

# Assessing the Arsenal: Past, Present, and Future Capabilities



May 2019

**CSBA**

Center for Strategic and Budgetary Assessments

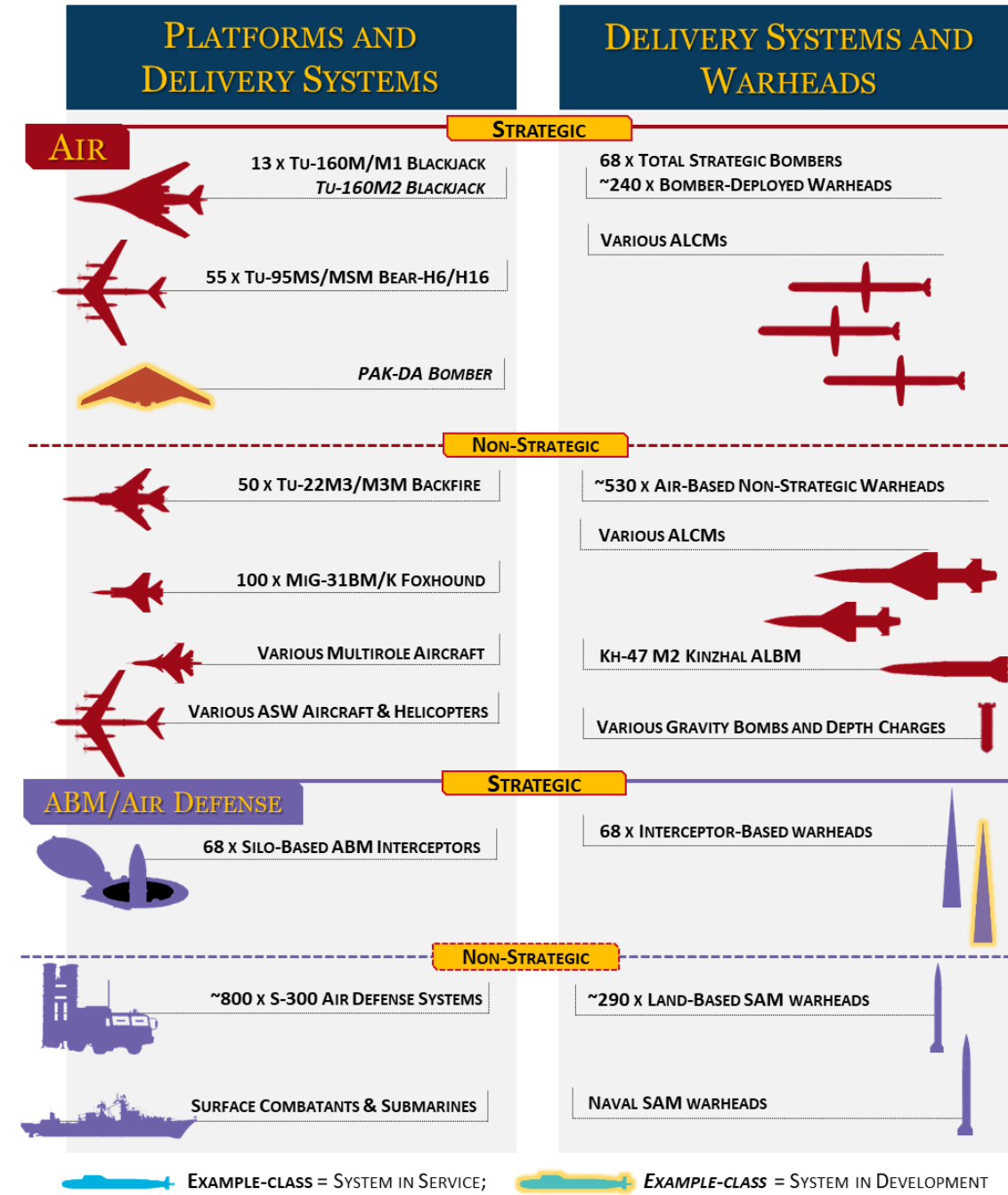
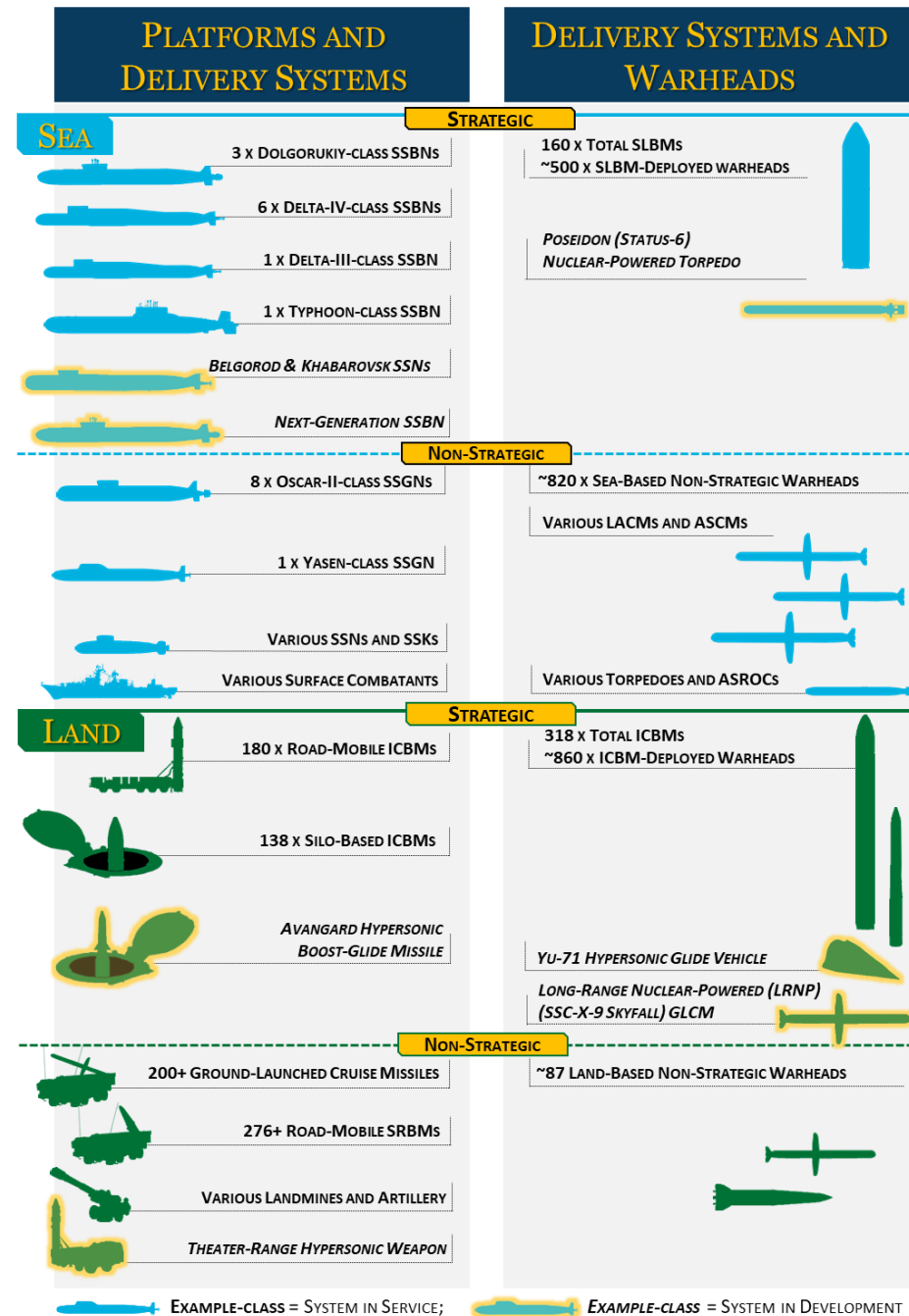
# Why this study, why now?

