Defence Contractors and Nuclear Modernisation: Corporate Roles in Sustaining Nuclear Weapons Programs in the U.S., U.K. and France

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Abstract
Behind every modern nuclear arsenal lies a robust industrial ecosystem that quietly sustains it. While existing literature has primarily focused on the state's strategic motivations behind nuclear development, far less attention has been paid to the role of defence contractors in sustaining these arsenals. Their role in the production, maintenance and modernisation of the nuclear weapons programme remains largely understudied. This article, while examining the corporate-state nexus, undertakes case studies of the U.S., U.K. and France to explain how the deterrence architecture of these countries relies on industrial partnerships. It argues that companies, including Airbus, Safran, BAE Systems, Babcock International, Boeing, and General Dynamics, not only provide technical expertise but also exert influence through lobbying and financing of policy-oriented think tanks. Instead of suggesting direct causation, this article highlights how these mechanisms could be the factors shaping the broader nuclear policy debates.

Keywords: *Nuclear modernisation, nuclear weapons, defence contractors; lobbying; industrial partnerships*

Introduction
Nearly eight decades after the bombing of Hiroshima and Nagasaki, which resulted in between 110,000 and 210,000 casualties (Messmer / Cole 2025; Herre et al. 2024), the world is witnessing a renewed surge in nuclear danger. This risk is driven by overlapping factors, including Moscow's repeated nuclear threats since its invasion of Ukraine in 2022. The war has revived the possibility of nuclear confrontation in Europe, prompting renewed debates about whether states require nuclear deterrence as their ultimate security guarantee. This is reflected in the behaviour of nine nuclear-armed states – the U.S., Russia, U.K., France, China, India, Pakistan, the Democratic People's Republic of Korea and Israel – which continue to modernise their nuclear arsenals. ICAN's 2025 report *Hidden Costs: Nuclear Weapons Spending in 2024*, shows that nine nuclear-armed states collectively spent a total of $100.2 billion on nuclear weapons in 2024 (Sanders-Zakre / Snyder 2025: 4). Defence companies involved in the production of these weapons earned approximately $43.5 billion and held roughly $463 billion in outstanding contracts (Sanders-Zakre / Snyder 2025: 4).
These patterns raise a fundamental question: Does this enormous spending on nuclear arms enhance human security in any meaningful way? Intergenerational justice demands that we weigh not only the needs and rights of current generations but also of future generations when evaluating the costs and risks of nuclear modernisation. Ignoring this responsibility risks leaving a legacy of insecurity and imbalance for those who come after us. Thus, understanding the forces that likely sustain the nuclear weapons programme is essential. While traditional analysis emphasises state-centric motivations, it neglects the plausible role of corporate defence infrastructure that underpins the nuclear enterprise. Through production, maintenance, and modernisation, private firms have woven themselves into the fabric of national security, creating a self-perpetuating cycle in which public defence imperatives and corporate profit motives converge.

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Lobbying further reinforces this dynamic by providing opportunities for major defence contractors to potentially secure economic incentives, often evident in the form of long-term government contracts signed by these companies. In addition, financial support by these companies to policy-oriented think tanks can indirectly shape debates on nuclear modernisation by amplifying particular narratives within policy circles. However, these interactions do not indicate a direct causal relationship; rather, they illustrate how defence contractors potentially operate within, and contribute to, a wider ecosystem of influence. In all of this, weak enforcement mechanisms in international law further enable firms to expand their activities with limited external oversight.
Uncovering these concerns, this article undertakes the case studies of the U.S., U.K. and France to highlight the probable role of defence contractors in the production and sustenance of nuclear weapon programmes in these countries. These three countries are selected due to relatively high transparency, data availability, and the clear visibility of corporate-state networks. The study focuses on six companies – Airbus and Safran in France, BAE Systems and Babcock International in the U.K., and Boeing and General Dynamics in the U.S. – and traces their involvement through defence contracts and lobbying.
The primary research question guiding this article is: How do private defence contractors potentially influence the modernisation of nuclear weapons programmes in the U.S., U.K. and France? In answering this question, the following secondary questions are also explored: How do state motivations, i.e. national security and technological advancement, interact with corporate interests to drive nuclear weapons acquisition? What mechanisms, including lobbying and think-tank funding, do defence contractors use to potentially influence debates and decisions surrounding nuclear weapons programmes?

