

The Aerospace & Defense Forum

"What US A&D Companies Need to Know
about Competition with China"

January 13, 2021

Sponsored by CHUBB®

• Please ensure your mike is muted and your video is off.

• Questions will be welcomed via the Chat function.

• The event will start at 8:00AM Pacific Time.

1

The Aerospace & Defense Forum

Who We Are...

• An 11-year-old global aerospace and defense leadership community of over 2,400 professionals that facilitates communication, collaboration, and commerce relative to the business of A&D

• Eight chapters – Los Angeles, San Fernando Valley, Santa Clarita Valley, South Bay, Orange County, San Diego, Arizona and Dallas-Ft. Worth

• Conduct monthly meetings with presentations, panels and tours with industry leaders focused on some aspect of the business of A&D







2

The Aerospace & Defense Forum

Webinar Guidelines

• Turn off camera video

• Mute audio

• Active Speaker View

• Questions in Chat addressed to Everyone.

Alt+V

Alt+A

Alt+F1





⌘+Shift+V

⌘+Shift+A

⌘+Shift+W

3

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JANUARY 13TH
A&D FORUM

CHRISTIANA FLAHERTY
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4

A photograph of a single orange and white goldfish swimming in a clear, round glass fishbowl. The background is plain white.

5

An illustration of a man with dark hair and a worried expression lying in bed under a blue blanket. To his right, the text "What Keeps You Up At Night?" is written in a blue, sans-serif font.

6

1

Four Things That May Keep You Up

- Cyber Attacks
- Aircraft Products Liability & Errors and Omissions
- Employee Safety During A Pandemic
- Protecting Intellectual Property

7

About Us

- Chubb is the largest publicly traded Property & Casualty Insurer in the world.
- We aim to entice companies to touch-base with Bolton & Chubb to develop risk solutions for their business or company.

8

Delivering Results with Chubb & Bolton

- Chubb & Bolton have developed a strategic partnership to provide the most comprehensive insurance package for the A&D market
- Assurex membership allows Bolton to network worldwide with specialists in the manufacturing, aerospace and defense industries in order to better serve its clientele
- Chubb can then provide innovative insurance solutions to fit your needs

9

Chubb’s Innovative Insurance Solutions

- Errors & Omissions
- Business Interruption Insurance
- Aviation and Aviation Products
- General Liability
- Auto
- Umbrella
- Workers Compensation

10



11

The Aerospace & Defense Forum

"What US A&D Companies Need to Know
about Competition with China"



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David Conrad
Director Business Development
PTI Technologies

12

US-China Strategic Competition





Scott Tait
13 January 2021

13

Agenda

- Introduction
- Historical Perspective
- Culture & Demographics
- China's View
- China's Goals
- Strategic Development
- Hybrid Warfare

14

Navy



15

Post-Navy



16

Historical Perspective



2000 BC – 2000 AD ~26 transitions of rule

- 700+ years without effective central government
- "Mandate of Heaven" and Cycle of Collapse

1850 – 1947 ("Century of Shame")

- Foreign Occupations by UK, Fr, Rus, Ger, Jpn
- ~7 major domestic insurrections in same period
- Losses to domestic actions ~10x that to foreign

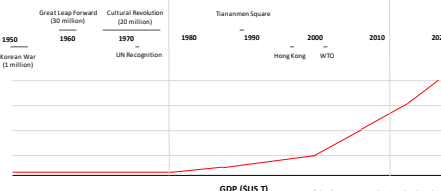
1949 – End of Civil War, Unification under CCP



17

Since 1949





1950 Korean War (2 million)

1960 Great Leap Forward (80 million)

1970 Cultural Revolution (60 million)

1979 UN Recognition

1980 Tiananmen Square

1990 Hong Kong

2000 WTO

2020

GDP (SUS T)

16
14
12
10
8
6
4
2

10 Years of China's Economic Growth in One Chart (source: GlobalData.com)

18

China's Strategic View



Strategic Development

- **1945:** UN System created
 - Re-structures post WWII world
 - Also seen as "locking in" the advantages of the Victor
- **1990's:** Globalization & Desert Storm
 - US military and economic might seen as invincible
 - US perceived as manipulating UN System
 - China, Russia and others gain money, tech, market ac
- **1999:** Bombing of Chinese embassy in Belgrade
 - Interpreted as a deliberate message to Beijing
 - Stimulated transformation of PLA
 - *Unrestricted Warfare* released



