Catalyzing Change: How Russia's War on Ukraine is Reshaping the West's Defense Industrial Base

Presentation to International Scientific Conference on Economic Development and Legacy of Simon Kuznets

Simon Kuznets Kharkiv National University of Economics

Howard J. Shatz
RAND

October 16, 2025

The Defense Output Challenge

- “Increased output for defense purposes can be attained either by using some of the resources now employed in the production of consumers’ goods or by increasing the country's national product…without reducing output and consumption of consumers’ goods
- “But this … result depends upon two conditions …
  - “The first is that sufficient time is available to convert productive resources largely unused at present into productive capacity for defense needs
  - “The second condition is coordinated, planned and far-reaching government control over a substantial area of the country's economic system
- “Thus while, theoretically, a maintained output of consumers’ goods and increased production for defense are compatible, it is more realistic to expect a reduction in the supply of consumers’ goods
  - “The necessary inference is that such contingency be made part of the program of economic preparedness

--Professor Simon Kuznets, Professor of Economics and Statistics, University of Pennsylvania

“Peacetime Goods Due To Be Curbed: Huge Armament Program Will Force Some Curtailment, Economists Agree,” *New York Times*, January 2, 1941, pp. 57 and 68

The Wake-Up Call

- Russia's full-scale invasion against Ukraine has had global consequences
- One has been to emphasize to the Western alliance the necessity of defense industrial base (DIB) reform and upgrading
- Key Takeaways:
  - Reforms have been positive but modest, with expanded production and reforms to procurement and innovation
  - Constraints should be expected through the medium-term, given continued political, budgetary, and demographic barriers to peacetime expansion of production capacity
- What it means for Ukraine: The Western DIB can be a supplier in war and a partner for economic growth, innovation, and industrial development in peace
- What it means for the West: A large, innovative Ukrainian DIB can help re-energize and re-arm the West

Roadmap

I. The Western DIB Before the War

II. Challenges Revealed

III. Responding to the Challenges

IV. Conclusions and The Way Forward

Looking at the Western DIB

- Russia's war on Ukraine has revived debates about U.S. and European allies' ability to expand and accelerate defense production after decades of consolidation and reduced defense spending
- To assess the implications for U.S. and Allied capabilities, we examined three questions:

1. What strengths, shortfalls, or challenges has the war revealed?
2. Has the war driven changes in Western strategy, policy, or resources?
3. What is the likely trajectory for the West's production?

The war has had three broad consequences:

1. The need to plan for protracted conflict
2. That urgency of addressing gaps in the DIB
3. The potential for Ukraine as a DIB partner

The Western DIB on the Eve of the Full-Scale Invasion

DIB	Characteristics	Major Challenges
	• Largest DIB in the world • Five firms dominate the domestic market and rank in the top six globally, based on annual revenue	• Aging workforce, property, plant, and equipment (PPE) • Volatile federal budgeting cycles produce financial uncertainty • Declining competition given consolidation • Labor recruitment and retention challenges • Reliance on sole-source and foreign suppliers
	• Three firms lead • Labor force is approximately half the size of U.S. DIB	• Aging workforce • Fragmentation precludes economies of scale, reducing capacity • National competition disincentivizes cross-national procurement
	• Relatively large and internationalized DIB compared to other states of similar size	• Underinvestment in defense research and development • Trade concentration (imports from U.S.; exports to the Middle East) • Difficulty participating in EU-led initiatives

The United States Dominated the Western DIB

Country or Entity	Procurement Contracts Awarded ($B)	Direct Employment	R&D ($B)
United States	398.7 (2021)	1,100,000 (2021)	106.6 (2021)
United Kingdom	26.3 (2020-2021)	126,600 (2019-2020)	2.3 (2021)
European Union	50.7 (2021)	500,000	10.6 (2021)

- Ukraine's DIB had also consolidated and shrunk
  - 1991: 3,594 enterprises, direct employment of 1.45 million
  - 2020: 145 state-owned enterprises, 250 private enterprises, direct employment of 100,000
- Governance reforms started in 2019, a new U.S. Strategic Defense Framework was initiated in 2021, and Ukraine's DIB started new international partnerships

