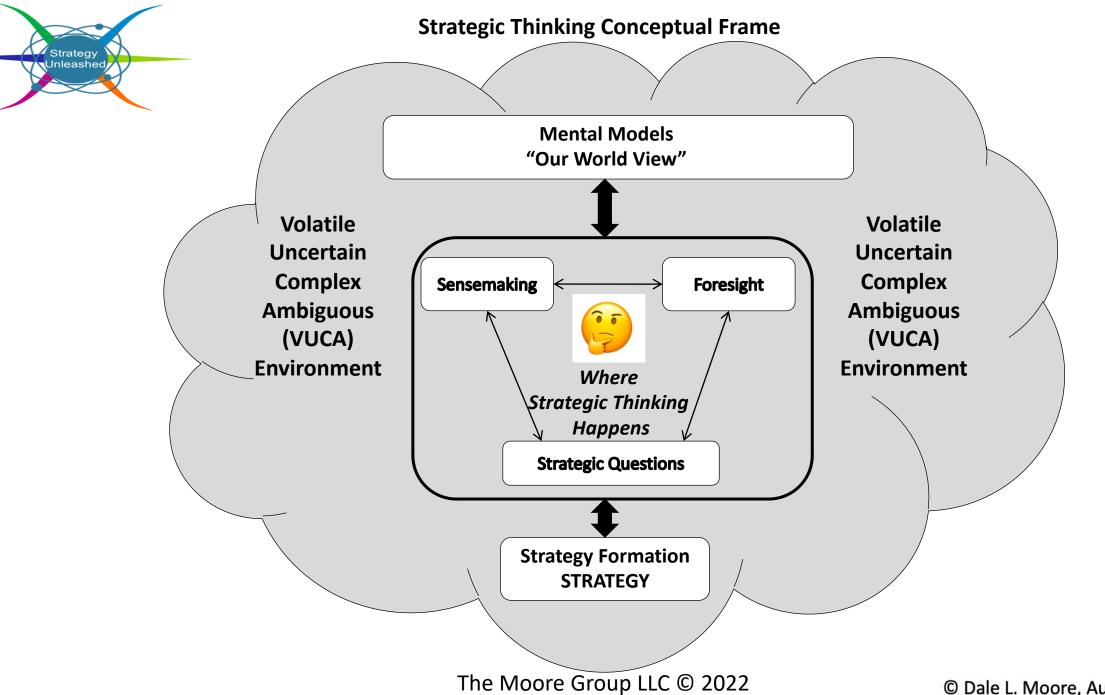
# Understanding the Full Range of Futures

#### **The Futures Cone**

Maree Conway
Jan 18, 2022 • 4 min read

We often suffer from a lack of imagination, that reality could be very different from the status quo







# Creating a Compelling 'Vision' in Anticipation of the Future

- Creating a Vision requires future oriented imaginative ideas, ideally intriguing and refreshing idea that trigger people's interest, curiosity, and excitement.
  - Requires an open mind and willingness to listen to unconventional ideas
- A Vision:
  - Shows the path forward
  - Stretches the imagination
  - Challenges the status quo
  - Breaks existing paradigms
  - Energizes and mobilizes
  - Is a focal point for transformational leadership
  - Provides a conceptual map for where org is headed
  - Provides a sense of individual and collective identity ie. purpose, belonging
- A Vision is rational, emotional, unconventional and noble
- A Vision persuades followers: convincing, credible & emotionally stirring
- Creating Visionary Capacity Focus on seeing things early & connecting the dots
- Identify Future Facts we believe could be reality feeds visioning process

Ref: Rob-Jan De Jong (2015)



### American Vision Statement (Proposed)

A Unified, Diverse and Inclusive Nation Continuously Learning and Growing; Rooted in our Core Values of Life, Liberty and the Pursuit of Happiness, Freedom and Human Rights; Exploring the Vast Realm of Possibilities; and Fully Engaged and Committed to Achieving a Greater and More Equitable, Prosperous, Sustainable and Secure Global Future

#### Potential Characteristics of an American Vision Statement

•	Pe	a	C	6
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Stability

Security

Freedom

Lawful

Prospering

Liberty

Democratic

Diverse/Inclusive

Sustaining

Capitalistic

Innovative

Growing

Sharing

Empowering/Enabling

Leading

Collaborative

Cooperative

Competitive

Trustworthy

Respectful

Empathetic/Caring

Compassionate

Equal Opportunity

Hopeful

Learning

Creating

Thinking

Wise

Spiritual

What would your American "Vision Statement" Be?

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# **Grand Strategy**

• Grand strategy is a purposeful and coherent set of ideas about what a nation seeks to accomplish in the world, and how it should go about doing so.

(Dr. Hal Brands)

 Grand strategy is a coherent statement, a framework of organizing principles, of the state's highest political ends to be pursued globally over the long term. Its proper function is to prioritize among different domestic and foreign policy choices and to coordinate, balance, and integrate all types of national means – including diplomatic, economic, technological, and military power – to achieve the articulated ends.

(Dr. William C. Martel)

- Three Guiding Principles for American Grand Strategy (Dr. William Martel)
  - 1. Rebuilding Domestic Foundations of Power
  - 2. Exercising American Leadership to Restrain Sources of Disorder that Threaten US vital interests
  - 3. Forging Alliances and Partnerships to Confront the Most Pressing Threats to Global Stability



# **Grand Strategy Requirements\***

## A Grand Strategy requires:

- A holistic view of interests, threats, and resources
- An understanding of the multidimensional, yet finite, nature of power
- An ability to make sense of a multitude of complex, complicated and confusing events
- Necessitates a vision to link policies to the highest and most enduring interests
- Willingness to make the hard decisions and follow-through on them
- An agile mind that can consider paradox, competing demands and tensions
- The capacity for systematic thinking as well as flexibility and the ability to adapt
- A foresightful mind that can deal with today's crises while looking beyond them
- Judgment and wisdom to determine the path forward

<sup>\*</sup>based on "What Good is Grand Strategy" by Dr. Hal Brands (2014)