China's Narratives

- **The global system is irreparably biased against China**
- The Communist Party (CCP) saved China from Colonial domination (the Century of Humiliation)
- China is historically and rightly Asia's hegemon
- The US-led world is actively opposing China's rise / return
- A strong China and a strong Japan cannot co-exist
- Social stability is more important than individual rights

China's Goals

- **Preservation of CCP Rule**
- Domestic stability and consolidation of power
- Restoration of regional hegemony and territorial integrity
- Alteration of world system in China's favor
- International prestige and influence
- Expansion of economic power

Military Development



- Rapid and effective military development
- Heavy focus on Missile Force, Navy and Air
- Specific purposes:
 - *Deter US from interfering in Asia*
 - *Coerce or defeat Asian powers*
 - *Enhance China's global prestige*
 - *Stimulate technological development*

4

Hybrid Warfare: The Primary Approach

1986: China's 86-3 Program of industrial espionage launched

1999: "Unrestricted Warfare" doctrine advocates "all means" economic attacks

2003: "3 Warfares" (Legal, Media, Psychological) to reshape int'l law, rules, norms

2012: Beginning of "hybrid" operations by China and Russia

2015: Xi Jinping institutes "Civil-Military Fusion" policy

2017: National Intelligence Law passed

25

Hybrid Warfare

26

The Business Approach

Rob	Replicate	Replace
Industrial Espionage Blackmail Sympathetic Insiders Email Cyber Tech Exchange Rules 3 rd Party Agreements Supply Chain 15% Cyber – 85% Other	Accelerated R&D Gov't Labs Gov't R&D Subsidy Cross-Business Sharing	Active Market Manipulation Domestic Market First Subsidy & Regulation Competition Blocking Economic Nationalism Global Markets Next Undermining Competition Subsidy Lawfare Info Ops

Businesses Must Now Compete With Nation States

27

Q & A

28

Professional Paranoia

How to Succeed In This Environment

- Understand The New Threats & Adjust Strategy Accordingly
- Provide Your Team An Effective Narrative
 - All must be active participants
 - A "no-safe-harbor" mentality must prevail
- Devise and exercise contingency plans
 - Identify government support resource contacts and build relationships before you need them

29

Hybrid Warfare

"Proposing a new concept of weapons does not require relying on the springboard of new technology, it just demands lucid and incisive thinking. However, this is not a strong point of the Americans, who are slaves to technology in their thinking. The Americans invariably halt their thinking at the boundary where technology has not yet reached."

"The new concept of weapons will cause ordinary people and military men alike to be greatly astonished at the fact that commonplace things that are close to them can also become weapons with which to engage in war. We believe that some morning people will awake to discover with surprise that quite a few gentle and kind things have begun to have offensive and lethal characteristics."

- Unrestricted Warfare (1999)
Liang & Xiangsui, PLA

30



31



32

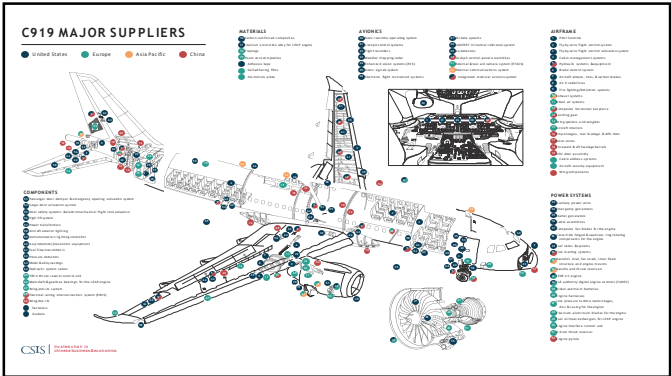


33

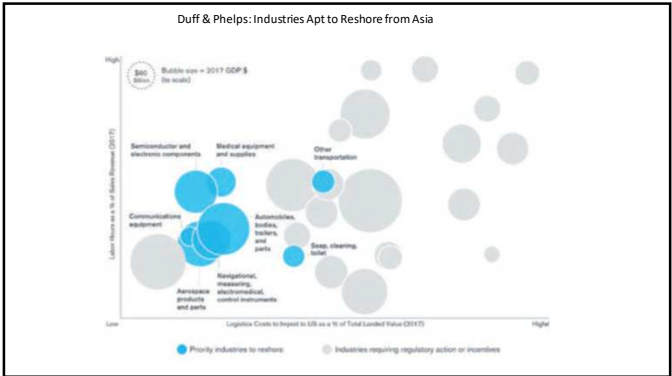
Regional Distribution of C919's Primary Suppliers (Parentheses represent joint ventures)
Source: Airframer.com, CSIS