Roadmap

I. The Western DIB Before the War

II. Challenges Revealed

III. Responding to the Challenges

IV. Conclusions and The Way Forward

The War Revealed A Variety of DIB Challenges, or Renewed Concerns

DIB	Challenges Revealed

	• Renewed concerns about reliable and resilient supply chains
	  • Limited number of suppliers for repairs
	  • Counterfeits, data vulnerabilities, import reliance for critical minerals
	• Slow-moving acquisition process that discourages private industry
	• Consolidation that has resulted in higher costs, less innovation, and vendor lock

	• Low overall defense spending and defense procurement spending • National procurement, leading to fragmentation • Short contract periods and fluctuations in demand, leading to difficulties increasing demand quickly and creating long lead times
	• Low overall defense spending and defense procurement spending • Burdensome procurement processes and requirements; complex regulatory environment

Expanding Production Has Proved to be the Most Immediate Challenge

- Production challenges have driven delays in EU deliveries of **155 mm ammunition** to Ukraine. Although the United States has increased procurement of both regular and precision-guided, the limited number of production lines impeded these efforts
- Concerns about lengthy replacement timeline for **Javelins** has led the United States to slow transfers to Ukraine and raised questions about availability of **Stingers**, for which production had ceased in 2005
- Fulfillment of U.S. pledge to provide **HIMARs** slowed by need to produce new systems

