

IRAN'S DEFENSE STRATEGY: THE NAVY, BALLISTIC MISSILES AND CYBERSPACE

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The inauguration of the second Rouhani administration has intensified debate on the Islamic Republic's defense posture and its relations with neighboring countries and the United States. Since the 1979 Islamic Revolution, relations between Tehran and Western powers, led by the United States, have been characterized by mutual suspicion and hostility. Iranian leaders claim that Western powers, particularly the United States, have never accepted the Islamic Revolution. Meanwhile, Washington and its allies have accused Iran of sponsoring terrorism, abusing human rights and meddling in the domestic affairs of its neighbors. The dispute over the nuclear program has dominated the debate for most of the last two decades.

The signing of the nuclear deal (the Joint Comprehensive Plan of Action, JCPOA) in July 2015 was supposed to open a new page in the relations between Iran and Western powers. To be sure, since the agreement went into effect (January 2016), relations between Iran and several

European countries have improved. But very little, if any, change has taken place in relations with Washington. The latest rise in tensions was caused by the election of Donald Trump, who has "put Iran on notice" and has strongly sided with Iran's rivals in the Persian Gulf, while not formally distancing the United States from the JCPOA. In a visit to Saudi Arabia in April 2017, Secretary of Defense James Mattis repeatedly warned against what he described as the malign influence of Iran: "Everywhere you look, if there's trouble in the region, you find Iran."¹ From Iran's perspective, this means that the country continues to be surrounded and threatened by the much more powerful United States and its well-armed Arab allies.

Under the Pahlavi regime, Iran was a major player in the U.S. "twin pillars" strategy, conceived to ensure regional security and stability, managed by America's local allies. Accordingly, Tehran had access to the most advanced American and European weaponry and was involved in many forms of military cooperation with Western

powers. Since the 1979 revolution, however, Tehran has been under sanctions regimes and, unlike its regional rivals, barred from access to advanced Western weapons systems. Despite Iran’s being portrayed as an aggressive regional power and despite being one of the largest and most populous countries in the Middle East, Tehran’s military expenditures, in both absolute and relative terms, have been quite modest and much lower than those of its neighbors.

These stark differences in military spending (and, therefore, capacity) between Iran and its regional adversaries, as well as the heavy U.S. military presence, have left Iranian strategists with few options. Several factors have shaped the Iranians’ efforts to articulate a broad defense strategy: geography, history, lessons learned from recent military conflicts, ideological orientations, and perceived national threats and interests. Geography is a key variable; the Persian Gulf and Strait of Hormuz figure predominantly in the country’s national security and economic prosperity. Almost all of the country’s oil is shipped through these waters; it is also where the U.S. Fifth Fleet is stationed.

Geopolitics is informed by history, and, while many refer to the glorious past of the

Persian empires, others are more conscious of the role that foreign powers (Great Britain, Russia and the United States) have played in shaping Iran’s destiny, often intervening to prevent Iran from reaching its potential as the dominant regional power. Finally, the experiences of the Iran-Iraq War (1980-88), the Kuwait crisis (1990-91), direct U.S. involvement in Afghanistan since 2001 and U.S.-led military intervention in Iraq since 2003 have highlighted the limitations of “traditional” warfare (i.e., one national army fighting another) against a much more powerful and technically superior adversary.

A combination of these factors has prompted Iranian leaders to look beyond classical military planning in pursuit of asymmetrical warfare. The pillars of this strategy include naval forces, ballistic missiles and cyber capabilities. These have their own advantages and disadvantages, of course, but a close examination suggests that a military confrontation with the Islamic Republic would likely be complicated and unpredictable. Any military confrontation with Iran is certain to further destabilize the Middle East and spill over into South Asia as well. An alternative approach would suggest building consen-