- **Nuclear competition in the Second Nuclear Age is vastly different than that of the first**
  - While global arsenals have decreased for decades, the **number of nuclear powers is increasing**
  - The Cold War nuclear competition centered on the United States and the Soviet Union, but now the **competition is multipolar**
  - Nuclear arms control that restrained the U.S. and the Soviet Union does not apply to other nuclear powers and the **existing restrictions may be on their last legs**
  - **New technologies** may challenge conventional assumptions about survivability and may effect strategic stability
- **With such change, the time is right for a comprehensive open source net assessment of the global nuclear balance**

# What did we set out to do?

- **To understand the potential implications of the changing nuclear competition, need a baseline of the current and likely future status of national nuclear arsenals**
- **Build snapshots and timelines to depict the current state of the nuclear balance**
- **Identify key asymmetries that may shape the future nuclear balance**
- **Identify potential linkages with trends in conventional competitions that may shape the future nuclear balance**
- **Create a living document that can be updated as more information comes to light**

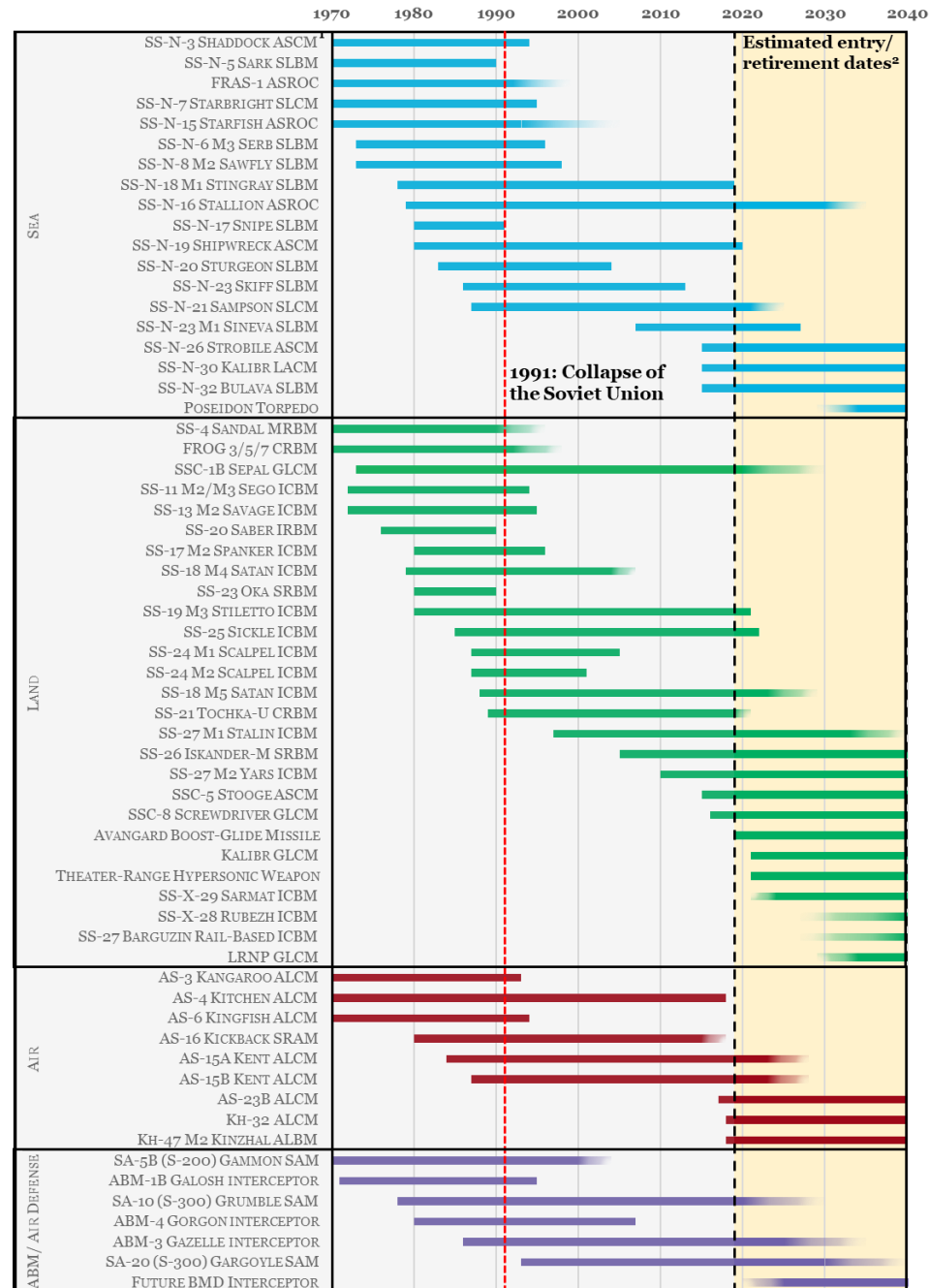
# Illustrative Snapshot of Current and Future Russian Nuclear Forces



# Illustrative Timeline of Current and Future Russian Nuclear Forces



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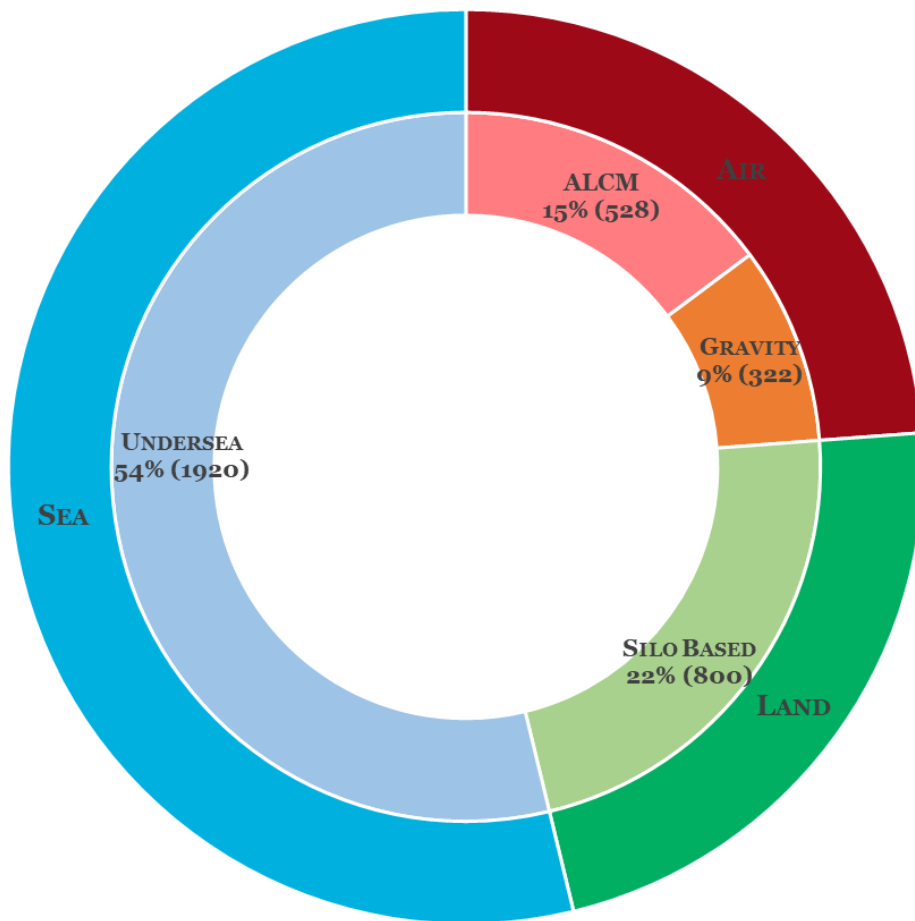