Roadmap

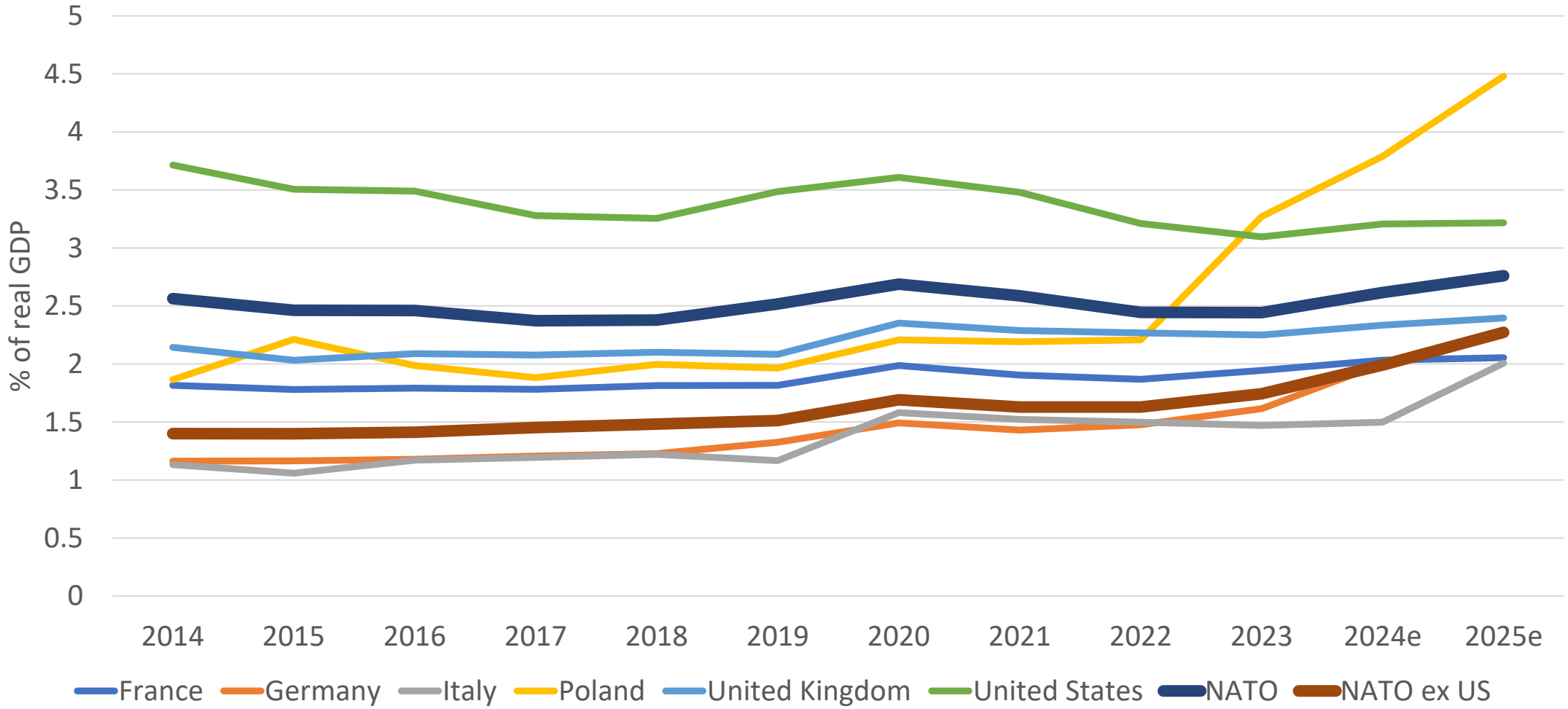
I. The Western DIB Before the War

II. Challenges Revealed

III. Responding to the Challenges

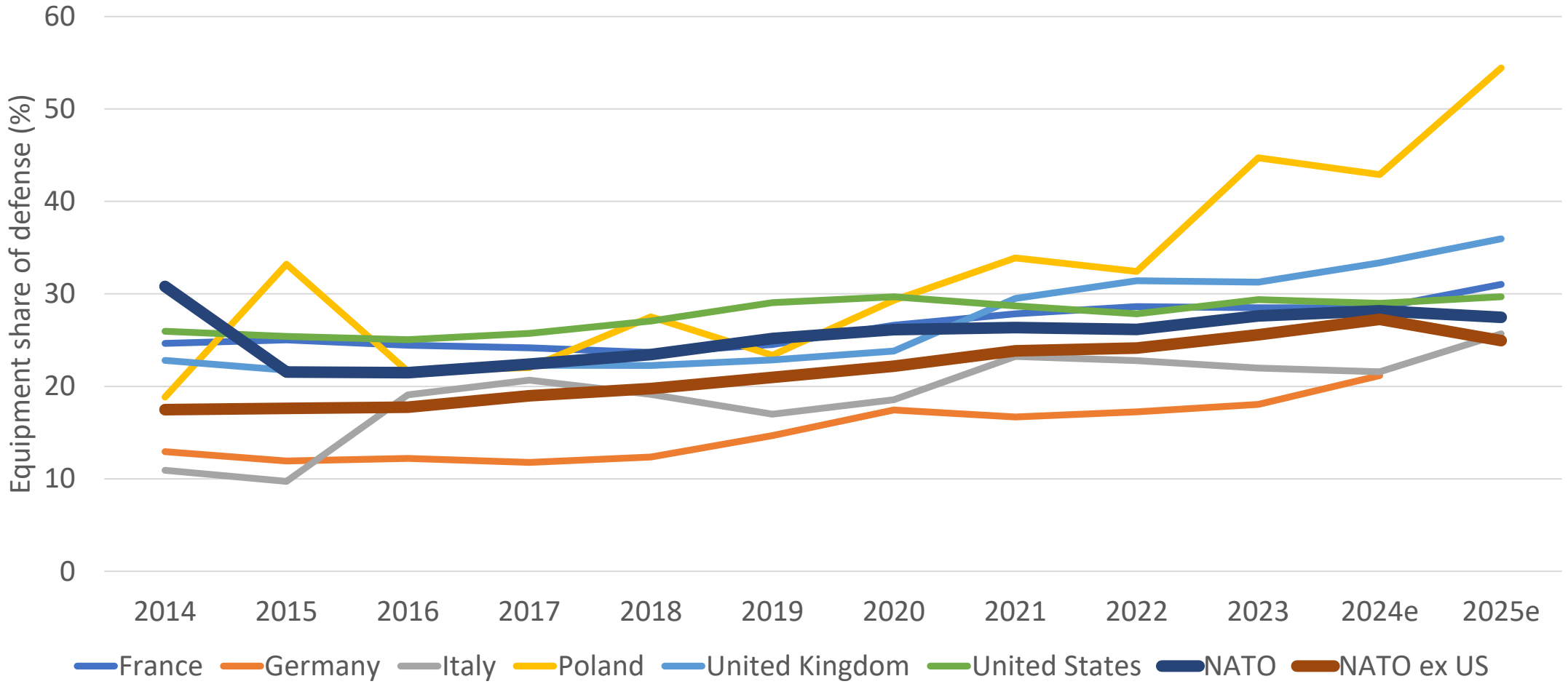
IV. Conclusions and The Way Forward

Relative Defense Spending Among NATO Members Has Started to Rise



Source: North Atlantic Treaty Organization, Defence Expenditures of NATO Countries (2014-2025), Press Release, August 28, 2025.
Note: Data for Germany 2025 are unavailable.