States' motivations for nuclear weapons acquisition
Understanding contemporary nuclear armament, modernisation, and proliferation requires situating corporate and political dynamics within the broader strategic environment in which

nuclear weapons continue to operate. Although President John F. Kennedy's 1960s prediction of 15 to 20 additional nuclear-armed states by the end of the decade (Carnegie Endowment for International Peace 2003) did not materialise, the end of the Cold War certainly intensified global arms competition. At present, all nine nuclear-weapon states are deploying new nuclear-capable or nuclear-armed systems, heightening the risk of escalation. From approximately 12,241 warheads in the global inventory as of January 2025, around 9,614 were "in military stockpiles and available for potential use," and an estimated 2,100 were kept on "high operation alert" (Kristensen / Korda 2025: 177). This widespread modernisation and nuclear deployment, beyond its technical dimensions, prompts important questions about the motivations driving states to maintain and expand their nuclear arsenals.

According to Peter R. Lavoy (1993), states pursue nuclear weapons largely because they have the capability to do so. He argues, "the decision to develop nuclear weapons is not a fluke of certain governments, but a general technological imperative," implying that things which are technically possible had to be done (Lavoy 1993: 194). This perspective frames acquisition of nuclear weapons as a deterministic process, suggesting that states respond to what is technically possible. It implicitly assumes a linear relationship between capability and decision making, and overlooks how political and strategic forces might play a role. Addressing this gap, Harsh V. Pant (2012: 3) presents a political-instrumental perspective, arguing that states view nuclear weapons as "political instruments, whereby the threat of nuclear war could be used to attain political ends." This perspective underscores the inherently political dimension of nuclear programmes, suggesting that pursuit and modernisation of nuclear arsenals cannot be fully understood through technical consideration alone. It reinforces the idea that state behaviour is influenced by strategic calculations, threat perceptions, and geopolitical reasoning. Even if states have the technical ability to develop nuclear weapons, political and strategic imperatives often determine whether or not, when, and how they might pursue them.

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Building on these perspectives, Sanem Topal (2023: 11-21) integrates the technological and political dimensions, emphasising "technological advances can make nuclear weapons more sophisticated, precise, and lethal." However, it is also the evolving security environment which encourages states to acquire weapons, thereby leading to a situation of an arms race. Advanced capabilities may create pressure for states to develop and modernise nuclear weapons, but decisions are also influenced by the broader strategic context. Thus, Topal illustrates that state's acquisition of nuclear weapons is contingent on how technical capabilities interact with strategic contexts. Beyond state-driven factors, he further highlights the potential role of private defence contractors in shaping nuclear modernisation. Leveraging their relationship with policymakers, these companies may shape the "priorities and preferences within the defence establishment, potentially favouring the adoption of newer missile technologies" (Topal 2023: 22). By positioning themselves strategically in defence market, these contractors advance corporate interests while indirectly shaping state nuclear policies. This suggests that contemporary nuclear proliferation and state's motivation to acquire advanced weapons is not only driven by technology and political motives but also by economic and corporate incentives. Building on this idea, the next section examines how private-sector companies engage in lobbying and think tank funding to potentially gain economic incentives in the form of defence contracts, while indirectly influencing policy debates regarding nuclear advancements.

Corporate power behind the bomb

Nuclear-armed states maintain dedicated facilities for the production, testing and stockpiling of nuclear weapons, many of which are "managed and operated by the private sector" (Muñoz et al. 2022: 12). In 2020, these private defence companies received nuclear-weapons-related contracts worth $332 billion (Muñoz / Snyder 2021: 18). While outsourcing primarily provides technical expertise, it may also position these companies as influential actors in indirectly influencing the broader nuclear policy environment. Because of the long-term economic stakes, these companies could potentially expand their engagement beyond technical production into the policy environment surrounding nuclear weapons. This includes funding think tanks, sponsoring research, and conducting lobbying activities. Such activities are not accidental add-ons; rather, they reflect attempts by firms to maintain visibility and relevance in the strategic debate.

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Lobbying, in this context, is an essential tool to secure economic benefits, as reflected in the billions of dollars in government contracts signed by these companies in case of the U.S., U.K. and France (discussed in detail in the later section). Similarly, support for think-tank research can help foreground particular research agendas or policy analysis. They may contribute narratives that emphasise technical necessity, strategic imperatives, or modernisation benefits of nuclear weapons, subtly shaping how the nuclear issues are discussed and perceived.