TABLE 1. Military Spending: Iran, Israel and Saudi Arabia

Country	Total (in millions, USD)			Per Capita (USD)			Percent of GDP		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
Iran	15,801	14,174	15,882	195	173	192	3.81	3.63	3.85
Israel	20,152	15,400	15,878	2,935	2,298	2,322	7.53	6.18	6.09
Saudi Arabia	80,762	81,853	56,898	2,953	2,949	2,021	10.71	12.67	8.92

Source: International Institute for Strategic Studies, *Military Balance 2017* (Routledge, 2017), 556.

sus on the strategic and economic areas of mutual interest between the United States and Iran and support efforts to reconstruct the security architecture in the Middle East in a manner that would promote confidence building and cooperation among the regional players. The current crisis between Qatar and its Arab neighbors further underscores the need for such an approach. This would appear to be the road not taken.

ASYMMETRICAL WARFARE

War is essentially a struggle between adversaries who employ different forms of hard and soft power to achieve political objectives. There are always some disparities between the two sides. However, when these differences are fundamental, the stronger party has certain advantages and the weaker one has disadvantages. This asymmetry does not mean that the outcome is certain and that the less-advantaged opponent has no options. Indeed, victory does not always go to the militarily superior force. History is full of examples in which the stronger side fails to impose its will on the weaker party. One of the strategic options adopted by less powerful adversaries is recognition of this weaknesses and the adoption of asymmetrical warfare.

The U.S. Department of Defense defines such warfare as “the application of dissimilar strategies, tactics, capabilities, and methods to circumvent or negate an opponent’s strengths while exploiting his weaknesses.”⁷² Ellen Sexton argues that the term “asymmetrical warfare” is typically used “to mean warfare between two forces that are not simply unequal, but that are so significantly different that they cannot make the same sorts of attacks on each other.”⁷³ In their definition, Steven Metz and Douglas V. Johnson II focus on the nature and objectives of asymmetrical

warfare, arguing that asymmetry “is acting, organizing and thinking differently than opponents in order to maximize one’s own advantages, exploit an opponent’s weaknesses, attain the initiative, or gain greater freedom of action. It can entail different methods, technologies, values, organizations, time perspectives, or some combination of these.”⁷⁴ The definitions highlight the disparity between the adversaries and the “unconventional” strategies to overcome it. In asymmetrical warfare, the goal is to weaken the superior party’s political will to keep fighting.

Strategic and operational asymmetries are as old as warfare itself. In recent U.S. military history, the Vietnam War provided clear evidence of these different ways of fighting war. As Henry Kissinger argued, “We fought a military war; our opponents fought a political one. We sought physical attrition; our opponents aimed for our psychological exhaustion.”⁷⁵ The movement away from “traditional warfare” to “asymmetric engagement” has gained momentum in the post-Cold War security environment. In the 1991 war to liberate Kuwait, the U.S. military used its technological superiority and massive firepower to defeat Saddam Hussein’s army in just a few weeks. More or less similar military strategies were implemented in the 2001 war in Afghanistan and the 2003 war in Iraq. But the violent insurgencies that followed these wars have underscored the U.S. vulnerability to asymmetrical warfare. As a result, a growing consensus has emerged: “Future conflicts will require a vastly different set of tactics, equipment, training, and skills than conventional military engagements of the past.”⁷⁶ The National Defense Panel, a senior-level group commissioned by the U.S. Congress in the late 1990s echoed these sentiments: “We can expect those

opposed to our interests to confront us at home and abroad — possibly in both places at once — with asymmetrical responses to our traditional strengths.”⁷

Within this security environment, the United States enjoys key advantages: personnel, training, equipment, information gathering and analysis. Equally important, over time Washington has forged close partnerships and alliances with countries around the globe whose military capabilities — often supported by the United States — further contribute to the U.S. strategy of confronting asymmetrical challenges. On the other hand, there are some risks and vulnerabilities in confronting unconventional warfare. If the main objective of the opponent is to weaken the political will to sustain a long and costly war, maintaining a national consensus supporting military operations is a daunting challenge.