Equipment Spending as a Share of Defense Spending Has Also Started to Rise



Source: North Atlantic Treaty Organization, Defence Expenditures of NATO Countries (2014-2025), Press Release, August 28, 2025.
Note: Data for Germany 2025 are unavailable. Equipment spending for Denmark 2025 is not available. Equipment spending for Iceland all years is not available.

The U.S. is pursuing "generational change" in capacity and resilience, but implementation barriers remain

Policy

- First-ever *National Defense Industrial Strategy* sets direction for enterprise-wide reforms
- Concurrent demand for Ukraine aid and U.S. stockpile replenishment generated new scale of orders

Resources

- As of mid-2024, DoD funded ~117 production lines in 31 states to revive, expand, accelerate production of 155mm shells, Stingers, JDAM-ERs, and GLSDBs
- Congressional opposition precludes multi-year buys

PPE

- Expansion of new production lines is in process, but delayed by budget uncertainty
- Majority of new funds are designated for use, not expansion or refurbishment, of DIB

Workforce

- Sector-wide labor challenges could slow attempts to ramp up production
- Success of recruitment and retention efforts will depend on efforts by non-DoD stakeholders and private sector

DoD DEMAND SIGNAL IS GROWING

COMMERCIAL CAPACITY IS IMPROVING, BUT PACE AND SCALE IS UNCERTAIN

The Most Recent Innovation: A Focus on Drones

- June 6, 2025, Executive Order 14307: “Unleashing American Drone Dominance”
  - Aims to establish U.S. leadership in development, commercialization, and export of unmanned aircraft systems

- July 10, 2025, Memorandum from the Secretary of Defense, “Unleashing U.S. Military Drone Dominance”
  - Approve hundreds of products for purchase to boost U.S. drone manufacturing
  - Arm combat units with low-cost drones, boosted by a new procurement strategy “that fuses manufacturers with our frontline troops”
  - Integrate drone capabilities “into all relevant combat training, including force-on-force drone wars”

“Drones are the biggest battlefield innovation in a generation, accounting for most of this year’s casualties in Ukraine” – Secretary of Defense [War] Pete Hegseth, July 10, 2025

European Leaders Have Called for Improved Capacity and Cross-National Cooperation, but Reforms Have Been Modest

Policy

- First EU *Defence Industrial Strategy* aims to improve long-term industrial readiness
- First NATO *Defence Production Action Plan* stresses peacetime production, could facilitate greater commercial integration
- New UK *Defence Command Paper*, *Defence Drone Strategy*

Resources

- EU defense spending reached record $295 billion in 2023
- EU initiatives facilitate greater joint R&D, production, and procurement, but currently are time limited

PPE

- EU seeking to improve supply chain security, resilience by promoting European over U.S. solutions
- Competing national interests complicate supply chain mapping, stockpiling, and R&D
- UK suppliers' access to EU market is restricted

Workforce

- Greying of science and technology workforce, competition with other sectors may slow attempts to expand production capacity

RHETORIC IS TURNING INTO ACTION; DURABILITY DEPENDS ON NATIONAL AND EUROPEAN ELECTIONS

NATIONAL COMPETITIONS MAY LIMIT ABILITY TO LEVERAGE LATENT CONTINENTAL RESOURCES

Most Recent Developments: A New Commissioner, a New EU Program, and NATO Commitments

- New Commissioner for Defence and Space, Andreas Kubilius; in September 2024 mission letter, charged with (among many tasks)
  - Presenting a White Paper on the Future of European Defence (done March 2025)
  - Creating a true single market for defense and Incentivizing investment in defense
  - Strengthening EU-NATO partnership