# Lessons in Grand Strategies

- "The Rise and Fall of Great Powers" by Paul Kennedy (1987)
  - Surveyed 500 years of Grand Strategies
  - Empires fall from "imperial overstretch", and as a result faced growing threats when their share of world economy is declining
  - "To be a Great Power by definition, a state capable of holding its own against any other nation demands a flourishing economic base." (p. 539)
  - "The triumph of any one Great Power, or the collapse of another, has usually been the consequence of lengthy fighting by its armed forces; but it has also been the consequence of the more or less efficient utilization of the state's productive economic resources in wartime...of which the state's economy had been rising or falling, relative to other leading nations in the decades preceding the actual conflict." (p. xv)



# Domain of Grand Strategies

### **Existing in the Current Literature**

- Total Confrontation
- Integrated Deterrence
- Deterrence by Detection
- Cold War
- Containment
- Strategy of Denial
- Responsible Competition
- Resilience
- Resolute Restraint
- Hegemony/Primacy
- Selective Engagement
- Off-Shore Balancing
- International Collectivism
- Appeasement
- Neo-Isolationism

#### **New for Consideration**

- Innovation & Agility
- Adaptation and Adoption
- Creative Generativity
- Humanism
- Anticipatory Leadership
- Inclusive Growth & Meritocracy
- Sustainable Global Order
- Open Coopetition
- Resolute Deterrence
- Unrestricted Deterrence



# Pillars of

# **U.S. National Power & Influence**

### **Economic**

- Diversity
- Universities
- Research/Innovation
- Entrepreneurial
- Capitalistic
- Market-Driven
- Globalization
- Laws and Policies
- Reserve Currency
- Natural Resources

### **Political**

- Constitution
- Bill of Rights
- Judicial System
- Checks & Balances
- Deliberative
- Democracy
- Two Party System
- Institutions
- Governance
- Global Engagement

# **Military**

- Purposeful/Meaningful
- All Volunteer Force
- Globally-Engaged/Ready
- Experienced & Trained
- Stable, Very Well-Funded
- Technologically Advanced
- Strategically-Guided
- Complex & Sophisticated
- Industrial Base
- Allies and Partners
- Global Supply Chains

# People, Policies & Resources

Morals Values Ethics Trust



# **Democracy Playbook 2021**

# The 10 Commitments Brookings Institute

- 1. Strengthen and Ensure Election Security, Integrity, Transparency, and Voting Access
- 2. Advance the Rule of Law and Impartial Justice
- 3. Depoliticize Democratic Processes
- 4. Enhance Democratic Safeguards on Technology
- 5. Strengthen Civil Society and Independent Media
- 6. Avoid Toxic "Otherization" Politics
- 7. Prioritize Anti-Corruption and Anti-Kleptocracy Initiatives
- 8. Demonstrate that Democracies Can Deliver a Better Standard of Living
- 9. Strengthen Democracy via Multilateral Institutions
- 10. Build and Deepen a Broad-Based Global Coalition of Democracies



# The Invariants to Competitiveness

"The Things You Want to Focus on and Get Right"

- Internal Climate/Culture
- External Conditions
- Environmental Awareness
- Strategies
- People & Relationships
- Leadership
- Management
- Learning
- Cognition
- Agency
- Wisdom

- Investment
- Education
- Research & Development
- Innovation
- Technology
- Policies & Laws
- Processes
- Collaboration/Competition
- Structure
- Operating/Business Models
- Technology

Overarching Metrics: Quality, Speed, Cost and Innovativeness in the Competitive Context



# **Global Competitiveness Index**

(World Economic Forum)

#### Twelve pillars of competitiveness for rankings:

- 1. Institutions
- 2. Appropriate infrastructure
- 3. Stable macroeconomic framework
- 4. Good health and primary education
- 5. Higher education and training
- 6. Efficient goods markets
- 7. Efficient labor market
- 8. Developed financial markets
- 9. Ability to harness existing technology
- 10. Market size—both domestic and international
- 11. Production of new and different goods using the most sophisticated product processes
- 12. Innovation



# State of Competition within the DOD Industrial Base

#### DEPARTMENT OF DEFENSE REPORT

State of Competition within the Defense Industrial Base



Office of the Under Secretary of Defense for Acquisition and Sustainment February 2022

#### <u>Recommendations</u>

- 1. Strengthening Merger Oversight
- 2. Addressing Intellectual Property Limitations
- 3. Increasing New Entrants
- 4. Increasing Opportunities for Small Business
- 5. Implementing Sector-specific Supply Chain Resiliency Plans



# **Creative Destruction**

## "Leading Continuous Change – By Design"

# **Strategy for 'Economic' Success in Evolving Societies:**

- A) Create the New (& Better)
- B) Embrace the New (Change Faster than Competitors)
- C) Shed the Old Get Rid of Ineffective & Costly
- D) Repeat the <u>Creation</u>, <u>Adoption</u> & <u>Elimination</u> Cycle

Allan Greenspan
Joseph Schumpeter
Karl Marx

# ISO 56002 Innovation Management System - Summary

- **Purpose**: To remain competitive in the 21<sup>st</sup> Century organizations must continuously renew themselves and generate new and novel products & services that deliver high value to customers at the speed of relevance.
- Intent: Establish and institutionalize a "World Class" Innovation Management System approach to create the enabling value-driven conditions, entities, components, policies & processes to sustain competitiveness.
- **Approach**: Provide the architectural framework, education and training necessary to deploy requisite roles and responsibilities, tools, techniques and methodologies to ensure that a leading-edge innovation management systems approach is created, developed and institutionalized.

#### • Key Features:

- Leadership Engagement/Commitment to Stakeholders Supports Mission, Vision, Policy & Strategy Development
- Cultural Transformation Generative, Creative, Open, Networked, Learning, Creative, Expert, Diverse, Inclusive
- Embraces a Balanced Approach between Experimentation and Exploitation an Ambidextrous Organization
- Requirements, Opportunities and Resources-Driven Innovation Focus and Holistic Approach to Realize New Value
- Embraces "Plan, Do, Check, Act" (PDCA) a reflective closed-loop system for measurement and continuous improvement
- Knowledge Creation and Management Social Exchange, Codification, Accessibility, Dissemination, Diffusion, Adoption
- Management Reviews/Internal & External Audits to Accelerate Innovation Management System Improvement –
- **Results**: A "World Class" Innovation Management System that generates contextually-oriented, customer-driven and stakeholder-aligned creative solutions and innovative products and services, reflective of the state-of-the-art in 21st Century leadership and management practices, and human and organizational development.