# What did we learn?

- **Almost thirty-years into the Second Nuclear Age, nuclear weapons are still critical components of national defense and global competition**
- **All nuclear powers are modernizing, but only some are growing**
- **Limited scope of U.S., UK, and French modernization programs raise concerns that nuclear intellectual and industrial capital to develop new weapons is at risk of atrophying**
- **Asymmetries of basing-mode, non-strategic nuclear weapons, and dual-capable systems may challenge nuclear deterrence**

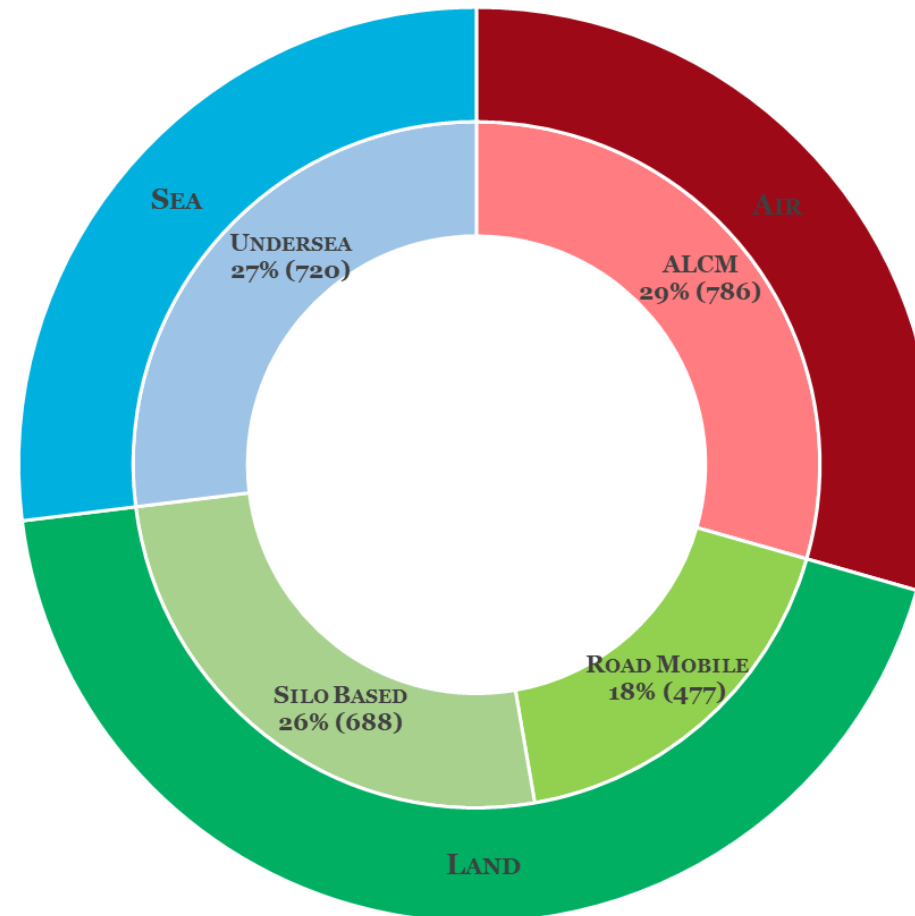
# Asymmetries: Basing-Mode

## United States



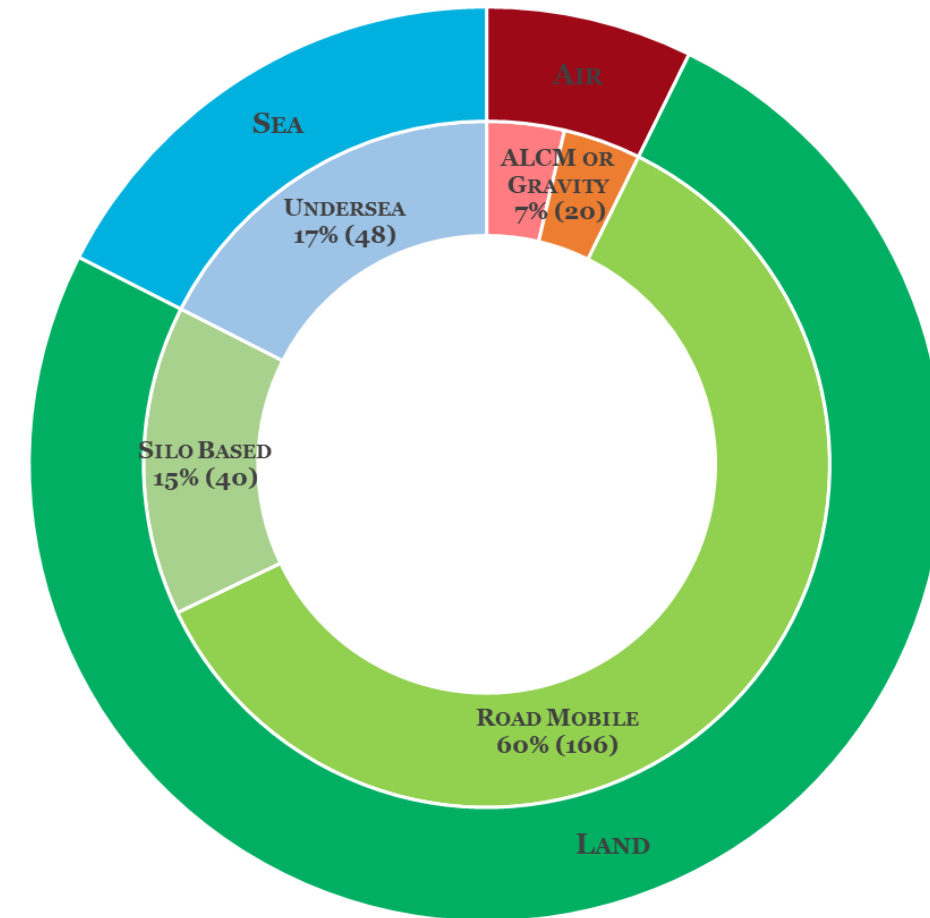
\*Includes both deployed and non-deployed strategic warheads