Lobbying and corporate influence

Gaining profit through weapon sales, defence companies aim to "keep their businesses on track and alive through lobbying" (Topal 2023: 68). Since these companies rely on long-term procurement cycles and predictable state demand, they remain closely connected to policy discussion that may shape future market conditions and their revenue generation. Through lobbying networks, these companies gain tax breaks, non-competitive contracts, and "favourable treatment from elected government to stifle market competition" (Parvin 2022: 240-242; Mitchell 2012). Being customers of the defence industrial sector, "governments frequently play a sponsorship role, helping firms to survive and prosper" (Heidenkamp et al. 2013: 5). This creates an ecosystem in which corporate profit and national security policy may mutually reinforce one another.

For instance, Boeing, involved in the development of the U.S. Minuteman III Intercontinental ballistic missiles, spent around $22 million on lobbying in 2015, while General Dynamics spent approximately $10 million annually on lobbying (Topal 2023:

54-55). While these figures alone do not provide direct causation, they suggest that lobbying provide companies with opportunities to engage with policymakers, committees, and regulatory bodies in a way that could potentially shape how modernisation programmes and procurement decisions are considered. Such engagement can indirectly support their economic interests by increasing the likelihood of them being considered for future contracts as exemplified in the case studies below.

Think tanks funding and policy narratives

Private companies involved in nuclear weapons production often provide funding to think tanks and research centres. This support likely influences, even if subtly, the types of research agendas and policy perspectives that gain visibility. By selectively funding projects and publications, private companies encourage work on technical advancements, nuclear modernisation, and deterrence capability, while potentially limiting attention to ethical concerns and humanitarian consequences of such actions. One example is the 2021 article published by the Heritage Foundation outlining the reasons why the U.S. needed Long Range Standoff Weapon (LRSO) and the importance of having robust nuclear deterrence against Russia and China (Geller 2021). Notably, Raytheon, which held the contract for LRSO, was listed among the organisation's significant donors. Although this funding should not be read as evidence of direct causation; the convergence between donor interests and policy proposals offers a useful point of reflection on the broader environment in which such analyses are produced.

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Kjølv Egeland and Benoît Pelopidas (2022) argued that nuclear policy analysis often faces constraints that limit the range of ideas considered. According to them, certain perspectives are promoted not because of their intrinsic merit but because they are backed by actors with significant resources or institutional connections. Analysts working in this field potentially receive funding from donors who have a vested interest in maintaining the existing nuclear order. Think tanks due to their "leading role in framing the terms of political debate" offers a platform to promote such ideas (Silverstein 2014: 5). According to the ICAN 2024 report *At Great Cost: The Companies Building Nuclear Weapons and their Financiers*, around 260 banks, insurance companies, and asset managers, either invested or funded the nuclear weapons producing companies, with a total value of $36.7 billion (Muñoz et al. 2025: 4). Historical data also indicates growing corporate engagement with policy institutions: between 2003 and 2013, corporate share of Brooking's donation went from 7 to 25 percent, while Atlantic Council received funding from 25 different government in 2014 alone (Drezner 2015: 641).

These financial relationships offer benefits to both sides. For companies, supporting respected research centres and think tank provides opportunities to enhance corporate legitimacy. Since many of these companies are involved in "morally questionable practices," including nuclear production, associating themselves with think tanks considered to possess "liberal values" can improve their reputation (Egeland / Pelopidas 2022: 133-134). On the other hand, think tanks receive the funding they need to operate effectively and engage in research programmes. Thus, funding alone does not determine their conclusions, the reliance on external support can subtly shape the institutional environment in which research agendas are set and in which certain policy priorities become more prominent than others.

Case studies: role of private defence contractors in the U.S., U.K. and France[1]

The influence of private defence contractors becomes more visible when examined within specific national contexts. Although all nine nuclear-armed states rely on private industry to sustain their arsenals, the transparency of these relationships varies widely. In countries such as China, Russia, India, and Pakistan, there is limited public information available about funding flows or the role of private contractors within their nuclear enterprises. By contrast, the U.S., U.K. and France maintain relatively more transparency about the role of private defence contractors and their lobbying. These three countries are therefore selected as case studies to examine how industry shapes nuclear policy.