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# U.S. National SWOT Analysis

Maximize

## **Strengths**



### **Opportunities**



Strategies

U.S. Constitution & Bill of Rights
Democracy and Institutions
Diversity & Inclusion
Universities, Colleges and Trade Schools
Basic and Applied Research
Innovation & Technology Ecosystems
Customer-Driven/Market-Based Capitalism
Government Long Term Research & Investment
Venture Capital Investment/Foreign Direct Investment
Overall Trustworthiness = Allies and Partners
U.S. Dollar as the Global Reserve Currency

Diversity/Inclusion = Ideation
Research and Patents = Innovation
Technology & Entrepreneurism = Growth
Capital & Venture Markets = Scale
Credible Global Leadership = Smart Vectors
Global Security/Trade Partnerships = Synergy
Global Technology/Green Leadership = GDP Growth
Government/Industry/Academia = Ecosystems
Democracy Proliferation = Equitable Representation
Globalization of Trade = Competitive Markets
International Standards/Institutions = Excellence



# U.S. National SWOT Analysis

### Minimize

### Weaknesses

Economic Cycle Status/Rising vs. Waning
Income/Wealth Inequality = Social Unrest
Aging Workforce/STEM Supply
Big \$ in Politics = Undue Influence
Resistance to Change i.e. Change is Hard
Political Disunity/Increasing Ideological Divides
Cyber & Security Vulnerabilities
Psychological/PsyOps Vulnerabilities
Growing Debt and Trade Deficits
Inconsistent Global Leadership Credibility/Influence

Outdated & Worn Infrastructure

Increasing Weather Vulnerability



### **Threats**



**Strategies** 

Near-Peer "Unrestricted" Cyber/WMD Threats
Social Media Misinformation/Deep Fakes
Partisan Political Gridlock & Divisions
Loss of Election Security & Accessibility
Infectious Disease/Viral Mutation/Synthetic Biology
Growing National Debt/Entitlements/Defense \$
Increasing STEM Demands/True War-for-Talent
Exponential Rates of Change vs. Rates of Adoption
Constrained Labor Force & Illegal Immigration
Climate Change/Erratic Weather/Property Loss
Environmental Damage/Food Chain/Biodiversity Loss
Technology/Business Monopolies = Societal Influence



# Potential U.S. National Strategies

- 1. Promote Democratic Integrity & Principles
- 2. Reinvigorate Basic and Applied Research
- Immigration Reform/Embrace Diversity & Inclusivity
- 4. Digitize & Virtualize Research & Innovation Ecosystems
- 5. VSM/Streamline & Digitize Innovation Pipelines
- 6. Leverage Global Tele-Collaboration/Open-Markets
- 7. Trade and Infrastructure Modernization
- 8. Accelerate Technology Development/Adoption
- 9. Create a Learning Culture = Cognitive/Techno Society
- 10. Boldly Lead Continuous Change @ Scale
- 11. Embrace "Creative Destruction" Economics
- 12. Strengthen an Inclusive Culture of Meritocracy
- 13. Embrace 'World Class' Standards Setting & Adoption
- 14. Explore/Develop/Embrace New Business Models

- 15. Master Strategic Thinking, Leadership & Management
- 16. Reinvent DoD for the new 21st Century Paradigms
- 17. Reinstitute Journalistic Integrity Regulations
- 18. Ensure Ubiquitous 4G/5G Internet Access
- 19. Internet of Things (IoT) Analytics = "Smart" Nation
- 20. Ensure an Independent/Balanced/Fair Judicial System
- 21. Ensure Equality/Human Rights/Human Dignity
- 22. Invest in Middle Class Opportunities
- 23. Reimagine/Redesign the Tax Code
- 24. Attack Corruption, Antitrust & Big \$ Influence
- 25. Reform Law Enforcement & Cyber Crime Security
- 26. Education & Training Reform for the 21st Century
- 27. Promote Global Win-Win Trade w/Level Playing Field
- 28. Cyber Hardening and Supply Chain Resilience



# CONGRESS PASSES \$1.2 TRILLION BIPARTISAN INFRASTRUCTURE BILL



Roads and **Bridges** \$110B



**Electric Grid Upgrade** \$73B



Passenger and Freight Rail \$66B



**Broadband** \$65B



**Improved** Water Quality \$55B



Climate Change **Protection** \$50B



**Airports** & Ports

\$42B



**Public Transit** 

\$39B



**Environmental** Clean-Up

\$21B



**Electric Vehicles** 

\$15B



Transportation Safety

\$11B



Reconn **Communities** 

\$1R 6:02 AM PT



# Critical Defense Supply Chain Security

#### Focus Areas:

- · Kinetic capabilities: current missiles systems and advanced and developing missile capabilities, including hypersonic weapons technology, as well as directed energy weapons
- Energy storage and batteries: high-capacity batteries, with a particular focus on lithium batteries
- Castings and forgings: metals or composites developed into key parts and manufacturing tools through high-intensity processes
- Microelectronics: State-of-the-Practice (SOTP) and legacy microelectronics, as well as State-ofthe-Art (SOTA) microelectronics

#### Strategic Enablers:

- Workforce: trade skills through doctoral-level engineering skills
- Cyber posture: industrial security, counterintelligence, and cybersecurity
- · Manufacturing: current manufacturing practices, as well as advanced technology like additive manufacturing
- Small business: the role of key members of DoD supply chains

#### Recommendations:

- Build domestic production capacity: For those supply chains that are critical for national defense, the U.S. is committed to ensuring reliable production access within the defense industrial base, both domestic and allied.
- Engage with partners and allies: The U.S. is collaborating with its international partners and allies to develop policies and arrangements that strengthen our defense industrial bases and improve supply chain resilience.
- · Mitigate Foreign Ownership, Control, or Influence (FOCI) and safeguard markets: The Department is committed to protecting its supply chains and the defense industrial base from adversarial FOCI by scaling efforts to identify and mitigate FOCI concerns.
- Conduct data analysis: DoD will continue to build on previous efforts to expand its visibility into supply chains by collecting and organizing key data.
- Aggregate demand: The Department will signal to industry what the likely total demand is across multiple programs, so industry can better anticipate number of orders from year to year.
- Develop common standards: To leverage commercial sector innovations, and to embed modernizing technologies in weapon systems, the DoD will work, where possible, to limit its use of military-unique requirements when developing performance requirements.
- Update acquisition policies: DoD should engage in efforts to develop a whole-of-government strategy and implementation plan to engage with industry and Congress to determine which policy and regulatory changes would encourage expansion of capabilities.



