

# Battle Lines

Technology Rivalry  
and the Rise of  
Nationalism

Cover Story



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The world is at the advent of a 4th Industrial Revolution. Advances in artificial intelligence, machine learning, Big Data and the so-called Internet of Things, among other things, promise to upend business models around the world and change the way we live in unimaginable ways. But the re-emergence of nationalism as a potent force in geopolitical rivalry threatens the global spread of this new technological transformation. Asia will be an important battleground in this looming 'technology war.'

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# From Abe to Outer Space, Can Japan's Military Techno-Nationalism Survive?

## By Christopher W. Hughes

**Japan has long used techno-nationalism to enhance its domestic industry, but indigenous military production and development capabilities are also part of the agenda. The post-war period of the Yoshida Doctrine served Japan well in this regard as it maintained domestic capabilities under the US security umbrella.**

**In recent years, as its defense posture has risen, defense-oriented techno-nationalism has risked being captive to the US alliance, even as Japan pursued markets for Japanese-made equipment abroad. To counter this trend and remain relevant, Japan has quietly moved its techno-nationalist aspirations into outer space, writes Christopher W. Hughes.**

JAPAN HAS OFTEN been regarded as the forerunner and indeed the very apogee of techno-nationalism in Asia. In the Meiji, Taishō and Shōwa eras, Japan was the first Asian state to industrialize and rise to great-power status, largely due to national policies encouraging importation, indigenization and wielding modern technologies. In the post-Second World War era, Japan's recovery from total defeat to eventual status as an economic superpower was furthered by a similar national intent to access, develop and master new technologies. In turn, Japan's approach arguably inspired other Asian states to follow a developmental model that focused on the pivotal importance of harnessing national economic policy and technological innovation.

Japanese techno-nationalism, although often viewed in the post-war era as predominantly contributing to a civilian economic agenda, just as crucially did not disappear from shaping national security strategy and military policy. Japan has scored important successes through techno-nationalism to nurture an indigenous defense industry. In this way, Japan's past tradition of "rich nation, strong army" extended from the Meiji into the contemporary period, assisted in part by the US security umbrella under the "Yoshida Doctrine" and enhanced autonomy in a grand strategy.<sup>1</sup>

But despite the central importance and success of Japanese techno-nationalism in the post-war period, in recent years the paradigm has been under serious stress. It has, of course, spawned intense economic competition and copying from other states, however, in the security sphere it is

<sup>1</sup> For the classic formulation of Japanese techno-nationalism in the post-war period, see Richard J. Samuels, *Rich Nation, Strong Army: National Security and the Technological Transformation of Japan* (Ithaca, New York: Cornell University Press, 1994).

<sup>2</sup> Christopher W. Hughes, "The slow death of Japanese techno-nationalism?" *The Journal of Strategic Studies*, vol. 34, no. 3, June 2011, pp. 451-479.

also at risk of declining efficacy from a variety of both internal and external pressures. These range from Japan's own internal resource limitations, self-imposed constraints on the development of military technologies and demands on Japan from its US ally. Japanese policy-makers have fretted for many years over the "slow death" of techno-nationalism, and the impact on national security.<sup>2</sup> The advent of the Donald Trump administration and demands for Japan to "Buy American" in defense equipment have only exacerbated these concerns.

As a consequence, Japan has searched for ways to maintain the centrality of techno-nationalism in its security strategy, and to keep alive its existing model through modifications and new avenues for development. Specifically, the newly emerging strategic doctrine of Prime Minister Abe Shinzō has sought ways to use techno-nationalism for national-security ends, and to exploit new avenues of international collaboration, including the less readily apparent avenue of outer space technologies, to revitalize and sustain the model. The prospects for success of these approaches in keeping Japanese techno-nationalism alive, and in turn facilitating Japanese national security strategy, are explored below.