United States

The U.S. maintains around 5,277 nuclear weapons, which it can launch from submarines, aircrafts, and land-based missiles (Sanders-Zakre / Snyder 2025: 32). According to Congressional Budget Office, modernisation of the U.S. nuclear weapons would cost roughly $634 billion between 2021 and 2030 (Congressional Budget Office 2021). Currently, the U.S. possesses the most extensive and technologically advanced nuclear arsenal. Its LGM-30 G Minuteman III ICBM is one leg of the triad, providing a "quick-reacting and highly survivable response capability" (U.S. Department of War n.d.). By 2030, the U.S. aims to introduce Columbia-class SSBN programme and 480 new B61-12 nuclear weapons (Topal 2023: 48). Private defence contractors, including Boeing and General Dynamics, play a key role in designing, manufacturing and maintaining these components of the U.S. nuclear triad as discussed below.

First case study in the U.S.: Boeing

Boeing has long been a central contractor within the U.S. nuclear enterprise, contributing to key delivery systems and dual-use aerospace technologies. It is involved in the production, maintenance, repair, and navigation system for the Trident II (D5) missiles. In 2018 the U.S. Air Force Nuclear Weapons Center at Tinker Air Force Base, Oklahoma contracted Boeing to produce 266 fuse assemblies for the air launched missiles, with a potential value of $29.4 million (Muñoz et al. 2022). The company also signed an indefinite-delivery/indefinite-quantity contract with the U.S. government to produce B61 bomber Tail Assembly (U.S. Department of Defence 2021). In April 2024, Boeing was further awarded a five-year contract of value $559 million to run the U.S. "nuclear missile test facility," at Hill Air Force Base, Utah, including its operation, maintenance, and performance testing (Aerospace Testing International 2024). In July 2025, it contacted by the U.S. Space Force to build two satellites, which will be used for "nuclear weapons coordination to ensure that the U.S. can use its nukes if and when the time comes," with the first satellite expected to be delivered by 2031 (Axios 2025).

Beyond manufacturing, Boeing is actively engaged in lobbying efforts to potentially advance its strategic and commercial interests. In 2023, it spent $17.7 million lobbying in the U.S., and hired

firms, including Shank Public Policy, Ballard Partners, Monument Advocacy, etc. to lobby on its behalf in the U.S. (Sanders-Zakre / Snyder 2024: 31). Boeing also funded think tanks that published work on nuclear weapons, including the Carnegie Endowment for International Peace ($25,000-100,000), the Center for New American Security (CNAS) ($50,000-99,999), the Center for Strategic and International Studies (CSIS) ($100,000-249,999), the Hudson Institute ($50,000-99,999), and the Stimson Center ($10,975) (Sanders-Zakre / Snyder 2024: 31). These lobbying efforts and contributions to think tanks do not imply Boeing has direct influence on the policy outcomes in the U.S. However, they illustrate how these defence contractors potentially position themselves within the discursive and policy conversation surrounding nuclear modernisation to gain economic advantages in the form of defence contracts.

Second case study in the U.S.: General Dynamics

For the past seventy years, General Dynamics has been a key participant in U.S. nuclear weapons systems, focusing on missile guidance, weapons command and control, and communications systems (General Dynamics Mission Systems n.d). In January 2024, it was awarded a $335,071,035 cost-plus-incentive-fee and cost-plus-fixed-fee follow-on contract as the prime integrator for the Trident II Fire Control System (FCS) (General Dynamics Mission Systems 2024). Under this contract, the company will continue to "provide full life cycle and operational support for all deployed Ohio-class ballistic missile submarine" alongside the development, production and installation for all new Columbia-class SSBN FCSs through 2028 (General Dynamics Mission Systems 2024). In June 2025, the company was tasked to modernise the U.S. underwater combat fleet, including the production of Virginia-class nuclear-powered attack submarines and Gerald R. Ford Class nuclear-powered aircraft carriers (Manuel 2025; Reuters 2025).

Apart from manufacturing, General Dynamics spent over $12 million on lobbying in 2023 and funded think tanks that published works on nuclear weapons, including the Centre for New American Security (CNAS) ($25,000-49,999), the Centre for Strategic and International Studies (CSIS) ($100,000-249,999), and the Hudson Institute ($20,000-49,999) (Sanders-Zakre / Snyder 2024: 35). Much like Boeing, this lobbying expenditure and think tank funding does not imply a direct-causation, instead it shows how General Dynamics funds research institutes working on nuclear weapons potentially shaping the discourse.