	US	Europe	Asia-Pacific	China	Total
Airframe	9 (1)	6 (3)	3 (1)	8 (3)	22 (4)
Avionics	12 (2)	1	1	2 (2)	14 (2)
Power Systems	10 (3)	11 (4)	2 (2)	2 (1)	20 (5)
Components	14	4 (1)	0	2 (1)	19 (1)
Materials	3	4	0	0	7
Total	48 (6)	26 (8)	6 (3)	14 (7)	82 (12)

34



35



36

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What US A&D Companies Need to Know about Competition with China

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CHINA A&D – A HISTORICAL VIEW

- China (2000) – not big demand for western aircraft (2% of deliveries)
 - However, by 2018 – 23% of all Airbus and Boeing deliveries
- From early 2009 to 2018 growth in air travel demand (10%+ y-o-y)
- Changing Chinese economy – from exports to consumption based
 - Urbanization of the population (25% + live in cities) - higher incomes
 - Rising wages and aging population - drives consumption
 - Government spending on health care / pensions - more consumption
- Aviation market growth driver - larger middle class (“Chinese Dream”)
- Commercial airline fleet today – 3,700+ aircraft (1,200 in Big 3 airlines)
- In 2013, China had 163 airports – By mid-2019, they had 236 airports
- CAAC and airlines started to address market constraints by 2019
 - Constraints on capacity – airports, air traffic control
 - Constraints on people – pilots, flight crews, maintenance
 - Business models – subsidies, service, costs/prices, choices (LCC)

Incredible Promise – Culture, Opening Politically And Fantastic Aviation Market

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CHINA A&D – A HISTORICAL VIEW

- However, politics have always framed business decisions in China
- External – The “Party” and the government
 - “Party” (government) guides development, policies (CAAC, Border Customs)
 - Government always “elephant in the room” – partnerships / JV’s
- Internal – companies / airlines / MRO’s
 - How project is perceived/criticized by those not involved will guide actions
- A few points to remember about China’s aviation market and politics
 - Government controls aviation development – engine of economic growth
 - Clear direction for development, political will/money to make it happen
 - Business models in China will evolve – not the same as in rest of the world
 - Gaps between policy, implementation and business practices impact business
 - Business in China is complex – many bureaucracies involved
 - Chinese perspective - who is involved/role/position, who is not involved/why
 - Local partner provides understanding of events, policy/politics and bureaucracy

Historical Considerations Being In The Chinese Aviation Market

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CHINA A&D – ARE WE TRANSITIONING?

- The 12th Five Year Plan (2011 – 2015) defined aviation as pillar for China’s future
 - Invited foreign investment in high technology industry
 - Pushed forward the development of China as an aircraft OEM (ARJ-21, C919)
 - Increased urbanization (51%+) and new aviation infrastructure
- By 2015 however, a change in attitude – new government headed by Xi JinPing
- The 13th Five Year Plan (2015 – 2020) brought significant changes
 - “Made in China by 2025” - upgrade industry, gain more of global production chain
 - Deeper participation in supranational power structures
 - Address concerns nationally vital technologies lacking a (domestic) core platform
- With the changes in the “Party” and in Five Year plans came other changes
 - More nationalistic attitudes – expanded claims in South China Sea
 - Aggressive stances towards neighbors – Philippines, Vietnam, Japan, Korea
 - Tight control of internal resources (rare earth), more control of external (ore, oil, fish)
 - Crackdown on dissent – Xinjiang (Uyghurs), other dissidents, now Hong Kong
 - Increased pressure on Taiwan for reunification (by any means?)

Change In Leadership – More Nationalistic, More Aggressive

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CHINA A&D – ARE WE TRANSITIONING?

- Is China’s aggressive behavior and politics meant to score points at home?
 - Deng Xiaoping – “to get rich is glorious” but in return continued rule of “Party”
 - Is the “Party” trying to focus attention away from weakening economy?
- China domestic travel rebounded from COVID to 2019 levels
 - Now seeing new wave – Lunar New Year coming (world’s largest mass migration)
- Changes in the world of A&D in China
 - Trade sanctions hitting economy – food prices, raw materials, supply chain shifts
 - In 2019, pre-COVID – aircraft market demand fell 50%, air travel fell to 5% growth
 - China decoupling (technology) – Beldou vs. GPS, ARJ21/C919 vs. Airbus/Boeing
 - In 2020, government mandated the Big 3 airlines take the ARJ21
 - Will they mandate/force Chinese airlines to take the C919 and CRJ929?
- Near term – China still needs to import NEO / MAX (C919 not yet ready)
 - For how long? How many?
- Mid-Term – China will still need to import widebodies (CRJ929 - EIS in 2028)

What Is The Future Market We Seem To Be Transitioning To In China?