### **Securing Defense-Critical Supply Chains**

An action plan developed in response to President Biden's Executive Order 14017

February 2022

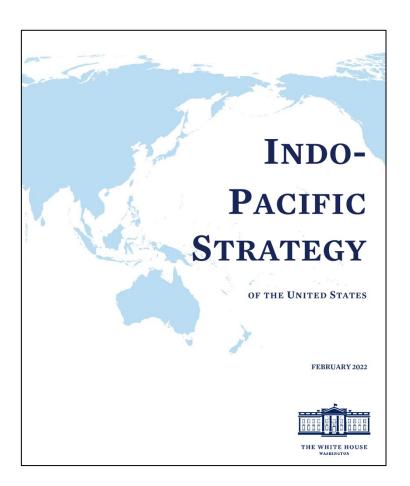








THE FUTURE OF EACH OF OUR
NATIONS—AND INDEED THE WORLD—
DEPENDS ON A FREE AND OPEN INDOPACIFIC ENDURING AND
FLOURISHING IN THE DECADES AHEAD.



PRESIDENT JOE BIDEN QUAD LEADERS' SUMMIT SEPTEMBER 24, 2021

# THE REGION

BY THE NUMBERS



- POPULATION: Over half the world's people, including 58% of youth
- ECONOMY: 60% of global GDP
- GROWTH: 2/3 of global economic growth
- GEOGRAPHY: 65% of the world's oceans and 25% of its land

### INDO-PACIFIC STRATEGY ELEMENTS



STRATEGIC ENDS:

Advance a free and open Indo-Pacific that is more connected, prosperous, secure, and resilient.

STRATEGIC WAYS:

Strengthen the U.S. role and build collective capacity with allies and partners and with regional institutions.

STRATEGIC MEANS:

Modernized alliances; flexible partnerships, including an empowered ASEAN, a leading India, a strong and reliable Quad, and an engaged Europe; economic partnership; new U.S. defense, diplomatic, development, and foreign-assistance resources; sustained focus on and commitment to the region at all levels of the U.S. government.



# U.S. National SWOT Analysis re. China

# Maximize

# **Strengths**

Universities and Research Institutions
Formidable Military Capabilities
DoD & Military Industrial Base
Allies and Partners – Japan, Aus, S. Korea
Strategic Ambiguity/Trustworthy
#1 Global Economy
Innovation Ecosystems/DARPA Model
'Creative Destruction' Agility Model
Emergent/Generative Economy
Open & Trusting Society
Taiwan Geography
Strategic Choke Points



# **Opportunities**



Strategies

Whole-of-Nation Strategy & Alignment
 Military Porcupine Approach
 A2AD and Asymmetric Capabilities
 Geographic Choke Points/Vulnerabilities
 FMS to ASEAN Region
 Joint Force Integration/Interoperability (JADC2)
 Speed of Light, Cyber & AI-Enabled Capabilities
 Robust/Redundant/Resilient/Agile Systems & Networks
 Tactical Edge Computing & Swarms
 Missile Defense and Long-Range Fires
 Advanced Wargaming & Analysis
 Complex Adaptive and Anticipatory Systems



# U.S. National SWOT Analysis re. China

# Minimize

# <u>Weaknesses</u>

Playing an Away Game
Readiness/Fully Mission Capable Rates
Affordability of Advanced Capabilities & Sustainment
Strategic Ambiguity & Taiwan Relations Act
Lack of Coherence/Unity of National Effort
Capitalistic/WIIFM Tendencies – Expensive Systems
Industry Global vs. National Interest Perspective
Lack of Big Picture: Short Term Focus/Quarterly Profits
Lost Manufacturing Jobs and Capabilities
Supply Chain Dependencies/Vulnerabilities
Workforce and Infrastructure Vulnerabilities
Open & Trusting Society

# **Threats**



**Strategies** 

"China Dream" Top-Down Authoritarian Ambitions
1.3 Billion Chinese Population vs. 340 Million
"Unrestricted" yet Undeclared Warfare
Aggressive CCP Cyber/IP/Crime
Rapidly Growing PLA Capabilities
Increasing Belligerent Rhetoric
Fomenting an Ideological Contest
Air Defense Identification Zone (ADIZ) Incursions
Hong Kong CCP Assimilation
Belt and Road Initiative – Loans and Obligations
Blatant Economic & Military Coercion
International Law Violations & Standards Insurgency



# Potential U.S. National Strategies re. China

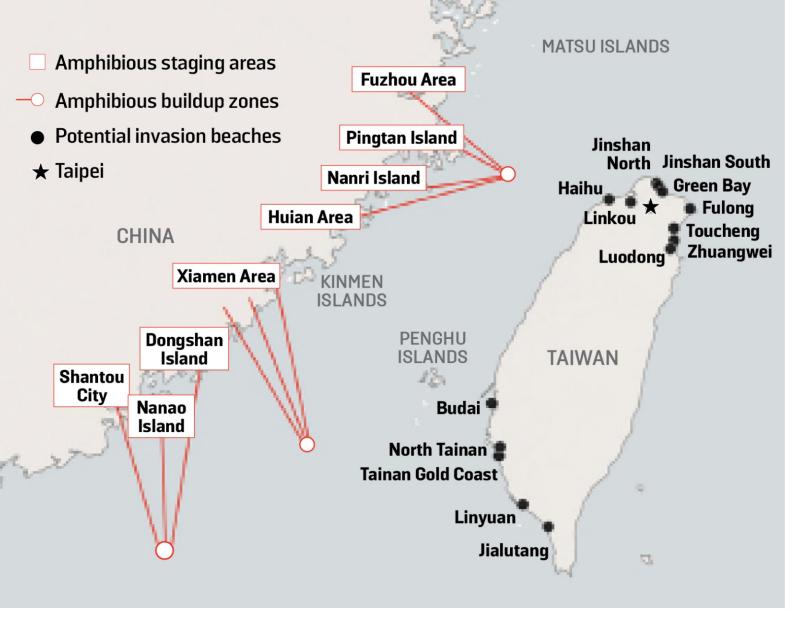
- 1. Challenge China at the WTO for Violations
- 2. Challenge China re. COVID at Wuhan via WHO
- Make Public the Facts and Data re. CCP Actions
- 4. Radio Free Asia Get the Word Out
- 5. Promote Democratic and Human Rights Principles
- 6. Re-Engage w/International Institutions
- 7. FMS Sales and Strategy Development with Allies
- 8. Partnerships with ASEAN Allies (AUKUS)
- 9. Apply robust A2AD Capabilities Increase Complexity
- 10. Promote Integration, Interoperability & Robustness
- 11. Accelerate DOD Innovation Pipeline to Warfighter
- 12. Government as Lead SoS/Systems Integrator
- 13. Streamline Full Life Cycle Competition for Value-Add
- 14. Promote Accelerated OTA and Rapid Contracting