United Kingdom

The U.K. has approximately 225 nuclear warheads, which can be used from submarine-launched ballistic missiles (Sanders-Zakre / Snyder 2025: 28). Its Defence and Security Industrial Strategy (DSIS), adopted by the Ministry of Defence in 2021, introduced a revised procurement model that replaces the outdated policy of "global competition by default" with a commitment to apply competition "where appropriate" (Williams 2025: 60). At present, HM Naval Base Clyde – home to the U.K.'s Trident programme – functions as the central operating base for the Royal Navy's ballistic missile submarines and is the core of the nation's continuous at-sea deterrent. Its submarine fleet is composed of four nuclear-armed Vanguard-class and five conventionally-armed Astute submarines, all of which are manufactured by BAE Systems in Barrow. Plans are underway to replace the Vanguard Class with four new Dreadnought Class submarines, which feature advanced sensors and electronic systems (Ministry of Defence 2025). For this purpose, the role of BAE Systems and Babcock International is crucial to examine.

First case study in the U.K.: BAE Systems

British Aerospace (BAE), founded in 1999, is a U.K.-based defence company operating in the air, maritime, land and cyber domains. It is the only U.K. producer of nuclear-powered submarines, including the nuclear-armed Dreadnought-class and Astute class submarines (Perlo-Freeman 2024: 9). For Dreadnought programme, the U.K.'s Ministry of Defence (MOD), in May 2022, awarded a contract of over £2 billion to BAE systems together with Rolls-Royce (Muñoz et al. 2025: 33). Likewise, the fifth Astute class submarine, which was designed and built by the BAE systems for Royal Navy also headed to open sea for the first time in 2023 (BAE Systems 2023). In 2018, BAE benefited from the U.K.'s MOD investment of £2.5 billion into developing nuclear submarines (Campaign Against Arms Trade 2025).

Apart from the production of Britain's nuclear weapons, BAE provided between $200,000 and $300,000 to several think tanks working on nuclear weapons issues (ICAN 2024: 26-27). These included Chatham House, Centre for New American Security ($50,000-99,999), Centre for Strategic and International Studies ($50,000-99,999), and the Hudson Institute ($100,000+) (Sanders-Zakre / Snyder 2024: 27). Furthermore, financial institutions in London played a significant role in funding BAE Systems. According to the campaign report *Perilous Profiteering*, Schroders U.K. held "investments worth $125.3 million (£93.97m) in BAE Systems in 2020," supporting the development of "new Dreadnought submarines that will be armed with nuclear missiles" (Briggs 2021). Schroders' chair, Lord Geidt, a former advisor to BAE Systems, was also an advisor to former Prime Minister Boris Johnson.

Emma Cockburn, Scotland coordinator for Campaign Against Arms Trade (CAAT), criticised these investments, stating "the endless billions available for nuclear and arms manufacturers" highlight "the cosy relationship between the arms industry and the U.K. government" (Briggs 2021). Taken together, these activities illustrate how BAE participates not only in technical production but also in activities sustaining such activities. In this regard, the support from financial institutions further strengthens the company's capacity to pursue long-term nuclear programmes.

Second case study in the U.K.: Babcock International

Babcock International has signed a five-year contract with the U.K. MOD worth £3.5 billion for naval base operations, including at HMNB Clyde (Muñoz et al. 2022: 17). In November 2023, it was given a four-year contract of £750 million for the "delivery of infrastructure to support the future capability of the Royal Navy and the U.K.'s Defence Nuclear Enterprise" (Muñoz et al. 2025: 31). The company also completed the life-extension programme for the HMS Vanguard, and under a new £560 million contract (awarded in March 2024), it is working to modernise the second of the Vanguard Class to enable it to continue its operation well into the 2030s (Muñoz et al. 2025: 31). Overall, Babcock International holds at least six outstanding contracts related to the U.K. nuclear arsenal, value of which are reported to be at least $3.9 billion (Sanders-Zakre / Snyder 2024: 25).