### TECHNO-NATIONALISM IN THE SECURITY SPHERE

Japan's experience of total defeat in the Pacific War, subsequent economic devastation, loss of independence under the Allied occupation, demilitarization under Article 9 of the "peace constitution" of 1946 and the emergence of the Cold War in East Asia, demonstrated its international vulnerabilities and the need to formulate a new grand strategy. Japanese leaders, in eventually opting for Prime Minister Yoshida Shigeru's pragmatic strategy of emphasizing the rebuilding of domestic economic strength, minimal rear-



3 Eric Heginbotham and Richard J. Samuels, "Japan's Dual Hedge," *Foreign Affairs*, vol. 81, no. 5 (September/October 2002), pp. 110-121.

mament and alignment with the US through the 1951 US-Japan security treaty, to a large extent settled Japan's security conundrum. The subsequent adherence to this "Yoshida Doctrine" throughout the Cold War period, with the eventual creation of a US-Japan alliance relationship, was perceived as continuing to serve effectively Japanese national security interests.

But this strategic bargain with the US did not mean that Japanese leaders committed unconditionally to these security arrangements. Japan continued to seek to maximize national autonomy as far as possible within its domestic and international security constraints, and to hedge against the classic alliance dilemmas of abandonment, but especially entrapment, in this period. The result was Japan engaging in often convoluted hedging tactics, involving: the maintenance of the ban on individual self-defense to curtail risks of embroilment in collective self-defense operations to support the US; general obfuscation of the degree of defensive commitments to the US under bilateral alliance arrangements; and Japan's eschewing the procurement of military capabilities that could be enlisted in the service of the US outside Japan's immediate territorial defense. Japan thus continued to contemplate a "dual hedge" against over-dependence on the US — hedging primarily *within* the US-Japan alliance to limit its commitments and maintain autonomy and thus a degree of leverage over the US; and secondarily, given its relatively constrained military capabilities and range of possible partners outside the US, hedging *against* the alliance by developing potential alternative options to mitigate over-reliance on the US.<sup>3</sup>

Techno-nationalism, in turn, has played an important role in Japan's hedging strategy and the Yoshida Doctrine. In framing the new grand strategy, Japanese policy-makers were conscious in seeking national security largely through eco-

nomic power and diplomacy, but it was still crucial to develop an indigenous defense capability and gradual restoration of military power as guarantors of national autonomy. Japanese policy-makers and industrialists have been intent on maintaining an indigenous defense production base. This should provide for the deterrence needs of the Japan Self Defense Force (JSDF) and be calibrated to provide an "exclusively defense-oriented" posture; provide for a degree of self-sufficiency in defense equipment and the ability to expand procurement in a time of national emergency; benefit national industrial policy through developing dual-use technologies to benefit civilian industry; and enable the development of defense technologies to augment Japan's negotiating leverage in the broader international community, and especially in the context of US-Japan alliance co-operation.

Japan has developed a particular industrial-defense structure: armaments accounting for less than 1 percent of total national industrial production; arms production itself occupying, with the exception of aircraft manufacture, small proportions of key industrial sectors such as vehicles, shipping and communications; and the concentration of arms production within a limited number of large civilian corporations with a small percentage of their sales devoted to this sector. Mitsubishi Heavy Industries, Japan's largest defense contractor, typically secures up to 20 percent of all government contracts, but derives only around 10 percent of its total sales from this activity. Meanwhile, outside MHI and other large contractors, a considerable number of small- and medium-sized enterprises provide components and specialist technologies to the larger systems integrators and are more heavily dependent on defense work. Japan's defense production model was further constrained in that for much of the post-war period its development occurred

4 Christopher W. Hughes, *Japan's Foreign and Security Policy Under the 'Abe Doctrine': New Dynamism or New Dead End?* (New York, Palgrave Macmillan, 2015); Christopher W. Hughes, "Japan's Grand Strategic Shift: From a Yoshida Doctrine to an Abe Doctrine?" in

Ashley J. Tellis, Alison M. Szalwinski and Michael Wills (eds.) *Strategic Asia 2017-18: Power, Ideas and Military Strategy in the Asia-Pacific*, National Bureau of Asian Research, Washington, Seattle, 2017, pp. 72-105.

under the self-imposed bans in 1967 and 1976 on exports of military technology.