## Russia



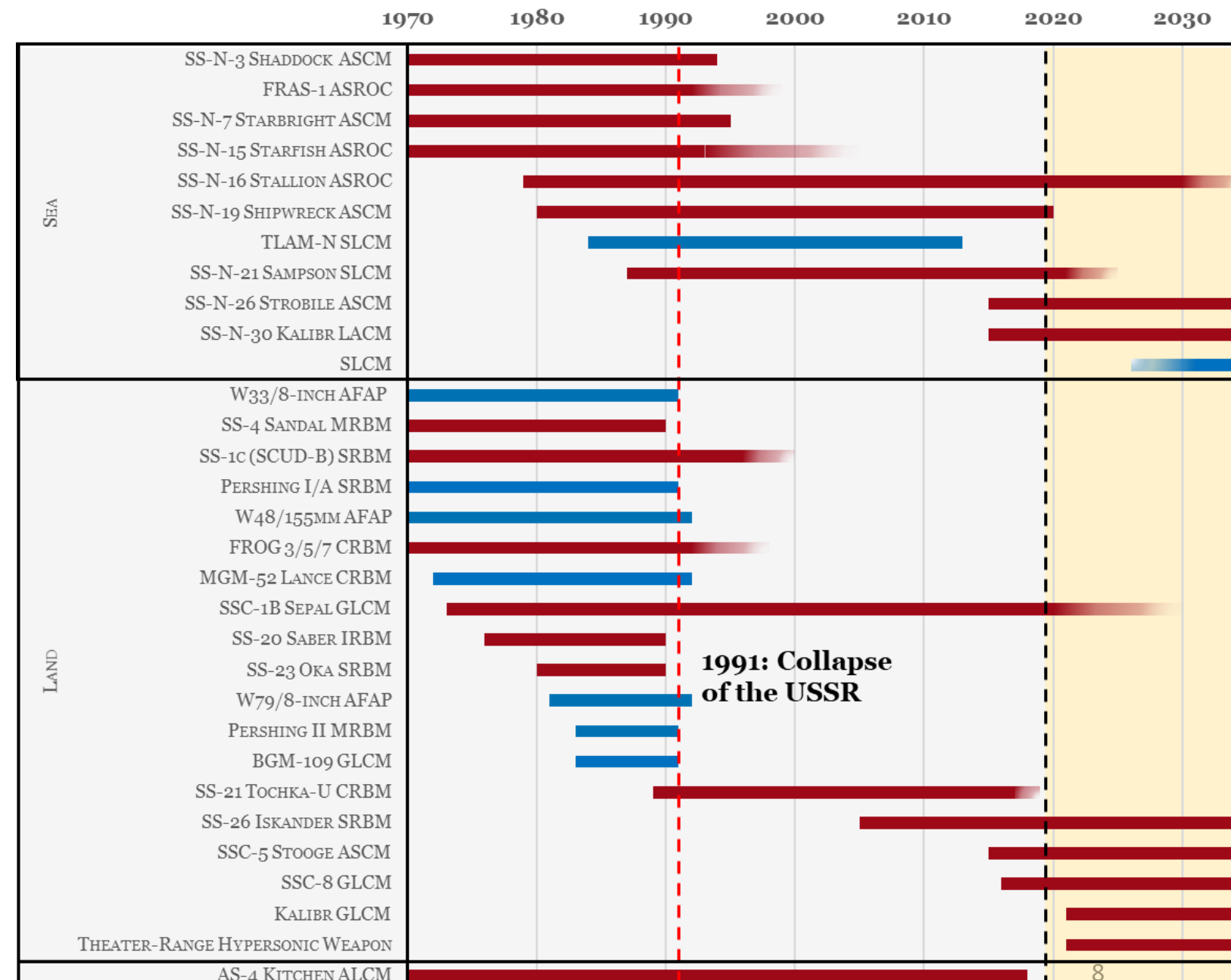
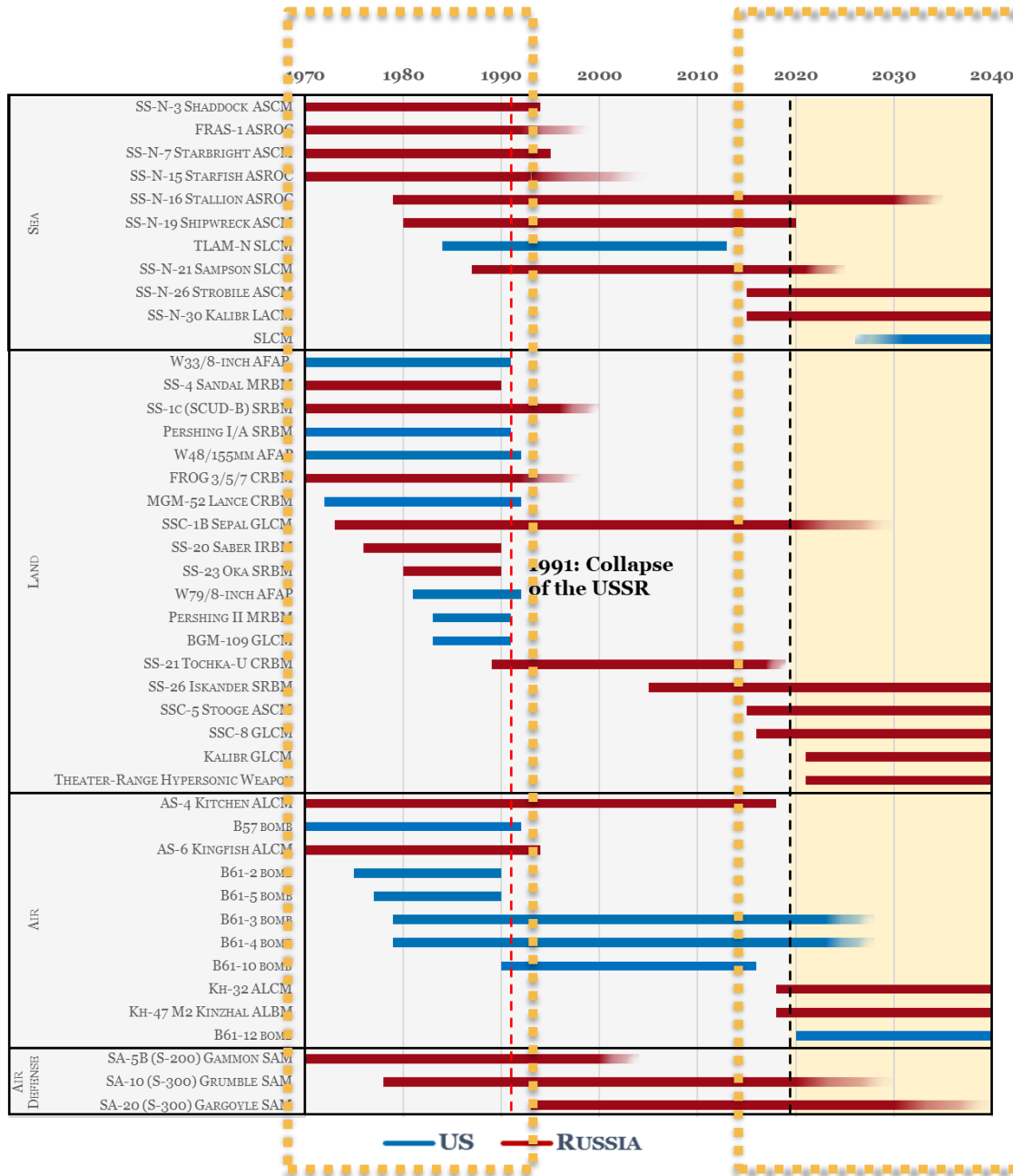
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## China