- 15. SOTA Advanced Modeling and Simulation/Virtualization
- 16. Al/Big Data Analytics, War Game and Kill Web Analysis
- 17. Build Global Digitized/Virtualized Innovation Ecosystems
- 18. Reinvigorate Basic and Applied Research
- 19. Expand DARPA/IARPA & Kessel Run/SW Foundry Models
- 20. Create a Learning DOD Culture = Lead w/Questions
- 21. Enable the "Sense, Anticipate, Respond" Cycle @ Scale
- 22. Boldly Lead DOD Continuous Change @ Scale
- 23. Re-imagine the POM Process for Agility and Flexibility
- 24. Embrace "Creative Destruction" as the Norm
- 25. Leverage "Latent" Potential Cross-Nation Synergy
- 26. Embrace 'World Class' Standards Setting & Adoption
- 27. Explore/Develop/Embrace New Business Models
- 28. Master Strategic Thinking, Leadership & Management

### TAIWAN SNAPSHOT Official name Republic of China (Taiwan) National Flag National Flower Plum blossom Area (Taiwan and 36,197 square kilometers outlying islands) Population 23.6 million (2019) Over 95 percent Han Chinese (including Holo, Hakka and other groups that originated in China), Ethnicity 2 percent indigenous Malayo-Polynesian peoples, 2 percent new immigrants, primarily from China and Southeast Asia Government Multiparty democracy President Tsai Ing-wen Capital Taipei City Taipei, New Taipei, Taoyuan, Special municipalities Taichung, Tainan, Kaohsiung cities New Taiwan dollar National currency (NT\$ or TWD) Mandarin (Chinese), Holo (Taiwanese), Hakka, Languages Austronesian languages Buddhism, Taoism, I-Kuan Tao, Chinese folk religions. Major religions

Christianity, Islam

# **Attacking Taiwan by Sea**

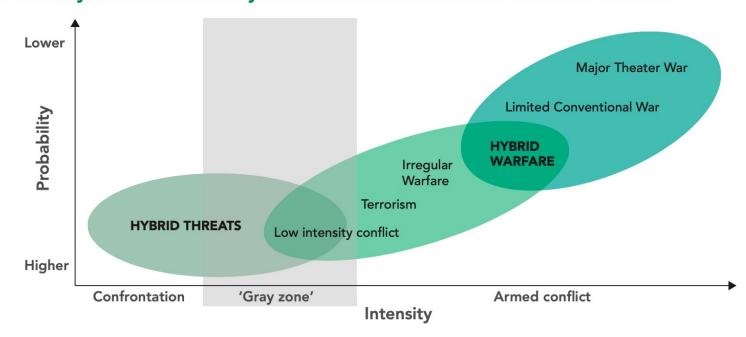


SOURCE: THE CHINESE INVASION THREAT: TAIWAN'S DEFENSE AND AMERICAN STRATEGY IN ASIA BY IAN EASTON, WITH MAPS BY PAUL HUANG; BASEMAP: CARTO



# **Emerging Forms of Warfare**

FIGURE 1. Hybrid Threats and Hybrid Warfare Shown on a Continuum of Conflict<sup>35</sup>



PRISM 8, NO. 2 FEATURES | 87

National Defense University <a href="https://ndupress.ndu.edu/Journals/PRISM/PRISM-8-2/">https://ndupress.ndu.edu/Journals/PRISM/PRISM-8-2/</a>



# Contributions to Enemy Organizational Collapse in Three Operations Col(ret) John Boyd

	<u>APPROACH</u>	<u>EFFECT</u>
1.	Exploit Destructive Force	(create widespread destruction)
2.	Exploit Protection	(leverage obstacles, disperse, obscure)
3.	Exploit Mobility	(speed and rapidity)
4.	Produce Frightful Attrition	(breaking will to resist)
5.	Exploit Ambiguity	(alternative impressions)
6.	Exploit Deception	(erroneous Impressions)
7.	Exploit Novelty	(create unfamiliarity)
8.	Exploit Fast Maneuvers	(create irregular, abrupt shifts)
9.	Produce Disorientation	(create mismatch)
10.	Produce Surprise	(create disorientation)
11.	Produce Shock	(create paralyzing disorientation)
12.	Produce Disruption	(break apart)
13.	Exploit Menace	(create impressions of danger)
14.	Exploit Uncertainty	(ambiguity, chaotic)
15.	Create Mistrust	(create doubt and suspicion)
16.	Payoff	(surface fear, anxiety, alienation)

# Taiwan's Option - A "Porcupine" Strategy\*

A Large Number of Small Things

Taiwan's Overall Defense Concept (ODC) includes:

Force Preservation, Conventional Capabilities, Asymmetric Capabilities



- Asymmetric System Characteristics:
  - Large quantities
  - Small & Dispersed
  - Agile/Adaptive
  - Mobile/Maneuverable
  - Distributed/Decentralized
  - High-Tech Smart & Fast
  - Deceptive/Concealed
  - Effective/Lethal
  - Affordable & Sustainable
  - Survivable/Hardened
  - Robust/Resilient/Redundant
  - Decision-Centric Warfare\*\*
  - Hybrid/Urban Warfare