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CHINA A&D – POSITIVES FOR THE FUTURE

- People have desire for economic prosperity and interest in outside world
 - Still have global supply chains
 - Growing middle class want global goods (especially brand names)
 - Middle class also want to travel – aviation demand
- China still needs outside help to realize goals – resources, know-how
- Continued current aviation infrastructure / needs for foreseeable future
 - Existing Airbus, Boeing, Embraer fleets in China – need support
 - MRO business supports global airlines
 - Significant number of international JV’s in place for many years
 - Airlines will take Chinese aircraft if directed
- Difference between people and the “Party”/government
 - Relationships still valued by Chinese (“friends first, then do business”)

Despite Changes, Still Positives To Consider

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CHINA A&D – WHAT CAN THE FUTURE BE?

- ▶ The future for China A&D - more questions than answers
- ▶ How will world react to Chinese actions - Hong Kong, behavior towards neighbor countries, expanding military and internal control of dissent?
 - Sanctions, limit technology export/IP (almost everything in aviation is dual-use)
 - Trade barriers, tariffs, embargoes?
 - Other actions?
- ▶ Are the U.S. and Europe on different paths with the market in China?
 - More accommodation by Europe – IP, technology, access?
 - More “hawkish” view by U.S.?
 - Economic nationalism, movement of supply chains
- ▶ How will recent “EU-China Agreement on Investment” impact A&D world?
 - Preference to EU suppliers (agreement facilitates access in air transport)?
 - Chinese acquisition of EU A&D suppliers (Hainan Group example)?
- ▶ How will China react to expanded U.S. ties to Taiwan (especially defense)?

Are Geopolitical Changes Changing The Once Bright Promise?

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43

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CHINA A&D – WHAT CAN THE FUTURE BE?

- ▶ Will a weaker economy in China continue to impact aviation demand?
 - Fewer new aircraft, what type? By when?
- ▶ How much influence will China have in the aviation market recovery?
- ▶ For companies with investments in China and/or roles at COMAC today
 - Will you be replaced at COMAC by internal production?
 - Your IP vs. Chinese development (remember the yearly engineer ratio)
 - What about trade sanctions (western/China's), tariffs, technology embargoes?
- ▶ How long will China still need western suppliers and technology?
 - Graduate 150K+ engineers annually vs. 35K engineers in the U.S.
- ▶ If/when China stops importing goods and relies on internal capability:
 - Are they seeking the world market or just their own?
 - Will China turn its back on the world (autarkic future)?
- ▶ How will the aviation market in China evolve?
 - A mix of western and Chinese, all Chinese (over time) or something else?

What Role/Business Will Be Available In China?

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44

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CHINA A&D – WHAT CAN THE FUTURE BE?

- ▶ How do you make money in an evolving market? Or is the risk too much?
 - What is the opportunity cost versus others?
- ▶ What will you have to do to win in this market (and how to do it)?
 - Wholly owned business in China?
 - Joint venture?
 - Compete from offshore?
- ▶ What competitive advantages do you need to have to win in this market?
 - Competitive “moat” and for how long?
 - Can you evolve your advantage faster than local companies can match you?
- ▶ Will changes in China’s “Party”/government happen?
 - What happens if economy continues to weaken (or does not recover)?
 - How will it impact the A&D market?
 - How will it impact your business?

No Right Answers, No Easy Answers – Need To Ask The Questions

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45

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Q&A

46

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Upcoming National Online Forum Webinars

Webinars start at 8:00am Pacific Time unless otherwise stated.

- January 20: “AFWERX: The best way for most A&D companies to begin working directly with the Air and Space Force”, Maj Steve Lauver, Co-Founder and AFVentures Deputy Division Chief, AFWERX
- February 17: Topic: The next generation of transportation and the intersection of Automotive and Aerospace transportation.

47

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Recordings of over 250 chapter and webinar presentations are available for download by A&D Forum members (Individual Membership is \$350/year), in addition to free attendance at all A&D Forum meetings and webinars. Membership is free for those not located near one of the eight operating chapters.

You can join the mailing list of any chapters for free, which will also provide you the monthly A&D Forum Newsletter.

Opportunities to sponsor chapters and to sponsor webinars are available.

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48

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49

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Thank You

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50