Although information on Babcock's lobbying activities and funding of think tanks is not publicly available, its board members include prominent figures such as The Right Honourable Lord

Parker of Minsmere, who is also a Distinguished Fellow of the Royal United Services Institute (RUSI) (Sanders-Zakre / Snyder 2024: 25). This connection suggests that Babcock International may have indirect access to influential policy and strategic debates through think-tank networks, enhancing its visibility and credibility within defence circles. Such positioning can make the company more competitive for major defence programmes, including nuclear modernisation projects, which in turn could support long-term economic gains through substantial contracts.

France

France is reported to have approximately 290 warheads (Kristensen / Korda 2025: 181). It is working to develop a third-generation SSBN and a new air-launched cruise missile (ALCM) – the ASN4G – alongside upgrading existing systems. French M51.3 missile is scheduled for commissioning by the end of 2025 and will carry a TNO-2.67 warhead (Kristensen / Korda 2025: 191). While the French state maintains control over nuclear doctrine and strategic planning, the modernisation and development of these capabilities rely heavily on private defence contractors, including Airbus and Safran. Both companies play a major role in the production, maintenance and upgrading of missiles, and related technologies as explained below.

First case study in France: Airbus

Airbus is the "exclusive provider of ballistic missiles" used in the French nuclear arsenal through its participation in the Ariane Group and MBDA joint ventures (Campaign for Nuclear Disarmament 2021: 1). On August 28, 2025, the Directorate General of Armaments (DGA) commissioned ArianeGroup (in which Airbus has 50% share) to develop and produce the M51.4 strategic ballistic missile (DGA 2025; Safran Group n.d). Its enhanced performance – notably in range, accuracy, and the penetration of opposing defences – is designed to maintain the credibility of French oceanic nuclear arsenal against evolving threats (Ariane Group 2025).

Apart from manufacturing, Airbus spent more than $4.4 million in lobby expenditures in France and the U.S., of which $1.1 million was spent hiring external firms (Sanders-Zakre / Snyder 2024: 23). Not just this, around $250,000–$499,999 were given to Atlantic Council in the name of financial support, and in 2019, the French Institute of International Relations (IFRI) also listed three companies that produce nuclear weapons as corporate partners, including Airbus, Naval Group and MBDA (Sanders-Zakre / Snyder 2021: 23-53). These examples illustrate how financial engagement allows defence companies to remain embedded within both policy networks and influential research environments, potentially shaping the broader context in which nuclear modernisation is discussed and considered.

Second case study in France: Safran Group

With a 50% share of the Ariane Group, Safran is involved in French nuclear weapons production, including the manufacturing of the M51.3 missile (European Commission 2011). The French defence procurement agency DGA also selected Safran Electronics & Defence to build an advance navigation system currently deployed on the Triomphant-class nuclear ballistic missile submarines. Until December 2024, Safran's subsidiary, Safran Ceramics, produced equipment's for all types of tactical and cruise missiles (Muñoz et al. 2025: 73-75).

Apart from manufacturing, Safran spent $520,000 on lobbying, out of which $120,000 was spent hiring external lobbyists in 2023 (Sanders-Zakre / Snyder 2024: 59). Additionally, it provided financial support of around $25,000-49,999 to the Atlantic Council, which has programmes or publications related to nuclear weapons (Sanders-Zakre / Snyder 2024: 59). By contributing to such research and policy institutions, companies like Safran may gain access to policy debates, networks, and platforms where technical and strategic perspectives are discussed.

Taken together, the case studies of the U.S., U.K. and France indicate the role of defence contractors in nuclear weapons production. It further elaborates the probable ways in which these firms remain closely embedded in policy and research networks, i.e. through lobbying and think tank funding. While no direct causation can be established between lobbying expenditures, think tank funding, and specific nuclear-related policy decisions in these countries, the size of the contracts awarded to these companies hints towards the impact such activities have in policymaking circles. Added to this is the problem of limited mechanisms to hold private companies accountable under international law, which mainly imposes obligations on states.

Taken together, the case studies of the U.S., U.K. and France indicate the role of defence contractors in nuclear weapons production. While no direct causation can be established between lobbying expenditures, think tank funding, and specific nuclear-related policy decisions in these countries, the size of the contracts awarded to these companies hints towards the impact such activities have in the policymaking circles.