Japan's nurturing of an indigenous defense production base nonetheless has had important successes in the post-war era. The civilian conglomerate-led model has created very capable defense R&D and production, with much of the initial cost and technological risk borne by the private sector, and there has been interdiffusion of civilian and military technologies. Japan is able to build advanced armored vehicles, missiles and maritime destroyers, and succeeded in rebuilding its aircraft defense production. Though it should also be acknowledged that Japan has not created this domestic production base through a policy of technological military autarchy. Japan has maintained inward transfers of foreign technology when deemed necessary, and especially through foreign military sales from the US, such as the *Aegis* radar system, as they offer relatively fast and low-risk, if not always low-cost, solutions to JSDF needs. More preferable still has been licensed production of systems such as the F-4J and F-15J fighters and engines, and P-3C patrol aircraft, to learn and absorb new technologies. Japan has also begun to utilize co-production with the US as in the development of the F-2 fighter, and the first tentative steps towards the transfer of military technologies through exemptions made in the arms export ban for bilateral co-operation projects with the US.

#### TECHNO-NATIONALISM UNDER PRESSURE

In the post-Cold War period, Japan's security posture has embarked on a fundamental transformation, marked by venturing into new security contributions in maritime security, multilateral co-operation and UN peacekeeping operations, but most especially in the expansion of US-Japan alliance co-operation, both function-

ally and regionally. Many of the previous anti-militaristic taboos on alliance co-operation have fallen away, including Japan ending the ban on the exercise of collective self-defense in support of the US, specifying more clearly the scope of Japan's military co-operation with the US in a range of scenarios, and acquiring new capabilities for the JSDF to work more seamlessly with the US and reinforce the deterrence posture of the alliance. Hence, the Yoshida Doctrine is now transforming into a new "Abe Doctrine" that commits Japan to move beyond minimalism in its national defense posture into a more full-blown alliance relationship with the US that increasingly edges towards matching that of the US with its other allies and partners.<sup>4</sup>

Japan's attempt to maintain an indigenous defense production base — even if somewhat shifting in nature, direction and continued effectiveness — remains important within this transition to the Abe Doctrine. The Abe administration and its immediate predecessors have clearly viewed maintaining domestic defense production as a key means to hedge within the alliance against abandonment. Japan's objective is to be equipped with technologies to bring to the alliance table to allow for co-development and production of weapons platforms. Projects such as ballistic-missile defense are designed to bind together Japan and the US, not only in defense production but also tactically and strategically. Conversely, the Abe and predecessor administrations have clung to indigenous defense production as a means to retain leverage within the alliance against entrapment by intimating that Japan could develop its own weapons platforms and even go it alone if US alliance deterrence assurances were ultimately to fail. Moreover, the Abe administration has similarly regarded indigenous defense production as useful for hedging against the alliance by opening up avenues for

exploring co-development of systems with other US allies and democratic partners that can either help to cement the US security commitment to the East Asia region or even assist to lessen dependence on the US for security assurances.

But even if techno-nationalism continues to loom large in Japanese strategic calculations, it is not necessarily still an entirely reliable tool of statecraft. Japanese policy-makers have become increasingly aware that the traditional model of defense production is declining in sustainability. The first challenge has been Japan's relatively constrained defense budget since the late 1990s. Despite recent increases of the overall defense budget under Abe, there has been a long-term trend of a declining proportion of the budget available for equipment procurement, meaning limited resources for indigenous development of weapons technologies.

Japanese administrations have looked to address these problems by supporting new *kokusanka* projects such as the P-1 patrol aircraft, C-1 transport aircraft and Advanced Technology Demonstration-X stealth fighter prototype. Nevertheless, Japan's procurement of frontline platforms of main-battle tanks, destroyers and fighter aircraft has continued to decline. Following a series of corruption scandals in the mid-1990s, Japan is further attempting to stretch the defense budget with more efficient systems and competitive tenders for procurement domestically and internationally. In 2015, the government established an Acquisition, Technology and Logistics Agency to integrate and manage procurement more efficiently. Defense producers have also been encouraged to consolidate in order to produce economies of scale, but this has proved difficult given that most manufacturers are geared toward civilian production. The dual-use model cannot easily separate civilian from military production facilities, and thus there is

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little incentive to rationalize businesses to suit defense production prerogatives. The result is that rationalization in the Japanese defense industry has taken the form of producers simply exiting the sector altogether in favor of more profitable civilian products. The proportion of defense equipment procured domestically fell to 76 percent in 2015 compared to 90 percent and above in the previous decade.