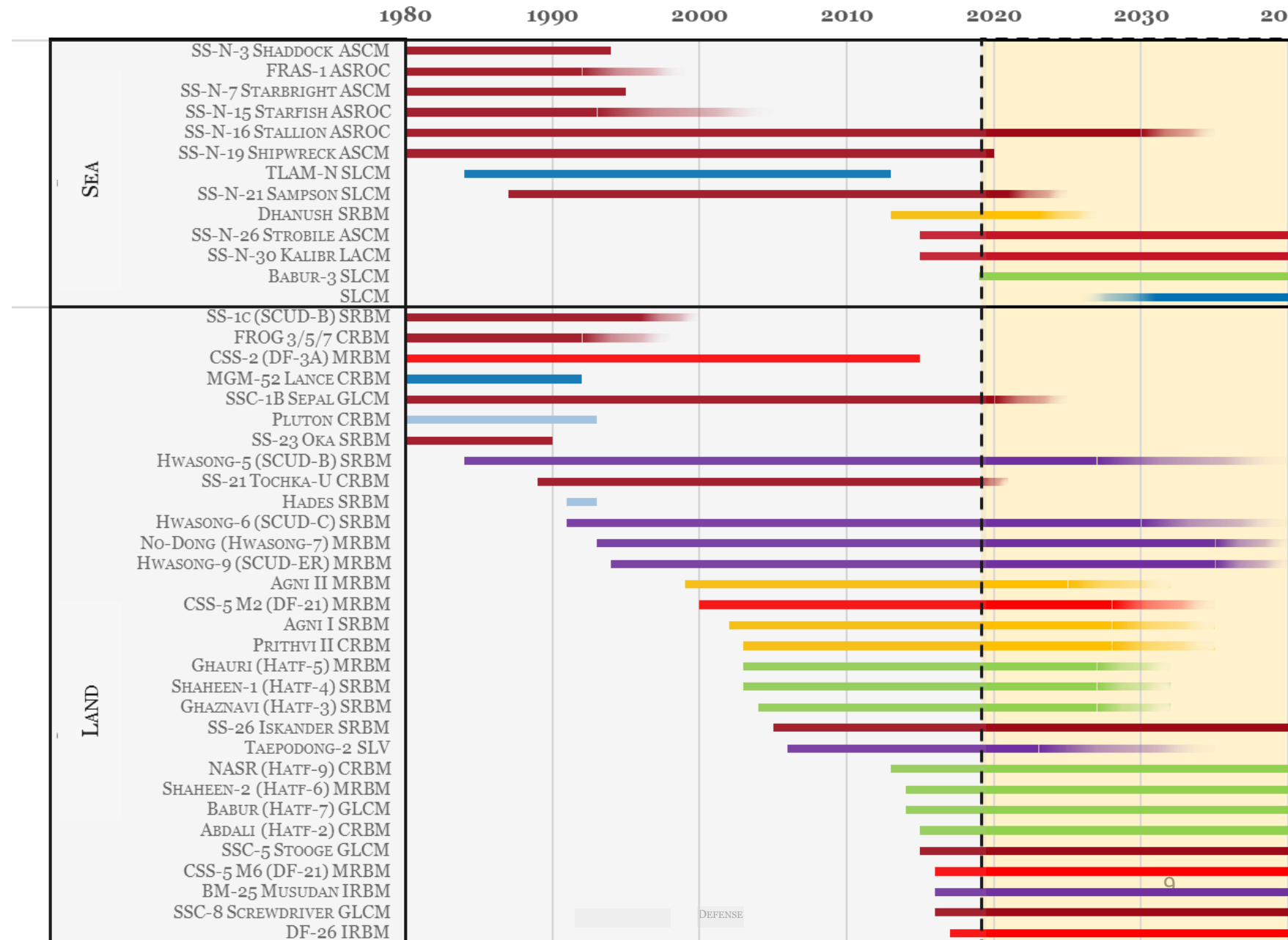
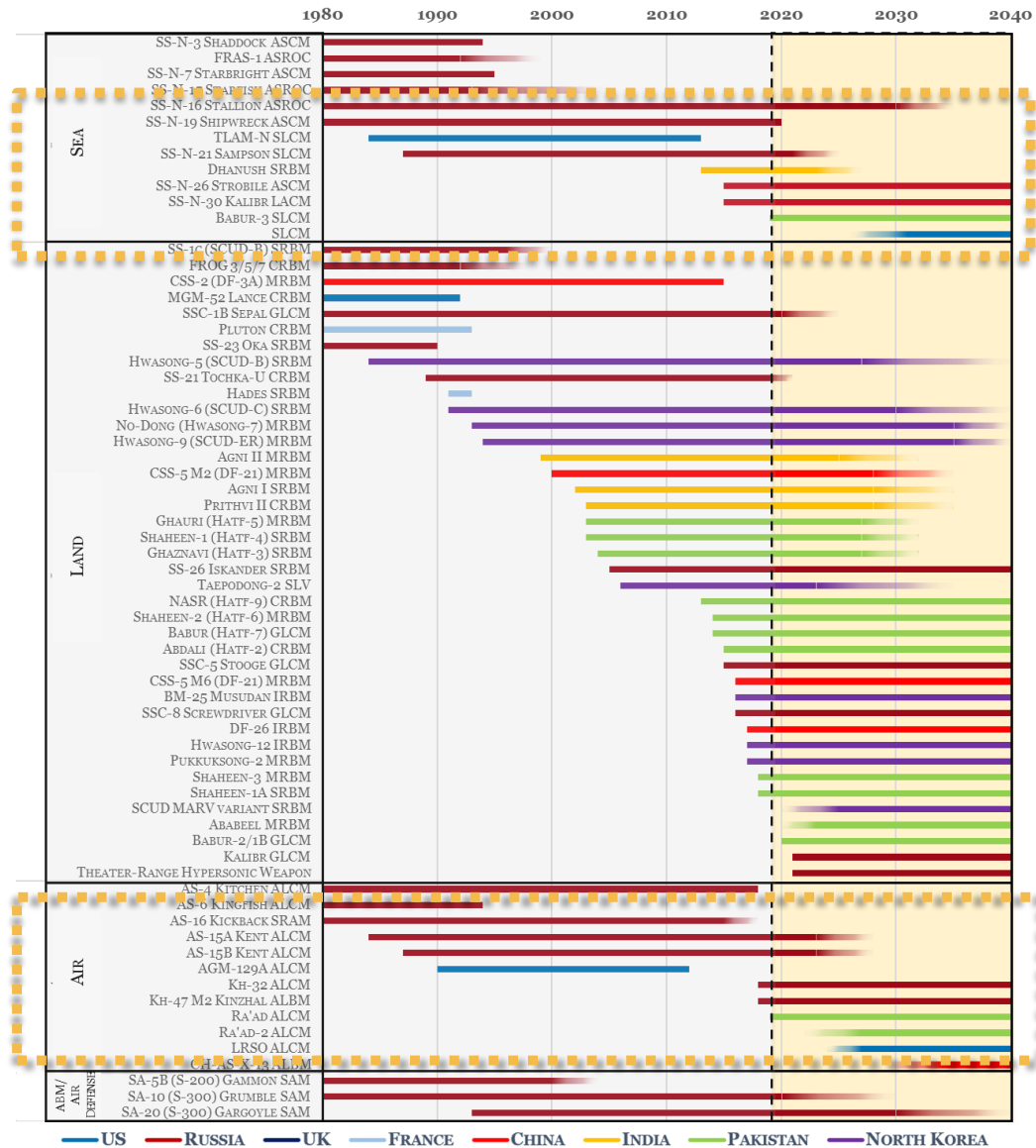
\*An estimated 20 warheads exist for air delivery, but the composition of these warheads among gravity bombs and/or ALCMs is unknown.