- A Whole of Society Approach to Secure:
  - Energy
  - Information
  - Food
  - Infrastructure
  - Supply Chains
  - Stockpiling/Reserves
- Weapon System Examples:
  - Decoys, False Targets
  - Mines, Jammers, ISR
  - SAMs/MANPADs, Mobile Missiles
  - Coastal Defense Cruise Missiles (CDCMs)
  - Fast Attack Boats, PGMs
  - Highly Autonomous UxVs, Swarms

### BAYRAKTAR TB2 DRONES



Countries that have sent them: Turkey

How many has Ukraine received: Several batches, but official

figure unknown

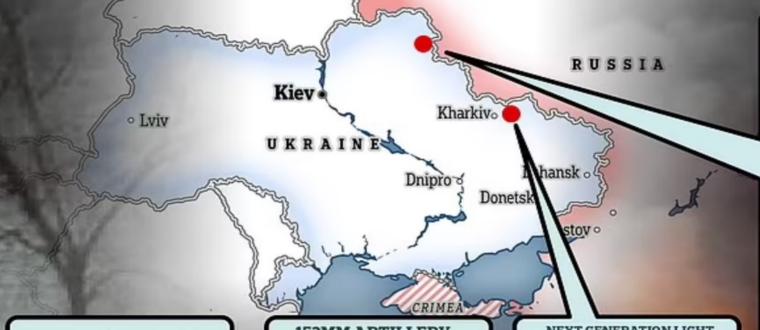
Cost: Around £3.7 million (\$5 million) each

How they work:

Capable of attacking tanks and bunkers, with a maximum altitude of five miles to avoid enemy machine guns.

Where have they been used in Ukraine:

Unclear



#### STINGER MISSILES



Countries that have sent them: Latvia and Lithuania

How many has Ukraine received: Unknown

Cost:

£97,000 (\$130,000) per unit

How they work:

Shoulder-fired by a single operator.

Where have they been used in Ukraine:

Unclear

### 152MM ARTILLERY AMMUNITION



Countries that have sent them: Czech Republic

How many has Ukraine received: Unknown

Cost:

Around £746 (\$1,000) per round

How they work:

Provide fire support for armour and infantry forces by firing munitions at greater distances than small arms.

Where have they been used in Ukraine:

Unclear

#### NEXT GENERATION LIGHT ANTI-TANK WEAPONS (NLAW)



Countries that have sent them: UK

How many has Ukraine received: At least 2,000

Cost:

£35,000 (\$48,000) per single-shot unit

How they work:

Launched on the shoulder and can be fired from confined spaces.

# Where have they been used in Ukraine:

Kharkiv, to the north-east of the country, to destroy four Russian tanks and three attack helicopters

### JAVELIN ANTI-TANK GUIDED MISSILES



Countries that have sent them: UK, Estonia and America

How many has Ukraine received: 300 from the US, others unknown

Cost:

£130,000 (\$175,000) each

How they work:

Javelins use infrared systems to lock on to their targets before slamming down on a target from above · known as a 'curveball' shot.

Where have they been used in Ukraine:

Glukhov

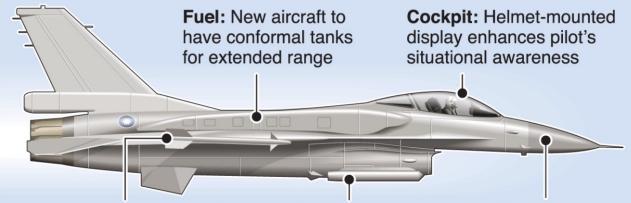


# Taiwan fields new F-16 fighter jet

Taiwan has deployed the most advanced version of the F-16 fighter jet, as the self-ruled island steps up its defence capabilities in the face of continuing threats from China, which claims it as part of its territory

### **LOCKHEED MARTIN F-16V "VIPER" FIGHTING FALCON**

Latest variant of U.S.-built multi-role fighter aircraft



Armament: Includes AIM-9X Sidewinder air-to-air missiles **Sensors:** Cutting-edge electronic warfare systems and precision GPS navigation

APG-83 radar Tracks 20 targets simultaneously

**Taiwan's F-16 fleet:** Upgrade of 141 older F-16A/B models to F-16V type (due for completion by 2023), plus 64 new F-16V jets on order

AIRCRAFT COMPARISON



J-20 stealth fighter (China)

Length	15m	23m
Wingspan	9.5m	15m
Speed	2,414km/h	2,100km/h
Engine thrust	29,000lb (129kN	) 2 x 30,000lb (133kN)
Empty weight	9,207kg	17,600kg
Maximum take-off wei	ght <b>21,772kg</b>	35,000kg

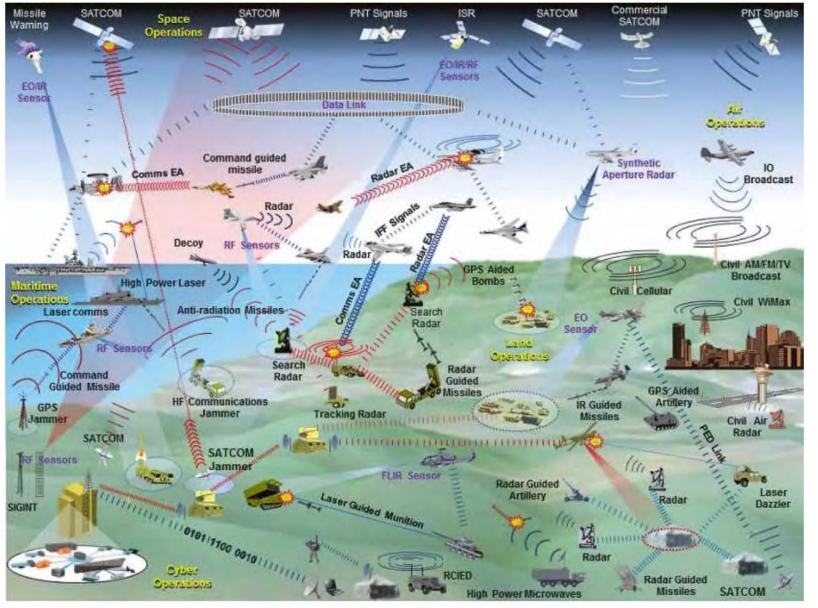
Sources: Airforce Technology, Associated Press, Lockheed Martin, Reuters