#### GETTING LEFT BEHIND

The second challenge is that Japan's techno-nationalist policies risk leaving its defense industry behind in the development of internationally competitive technologies. Japan's emphasis on indigenous technologies has run into increasing reluctance from the US and other states to provide FMS or licensed production of advanced weapons systems. Japan was frustrated by the US's refusal to transfer the full or even a "dumbed-down" version of the F-22 to its ally despite intense lobbying. Japan's highly limited international co-operation to date, especially in terms of co-development and co-production, due to its arms export ban, have thus raised concerns of a "Galapagos effect" as Japan is isolated from

the evolution of international defense production. Hence, as other states forge ahead with consolidation of their defense companies domestically and internationally, and initiating new multi-lateral weapons platforms to share technologies and costs through economies of scale, Japan risks being surpassed technologically, or being over-dependent on its US ally.

Japan's anxieties over the depletion of its defense industrial base have been significantly compounded by the Trump presidency's transactional approach to bilateral alliance ties. Japan already had in train the procurement from the US of a series of highly expensive weapons systems, including the F-35A and *Osprey* V-22, and in reaction to the Trump administration has now committed to increased purchases of US equipment as the quid pro quo for the US contribution to Japan's security. Japan will now procure the *Aegis Ashore* system to complement existing ballistic-missile defense systems, and the revised National Defense Program Guidelines of 2019 announced the acquisition of a further 102 F35A and F35B fighters from the US. The cost of these procurements has been spiraling upwards (*Aegis Ashore*, for instance, is believed to have already doubled in price from original estimates) and the fact that most of the systems are off the shelf rather than licensed production technologies, raises the prospects of Japan's budget for indigenous defense

<sup>5</sup> Christopher W. Hughes, "Japan's emerging arms transfer strategy: diversifying to re-centre on the US-Japan alliance," *The Pacific Review*, 2017, pp. 424-440.

production and its access to cutting-edge technology becoming further squeezed. Indeed, the concern is not only that Japan's techno-nationalism in defense production may become squeezed but could be on the road to extinction due to competition or capture by the US.

#### LOOKING FOR ALTERNATIVES AND EXPORT MARKETS

Japan's primary responses to these challenges has been to preserve indigenous capability through the internationalization of defense production. Although at first seeming paradoxical, Japanese policy-makers have seen international collaboration as a crucial means to nurture and protect domestic techno-nationalism. The Democratic Party of Japan under Prime Minister Yoshioka Noda in 2011 issued a "Statement on Guidelines for Overseas Transfer of Defense Equipment," and argued that Japan, in seeking a more proactive contribution to international security should allow overseas transfers of defense equipment. The Abe administration in 2014 then decisively ended previous bans on the export of weapons technology in favor of the "Three Principles on Transfer of Defense Equipment and Technology." The new principles somewhat return to the original 1967 restrictions by preventing export only to states considered to impede international peace and security, such as those transgressing international treaties or under UN sanctions, but would allow export to those states contributing to international peace or Japan's security such as the US, NATO states and those engaged in UN peacekeeping operations. Japan's first National Security Strategy in 2013 also made it clear that defense equipment and technology co-operation should become "mainstream" in Japan's security activities and part of the "proactive contribution to peace."<sup>5</sup>

Japan's lifting of the ban has now fully opened

the way to explore with partners beyond the US joint development, production and export of weapons technologies. Japan and the UK signed a Defense Equipment Co-operation Framework in 2013 and have been working on plans for joint development of air-to-air missiles and a future combat fighter system. Japan was also rumored to have unsuccessfully pitched sales of its P-1 to the UK. Japan has been exploring similar defense and military technology co-operation with France, Germany and Italy. The country is further engaged in long-running discussions with India for the transfer of Shin Maywa's US-2 search and rescue seaplane currently used by the Maritime Self Defense Force.