# Non-Strategic Deliver Systems (Post-1989)





# Dual-Capable Delivery Systems (Post-1989)



- **Between the return of great power competition and the modernization/expansion of nuclear arsenals, the time is right to reassess the shifting nuclear balance**
- **Future of bilateral arms control and arms control in general looks bleak**
- **China, long known for having a minimal deterrent posture, is developing a larger and more advanced nuclear posture**
- **Regional rivals, like India and Pakistan, as well as North Korea are expanding their arsenals and increasing the range of their delivery systems**
- **With this baseline in place, future studies will explore the strategic interactions between nuclear powers as well as the possible effects of emerging technologies on the survivability of current and planned nuclear arsenals**

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**Thank you.**

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# Why study strategic interaction as part of net assessment?

- **The global nuclear landscape is shaped by more than just arms race or action-reaction dynamics**
  - Internal bureaucracies and inter-service competition also drive state decision making
  - Strategic culture shapes states' perception of their security environment and priorities
- **Effective arms control efforts hinge on understanding and channeling strategic interaction between nuclear powers**
  - A more multipolar nuclear landscape will complicate strategic interaction and future arms control efforts
  - The potential end of bilateral U.S.-Russia arms limitation agreements will create conditions for relatively unconstrained competition

# What did we set out to do?

- **Provide a deep-dive into the evolution of nuclear policy in the United States, Russia, and China, including:**
  - How they have historically perceived global nuclear competition
  - How they have conceptualized the purpose of their own nuclear forces
  - The degree to which states' declaratory policy has aligned with state behavior
- **Examine how strategic interaction has shaped national perceptions of nuclear balances and informed each state's approach to the development of nuclear policy**
- **Identify sources of change and continuity in each country that can help us understand how strategic interaction may unfold in a new era of great power competition**

- **Continuities in U.S. nuclear strategy outnumber the changes**
  - Reliance on nuclear use to deter non-nuclear actions
  - Centrality of nuclear nonproliferation to U.S. strategy
  - Mostly bipartisan consensus on the enduring value of the triad
  - Pursuit of flexible options to improve the credibility of the U.S. deterrent, especially related to extended deterrence
- **Post-Cold War changes to U.S. strategy will complicate efforts to manage future nuclear competition**
  - U.S. efforts to de-emphasize the role of nuclear weapons has been a uniquely American trend
  - Balancing the competing imperatives of “sufficiency” and “superiority” will grow more difficult as Russia and China continue to modernize and expand their own arsenals
  - The shift to a global deterrence outlook makes it more difficult to tailor policy responses to specific threats without provoking unwanted third party reactions

- **Russian decision makers have reliably prioritized superiority over sufficiency as a strategic objective**
  - Superior nuclear forces guarantee both strategic stability and security more effectively than efforts to reinforce mutual vulnerability
  - These attitudes mean that Russian leaders rarely perceive adherence to arms control agreements to be a stronger guarantor of Russian security than enhanced nuclear capabilities
- **Russia's post-Cold War elevation of non-strategic nuclear weapons within its nuclear strategy is the country's most consequential change in its nuclear strategy**
  - The historic gulf between Russia's declaratory policy, sabre rattling, and genuine strategic calculus complicates efforts to understand the role that NSNWs might play in Russian plans
  - It is probable that NSNWs play an outsized role in Russia's near- and medium-term strategy to regain regional dominance and recover its great power status



- **Since China conducted its first nuclear test in 1964, Beijing has had a remarkably consistent defensive nuclear policy and strategy**
  - No First Use, opposition to arms races, and a “lean and effective” force structure are enduring themes
- **Yet internal and external pressures to break from the past have multiplied in quantity and intensity**
  - Internal pressures include inter-service rivalries and the growth of bureaucratic actors
  - External pressures include U.S. precision strike and missile defense, and India growing force structure
- **Worries about U.S. intentions and capabilities are real, but other less visible domestic motivations may be at work**
  - Consider how Chinese leaders may leverage nuclear capabilities to proactively shape China’s external environment
- **When taken together, these factors strongly indicates Chinese will develop a more responsive posture and capability**

# What does it mean going forward?

- **The shape of strategic interaction is not straightforward, and strategic interaction will likely grow more complicated in the coming decades, not less**
- **Coming decades could strain the tradition of nuclear non-use**
- **Achieving a multilateral arms control regime under these conditions will be an enormous challenge**
  - It is unlikely that any two countries would pursue a new arms limitation agreement that fails to constrain the third
  - New technologies affecting nuclear balances pose major verification challenges, adding additional layers of complexity
- **Given the prognosis for future bilateral arms control, it is necessary to consider options for strengthening deterrence and stability in a comparatively unconstrained strategic environment.**

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