© GRAPHIC NEWS

# THE \* WARZONE Taiwan Has Declared Its Upgraded F-16V Fighter Jets Fully Operational



Joint All-Domain Command and Control (JADC2) as Anti-Access/Area Denial (A2AD) Solution JADC2 provides simultaneous and sequential operations using surprise and the rapid integration of capabilities across all domains



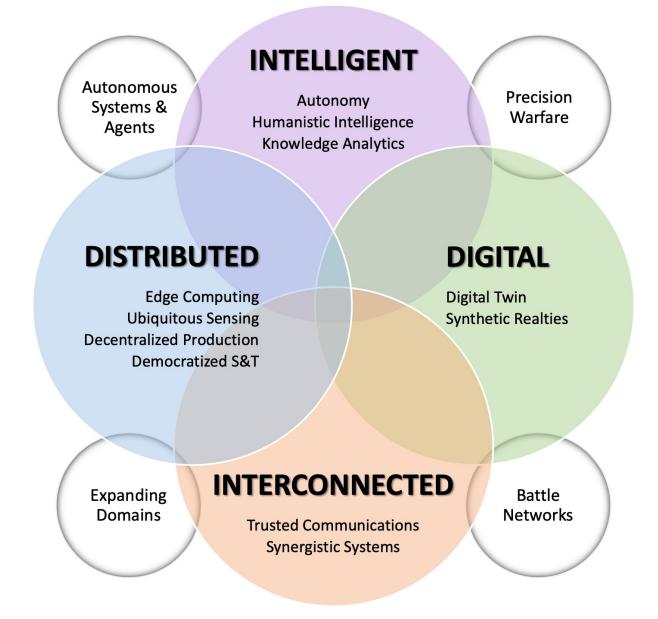
**Source:** https://www.japcc.org/electronic-warfare-the-forgotten-discipline/.

# Intelligent-Interconnected-Distributed-Digital (I2D2) Framework

NATO Science & Technology Trends 2020-2040

Exploring the S&T Edge NATO
Science & Technology
Organization

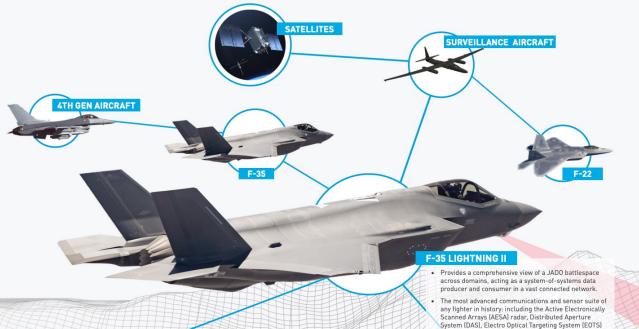




*Figure 2.1:* Intelligent-Interconnected-Distributed-Digital (I2D2) with associated military trends.

# F-35 Lightning II: The Most Advanced Node in the 21st Century Warfare Network-Centric Architecture

At Lockheed Martin our mission is to deliver seamless and secure integrated deterrence to our customers by providing advanced systems that serve as intelligent nodes in the networked battlespace and enable rapid and decisive action.



#### F-35 Contributions to **Joint All Domain Operations**

#### SENSING



- Extends Precision Targeting Range
- Survive in Highly Contested Space Fused Battlespace Awareness

#### **EFFECTS**



- . Sensor and Shooter
- Electronic Attack and Protect
- Internal and External Carriage

#### CONNECTIVITY



- Secure Communications
- · Flexible, Evolving Architecture



and Helmet Mounted Display System.

# GROUND SYSTEMS

#### Orange Flag (Dec. 2019)

Two U.S. Air Force F-35As were integrated for the first time with the U.S. Army Integrated Air and Missile Defense Battle Command System (IBCS), providing an airborne sensor capability to successfully detect, track and intercept near simultaneous air-breathing threats in a test at White Sands Missile Range, New Mexico.

#### Orange Flag (June 2019)

The F-35 demonstrated its ability to send data to the U.S. Army's Integrated Air and Missile Defense Battle Command System during the Orange Flag Evaluation 19-2.

#### F-35's Distributed Aperture System (DAS) successfully tracked two ballistic missiles in the a Missile Defense Agency test and passed that data live to Schriever Air Force Base for integration into the national missile defense architecture. (March 2019)

#### Project Convergence (Sept. 2020)

During the U.S. Army's Project Convergence exercise, a U.S. Marine Corps F-35B successfully sent targeting data to ground units to combine efforts and deliver more effective fires.

#### Orange Flag (Sept. 2020)

During Orange Flag, an F-35 was tied into the U.S. Army's sensor-to-shooter network, without human-in-the-loop intervention.

#### GatewayONE ABMS Demonstration (Dec 2020)

Lockheed Martin successfully completed a test of a communications gateway, allowing F-35s to exchange data with F-22s via native data links with a low probability of detection. The flight at Yuma Proving Grounds, a part of the ABMS gatewayONE product line, demonstrated increased amounts of bi-directional communication over each fighter's native LPI/LPD data link and used a common open message standard.

#### 2021

PAC-3 missile successfully intercepted a surrogate cruise missile threat at White Sands Missile Range (WSMR), New Mexico, using F-35 as an elevated sensor, marking a first in one flight test - F-35 data contributing to the global track used by the U.S. Army Integrated Air and Missile Defense Battle Command System (IBCS) to live fire a PAC-3.

#### Project Hydra

The Project Hyrda exercise successfully tested U-2, F-35 and F-22 integration with land-based long-range fires and naval fires and without humans-in-the-loop.

#### Northern Edge

The F-35 demonstrated its ability to close a long range fire kill chain.

#### 2016

#### F-35 / NIFC-CA Live Fire Exercise

The U.S. Navy hosted its first live fire demonstration to successfully test the integration of F-35 with existing Naval Integrated Fire Control-Counter Air (NIFC-CA) architecture.

#### 2018

#### F-35 + HIMARS

The U.S. Marine Corps set another milestone when it leveraged F-35B sensor data to gueue, target and extend range for the High Mobility Artillery Rocket System (HIMARS) precision strike weapons system.