Japan's principal political and commercial efforts for the transfer of arms technology, outside the US-Japan alliance, and representing the best opportunity thus far for transferring an entire platform, have been focused on ties with Australia. Japan and Australia, as part of their 'Strategic Partnership' signed in July 2014, concluded an "Agreement Concerning the Transfer of Defense Equipment and Technology." Japan subsequently entered the competition for Australia's tender to replace its six *Collins*-class submarines with up to 12 new boats by 2030. MHI and Kawasaki Shipbuilding Corporation sought, with strong encouragement from the Abe administration, to export their *Sōryū*-class advanced air-independent propulsion submarine technology. Japan's attempt to export submarines ended, though, in failure; in April 2016, the contract went to France's DCNS. Japan's failure resulted from a number of factors, including questions over the appropriateness of the *Sōryū* technology for Australia's defense needs, given that a longer-range vessel may have been required, and the lack of Australian domestic political support for Japan's bid.

Japan's attempt to expand international co-development and exports to sustain its domestic

defense production capability are as yet limited in scope and success. In order to attain greater success Japanese policy-makers and defense contractors will need to gain experience in competing and bidding in international markets, develop an offset strategy, and lose a general wariness to license and share their technologies with international partners.

#### JAPAN'S NEW FRONTIER: OUTER SPACE

There can be no doubt that Japan will continue with international collaboration efforts to maintain a form of domestic techno-nationalism in defense production. But just as importantly, Japan is increasingly set to exploit a second and less overt avenue for techno-nationalism that offers a means to move far beyond the Yoshida Doctrine and achieve the more assertive Abe Doctrine. This new avenue is the exploitation of dual-use technology in outer space.

Japan's space program has generally only attracted attention for its civilian applications, such as in February this year when JAXA, the Japanese space agency, landed the *Hayabusa-2* probe on an asteroid 300 million kilometers from earth. However, Japan's apparently civilian outlook in space disguises the fact that many of its burgeoning space programs also serve technonationalist purposes for national security. Most space technologies are inherently dual-use, and Japan over the last two decades has been consistently, if in relatively low-key and near-covert fashion, invested in an impressive national space security architecture.

The increasingly important position of space in Japan's military planning can be seen through a number of policy measures. The National Diet in 2008 passed a Basic Space Law that enabled the use of outer of space for defensive military purposes. The new law overturned the 1969 Peaceful Purposes Resolution that limited

<sup>6</sup> Paul Kallender and Christopher W. Hughes, "Hiding in plain sight? Japan's militarization of space and challenges to the Yoshida doctrine," *Asian Security*, 2018, <https://doi.org/10.1080/14799855.2018.1439017>

Japan's space activities to non-military uses. Successive versions since 2009 of the Japanese government's Basic Space Plan have openly accepted the need for the use of space for security; and Japan's National Security Strategy noted the connection between space and national security. The 2019 National Defense Program Guidelines went even further and positioned space as a key strategic military domain. The JSDF are now to engage in "cross domain operations" that will enable all three services to move beyond the confines of land, sea and air operations to work together in countering threats in outer space, cyberspace and electronic warfare.

Japan has also begun to build an impressive array of dual-use space systems that support military functions.<sup>6</sup> Starting in the mid-1980s, Japan began developing a civilian space launch capability with the H-II liquid-fueled rocket series, and since the 1990s has extended to the M-series and *Epsilon* solid-fueled rockets for "scientific" launches. Solid-fueled rockets are rarely developed solely for civilian purposes, and the *Epsilon* in particular is considered to be a mobile, launch-on-demand rocket for military payloads such as tactical satellites.

Since the late 1980s, Japan has initiated a program to build and launch a domestic-built information-gathering satellite (IGS) constellation utilizing optical and radar technologies. The government termed the IGS "multipurpose" to justify its introduction, but the satellites were in effect spy satellites. Japan has continued to build other important satellite capabilities to augment its military power. JAXA is creating the Quasi-Zenith Satellite System (QZSS), which can support both civilian navigation and also military targeting in the same way as the US's Global Positioning System. Japan is further developing satellite capabilities that can function for military communications, signal and electronic intel-

ligence, space situational awareness and maritime domain awareness. These last two systems enable the tracking of hazardous objects in space that might be anti-satellite weapons and for tracking military activities at sea.