- Major outcome: ReArm Europe / Readiness 2030
  - Loosen requirements of Stability and Growth Pact to mobilize €650B in defense spending over four years
  - €150B EU Security Action for Europe for common procurement in key areas such as missile defense, drones, cyber security; Ukraine eligible to participate
  - Still subject to European Parliamentary approval

- NATO Summit, June 2025: By 2035, core defense spending up to 3.5% of GDP, additional security spending up to 1.5%; contributions to Ukraine and Ukraine's DIB included

Roadmap

I. The Western DIB Before the War

II. Challenges Revealed

III. Responding to the Challenges

IV. Conclusions and The Way Forward

Overall Implications: Russia's War and the West's DIB

- Catalyzed a new political willingness to expand peacetime production capacity
  - For Europe, the threat is direct and salient; for the United States, China remains the pacing challenge, but Russia's war has informed decisions

- Political, budgetary, and demographic constraints may still hamper implementation and constrain readiness for protracted conflict

- New NATO and EU initiatives may help to communicate consistent demand signal to industry; establish common procurement priorities; and promote common standards

- New EU initiatives may spur the fulfillment of increased spending commitments

- *Strategic Level Implications of Russia's War for the United States*
  - Potential to learn from operations in Ukraine more quickly than China and adapt accordingly
  - Near-term incentive to invest in addressing long-standing DIB issues before they are exposed in U.S.-involved conflict

Policies for the United States

- Sustain and focus defense industrial base investments to build capacity for priority munitions, systems needed for protracted conflict
- Encourage the creation of an EU fund to support member states' implementation of NATO resilience initiatives
- Plan to deny U.S. and allied commercial space assets to adversaries

- To maintain a competitive DIB workforce, avoid using 'stop-work' orders during government shutdowns
- Identify areas where European producers may be best suited to address U.S. capability and stockpile gaps
- Continue development of proliferated satellite constellations and hybrid space architectures
- Accelerate large-scale investments in and integration of OWA UAS and USV
- Prioritize the development and integration of high-volume, kinetic counter-UAS capabilities:
- Identify priority munitions, systems for scaled-up, rapid production in the event of a protracted conflict
- Stack munitions requirements by conflict phase to aid production planning and delivery timelines
- Invest in the development of affordable extended-range munitions
- Prepare to operate from degraded environments for longer periods of time
- Emphasize decentralized decision-making in exercises and training

Indicators for Success in DIB Reforms

- Growth in the number of companies contracting
- Growth in production capacity
- Growth in spending for industrial base priorities, rather than just overall spending
- Ensuring the armed forces have the right capabilities and stockpiles to achieve their missions
- The ability to pivot production based on shifting wartime demands

Implications for Ukraine's DIB: Growth, Governance, and Capabilities

- Significant growth in number of companies and in production
  - By late 2023, 500 companies (400 private), 300,000 workers
  - Expanded production of artillery and heavy munitions, armored vehicles, uncrewed systems
  - In 2024 and 2025, JSC Ukrainian Defense Industry (Ukroboronprom) ranked 49 among top 100 defense companies, up from 65 in 2023
- Improved governance, including procurement reform, although corruption remains an issue
- Dramatic advances in innovation and the innovator-to-warfighter pipeline
  - Army of Drones to procure drones, train operators, foster domestic production
  - Brave1 platform to increase collaboration across defense industry and support private defense technology projects
  - International outreach, for example Brave1-Defense Innovation Unit-NATO Innovators Forum June 2024; Defense Tech Valley September 2025

Implications for Ukraine's DIB and Ukraine: Partnerships and the Future

- "We must focus on increasing awareness of the opportunities in Ukraine's critical economic sectors…defense production; and technology"
  - Penny Pritzker, U.S. Special Representative for Ukraine's Economic Recovery, February 14, 2024
- Ukraine's defense sector remains a target of investment and significant attention from the West
  - More than €1 billion in direct funding via the "Danish model" expected in 2025
  - Joint ventures and production in the West
- On tap: a $50 billion (?) U.S.-Ukraine drone deal, with Ukraine sharing technology and U.S. providing funding and weapons – details pending
  - Challenges: Export controls, intellectual property, lobbying by incumbents
- Laying the groundwork for peacetime with Ukraine's unique edge: the innovation cycle and rapid fielding of technology


GRIFF / US
RAND