# The Future?

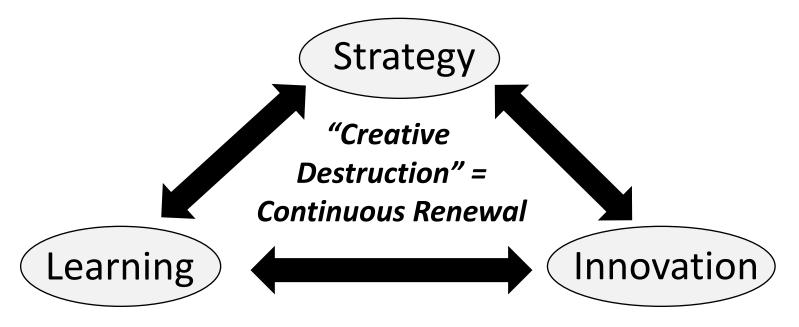


# Summary Theme

The United States **MUST** Provide the Requisite

Leadership for Continuous Change & Transformation @ Pace
with Partners and Allies for a Free, Open and Prosperous Global Order
that is rooted in

21st Century Global Security, Stakeholder Value and Sustainable Coopetition





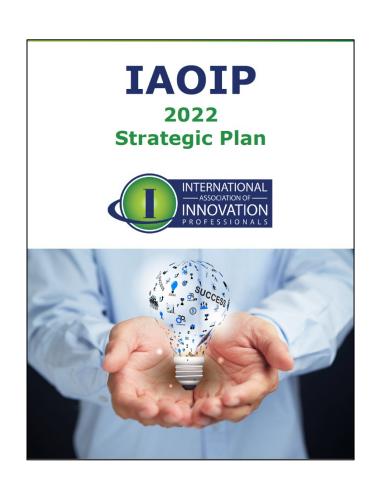
# AI<sub>AT</sub> WAR How Big Data, Artificial Intelligence, and Machine Learning Are Changing Naval Warfare Edited by Sam J. Tangredi and George Galdorisi

# Questions?



Dr. Dale L. Moore, Ed.D.
Founder and President, The Moore Group LLC
Strategy, Innovation and Transformation Services
240-682-9077 (c)

Email: daleleemoore@gmail.com





# Back-Up



# **National S.W.O.T. Analysis**

# A Whole-of-Nation View with a Global Perspective

### Maximize

# **Strengths**

U.S. Constitution & Bill of Rights
Democracy and Institutions
Diversity & Inclusion
Universities, Colleges and Trade Schools
Basic and Applied Research
Innovation & Technology Ecosystems
Customer-Driven/Market-Based Capitalism
Government Long Term Research & Investment
Venture Capital Investment/Foreign Direct Investment
Overall Trustworthiness = Allies and Partners
U.S. Dollar as the Global Reserve Currency

### **Minimize**

### Weaknesses

Economic Cycle Status/Rising vs. Waning
Income/Wealth Inequality = Social Unrest
Aging Workforce/STEM Supply
Big \$ in Politics = Undue Influence
Resistance to Change i.e. Change is Hard
Political Disunity/Increasing Ideological Divides
Cyber & Security Vulnerabilities
Psychological/PsyOps Vulnerabilities
Growing Debt and Trade Deficits
Inconsistent Global Leadership Credibility/Influence
Outdated & Worn Infrastructure
Increasing Weather Vulnerability

# Opportunities

Diversity/Inclusion = Ideation
Research and Patents = Innovation
Technology & Entrepreneurism = Growth
Capital & Venture Markets = Scale
Credible Global Leadership = Smart Vectors
Global Security/Trade Partnerships = Synergy
Global Technology/Green Leadership = GDP Growth
Government/Industry/Academia = Ecosystems
Democracy Proliferation = Equitable Representation
Globalization of Trade = Competitive Markets
International Standards/Institutions = Excellence

# Threats

Near-Peer "Unrestricted" Cyber/WMD Threats
Social Media Misinformation/Deep Fakes
Partisan Political Gridlock & Divisions
Loss of Election Security & Accessibility
Infectious Disease/Viral Mutation/Synthetic Biology
Growing National Debt/Entitlements/Defense \$
Increasing STEM Demands/True War-for-Talent
Exponential Rates of Change vs. Rates of Adoption
Constrained Labor Force & Illegal Immigration
Climate Change/Erratic Weather/Property Loss
Environmental Damage/Food Chain/Biodiversity Loss
Technology/Business Monopolies = Societal Influence

# Potential National Strategies

Promote Democratic Integrity & Principles Reinvigorate Basic and Applied Research Immigration Reform/Embrace Diversity & Inclusivity Digitize & Virtualize Research & Innovation Ecosystems VSM/Streamline & Digitize Innovation Pipelines Leverage Global Tele-Collaboration/Open-Markets Trade and Infrastructure Modernization Accelerate Technology Development/Adoption Create a Learning Culture = Cognitive/Techno Society Boldly Lead Continuous Change @ Scale Embrace "Creative Destruction" Economics Strengthen a Culture of Meritocracy Embrace 'World Class' Standards Setting & Adoption Explore/Develop/Embrace New Business Models Master Strategic Thinking, Leadership & Management Reinvent DoD for the new 21st Century Paradigms Reinstitute Journalistic Integrity Regulations Ensure Ubiquitous 4G/5G Internet Access Internet of Things (IoT) Analytics = "Smart" Nation Ensure an Independent/Balanced/Fair Judicial System Ensure Equality/Human Rights/Human Dignity **Invest in Middle Class Opportunities** Reimagine/Redesign the Tax Code Attack Corruption, Antitrust & Big \$ Influence Reform Law Enforcement & Cyber Crime Security Education & Training Reform for the 21st Century Promote Global Win-Win Trade w/Level Playing Field Cyber Hardening and Supply Chain Resilience



# National S.W.O.T. Analysis re. China

A Whole-of-Nation Long-Game View with a Global Perspective

### **Maximize**

# Strengths

Universities and Research Institutions
Formidable Military Capabilities
DoD & Military Industrial Base
Allies and Partners – Japan, Aus, S. Korea
Strategic Ambiguity/Trustworthy
#1 Global Economy
Innovation Ecosystems/DARPA Model
'Creative Destruction' Agility Model
Emergent/Generative Economy
Open & Trusting Society
Taiwan Geography
Strategic Choke Points

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Advanced Wargaming & Analysis
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# <u>Threats</u>

# **Potential National Strategies**

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