Japan's military space architecture is further augmented by counterspace technologies that can be used to defend against space-based threats. Japan's co-development with the US of the sea-based ballistic-missile defense system mounted on *Aegis* destroyers and deploying the SM-3 Block 2-A missile is an example of a direct ascent counterspace system. Japan is further believed to be able to deploy satellites to place in the orbit of others for potential anti-satellite missions.

#### CONTINUING LEVERAGE

The principal impulse for Japan's development of techno-nationalist capabilities has once again been to use it as a form of leverage in the context of the US-Japan alliance. Space capabilities have added another means to hedge within the alliance against abandonment by offering their integration with US systems as a way to cement bilateral co-operation. Ballistic-missile defense has long been the centerpiece of this approach. But under the Abe administration, this effort has been stepped up, with Japan and the US convening an annual Comprehensive Dialogue on Space since 2013; and the revised US-Japan Defense Guidelines of 2015 devote an entire section for the first time to bilateral military space co-operation. Specifically, both sides have agreed that Japan would provide its space assets and QZSS systems to substitute for those of the US if they were degraded in a conflict situation. Japan and the US are also committed to two-way SSA and MDA information-sharing. At the same time, Japan has shown some propensity to hedge within the alliance against entrapment by building an indigenous IGS capability that lessens

dependency on the US for sensor intelligence and thus reduces Japan's informational disadvantages in relation to its ally.

Japan's nurturing of indigenous space capabilities also reinforces a degree of defense autonomy to hedge against the alliance if deemed truly necessary. The JSDF, even if the formal defense budget is constrained, benefits from the "hidden" military space budget, and should be given a significant qualitative edge as it moves to utilize space to facilitate cross-domain operations. Moreover, Japan through its development of launch vehicles, re-entry systems, and targeting and sensor systems, has been quietly marshalling the components for an intercontinental ballistic missile capability to support an independent nuclear deterrent, if deemed necessary in the future.

#### THE FUTURE OF JAPAN'S TECHNO-NATIONALISM

The preceding analysis illustrates that the vitality and longevity of Japan's techno-nationalism in national security remains finely balanced. Japan's traditional model of techno-nationalism was well embedded within the Yoshida Doctrine and enabled the development of indigenous technology and defense production, the furtherance of national security ends and hedging bets within and against the alliance. The growing structural defects of the techno-nationalism model, however, have posed challenges to indigenous defense production, and to maintaining leverage within the US-Japan alliance framework, risking the capture of Japan's defense industry and national security strategy by US dominance.

Japan's techno-nationalism still remains important, though, in national-security calculations. The Abe Doctrine has attempted to revitalize the role of techno-nationalism in national security strategy as a way to enhance Japanese leverage within the alliance to evade risks of

entrapment and to solidify expanded alliance co-operation. This is something of a departure from the type of active hedging and obfuscation of military commitments to the US seen in the classic Yoshida Doctrine. In turn, the moves evolving under the Abe administration to preserve techno-nationalism through international collaboration and outer space are principally aimed at boosting the US-Japan alliance. How successful Japan will prove to be in preserving an indigenous defense production capability while offering it up at the same time in the service of the alliance remains unclear. The risk of

simply perpetuating capture and loss of autonomy continue. But it is perhaps in the domain of space — Japan's last true preserve of indigenous military capability — that it might look to rebuild techno-nationalist leverage to help strengthen alliance co-operation but still sustain a degree of security autonomy.

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THE INHABITANTS ON THE RIM OF THE VAST  
PACIFIC OCEAN BARELY KNEW ONE ANOTHER.  
DURING THE 20TH CENTURY THEY MET, SOMETIMES VIOLENTLY.  
BUT WHEN THE HISTORY OF THE 21ST CENTURY IS WRITTEN,**

**IT WILL RECORD THAT THE PEOPLES OF THE PACIFIC RIM CAME TO KNOW ONE ANOTHER AND TO SHARE IN VALUES THAT LED TO A GREATER PEACE AND PROSPERITY THAN THE REGION HAD EVER KNOWN.**  
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