Research Limitations

The role of private defence companies in the production and modernisation of nuclear enterprise remains an important yet underexplored area of research. Understanding how these companies may shape nuclear policy debates and agendas through mechanisms such as lobbying and think tank funding can provide valuable insights into the broader ecosystem of nuclear governance. Nevertheless, there are several limitations to this research.

A structural limitation of this study is the availability of data from states with less transparent contracting systems, particularly Russia, China, and North Korea. In the liberal-democratic system, open-source regulatory filing allows some degree of scrutiny of the nuclear weapons industry sector. Defence contractors in the U.S., U.K. and France exert influence through lobbying and think tank funding, defence companies in other states may be state-owned or otherwise tightly entrenched with state systems. Thus, there is a dearth of published information about lobbying and think tank funding. Criticism should not be targeted at the private sector per se. Nothing would be gained if the private defence companies that were mentioned in the case studies were nationalised. The military-industrial complex is problematic in all nuclear-weapon states, whether privately organised or state-directed.

Comprehensive documentation is difficult for more reasons, even in democratic countries. Firstly, the study relies heavily on secondary sources, including publicly available reports and statistics, which may not fully capture all corporate activities as many lobbying efforts and funding activities occur through private channels. Moreover, the data gathering due to resource restrictions intentionally only covers a select number industry and leading think tanks, not small actors or less visible channels through which corporate influence might operate.

Secondly, specific information on how funding may contribute to nuclear-related decision-making is not fully transparent. What is typically accessible are only the amounts companies provide to think tanks working in this area, not the impact. It is also for this reason that this article focuses on measuring the measurable, and then drawing attention to the potential influence of private defence companies rather than establishing direct causal links. While patterns of funding and lobbying suggest possible pathways of impact, it is not possible to definitively claim that these activities directly determine policy outcomes because decision making involves multiple actors and complex variables.

Despite these limitations, this research seeks to stimulate further discussion on how the private sector may intersect with nuclear weapons development, modernisation and sustainment processes, and the structural conditions that facilitate their engagement, offering a foundation for further investigation and more detailed empirical studies.

Conclusion

The role of defence contractors in states' nuclear arsenals underscores that modern nuclear arsenals are not merely a matter of national security, but also of economic and political interests. From the production and maintenance of sophisticated delivery systems to lobbying and think tank funding, these companies indirectly influence, in a subtle way, the existing debate on the need for nuclear weapons. The massive purchasing power of these major corporations may stretch beyond indirect influence, instead seeking to shape agendas and oppose critical thinking. This is profoundly asymmetric in the nuclear weapons debate, as no other actors have the same level of resources to deploy. Case studies of the U.S., U.K. and France illustrate how the corporate sector role extends from the factory floor to the corridors of power. It explicates how economic incentives and national security priorities potentially reinforce one another, and how these dynamics erode democratic oversight, as critical debates on disarmament and proliferation are either filtered or suppressed. It means that the evidence-based arguments against nuclear weapons and in support, for example of the Treaty on the Prohibition of Nuclear Weapons, are not engaged in constructively by those who seek to promote their own corporate interests. When this happens, institutions risk becoming performative rather than participatory, and it weakens public trust in state's institutions. Nuclear weapons are designed with the express purpose of delivering catastrophic destruction, threatening civilian populations and urban infrastructures at a scale unmatched by conventional arms leading to decades of harm. Therefore, as corporate and state interests drive nuclear proliferation, modernisation and deny disarmament, it is important to prioritise intergenerational justice. The need is to ensure that today's decisions do not impede the security, environment, and freedoms of future generations, and that we actively work to create a safer, more accountable world for those who come after us.

Endnote

1 Most of the data regarding the six defence companies involved in the U.S., U.K. and France, including their funding of think tanks and lobbying activities, is drawn from the following reports: *Producing Mass Destruction: Private companies and the nuclear weapon industry* (Snyder et al. 2019), *Complicit: 2020 Global Nuclear Weapons Spending* (Muñoz / Snyder 2021), *Risky Returns: Nuclear Weapon Producers and their Financers* (Muñoz et al. 2022), *Surge: 2023 Global Nuclear Weapons Spending* (Sanders-Zakre / Snyder 2024), *Hidden Costs: Nuclear Weapons Spending in 2024* (Sanders-Zakre / Snyder 2025) and *At Great Cost: Nuclear weapon producers and their financiers* (Muñoz et al. 2025).

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