Against this background, and having learned important lessons from recent military conflicts in the Persian Gulf and South Asia, Iranian leaders have articulated an asymmetrical strategy to confront the United States and its allies. The goals include projecting power, deterring a potential attack and, in case of war, making a long and costly confrontation in both human and material resources inevitable.⁸ This asymmetrical strategy is the result of a consensual process that includes all major figures in the Iranian religious, political and security establishment: the Supreme Council for National Security (SCNS). This body is responsible for making defense policy and defining security strategy. All senior military leaders, heads of each branch of government (executive, legislative and judiciary) and several cabinet ministers (including defense, foreign affairs, interior and intelligence) are members of the SCNS.⁹

The Islamic Revolutionary Guard Corps (IRGC, also known as Pasdaran or Sepah) is a leading force in implementing the country’s asymmetrical defense policy.¹⁰ The IRGC was created in May 1979 to defend the Islamic Revolution against internal and external enemies. Since then it has expanded its influence in both the security and policy apparatuses as well as in the economic system. The IRGC is an institution of the state, has its own army, navy and air force, and coordinates policies with militias and political parties overseas, mainly through the Quds Force.¹¹ The Sepah’s role is enshrined in the constitution of the Islamic Republic (Article 150) and is assigned specific but wide-ranging responsibilities. According to the constitution, “The Islamic Revolutionary Guards Corps, organized in the early days of the triumph of the Revolution, is to be maintained so that it may continue in its role of guarding the Revolution and its achievements.”¹² The IRGC is separate from the Artesh (conventional armed forces), but there is a great deal of cooperation and coordination between the two.

NAVAL FORCES

Iran has long coastlines on the Persian Gulf, the Gulf of Oman and the Caspian Sea. Perceiving itself as the dominant regional power, Tehran, under both the Pahlavi and Islamic regimes, has called for the nonintervention of foreign powers in the security of these crucial waterways. In May 2017, Naval Commander Rear Admiral Habibollah Sayyari stated that “only countries of the region may provide security in the Persian Gulf and the Sea of Oman, while the presence of trans-regional states will always create tension and crises in the region.”¹³ This has been official policy for decades.

Oil was discovered in Iran in the early twentieth century, and since then, like many of its neighbors, Iran has grown more dependent on oil revenues as its major source of national income. Almost all its oil exports are shipped to foreign markets via the Persian Gulf. This geopolitical reality has underscored the need to create a strong navy to protect maritime export lanes. The Imperial Iranian Navy (IIN) was established shortly before World War II, but its operations were overshadowed by the much more powerful British navy. At least three developments gave significant momentum to the IIN in the 1970s: the British withdrawal east of Suez, rising oil prices and the shah's close security relationship with Western powers. Shah Reza Pahlavi had the financial resources and few, if any, political constraints, enabling him to realize his ambition of building a strong navy. Iran bought frigates, destroyers, corvettes, patrol craft and other equipment from the United States, Britain, France, Germany and other European countries. The remnants of the shah's IIN survived to form the core of the new Islamic Republic's navy.¹⁴

The Iran-Iraq War represented another major turning point in the reconstruction of Iran's naval forces. In the mid-1980s, Iraq started attacking Iranian oil shipping and maritime infrastructure. Tehran retaliated by laying mines and attacking Iraqi and other Arab countries' commercial vessels in what became known as the "tanker war." The U.S. Navy was drawn in, reflagging and protecting Kuwaiti vessels. This led to a few serious confrontations between the U.S. and Iranian navies in which several Iranian vessels were destroyed. Iranian strategists concluded that, in a classical naval engagement, Tehran would quickly be overwhelmed.¹⁵ The destruction

of the Iraqi armed forces in the 1991 Gulf War further underscored this conclusion.

The military lessons helped Iranian leaders to articulate and develop their asymmetric-warfare doctrine: to capitalize on the atypical assets of surprise, speed, maneuverability, flexibility, adaptability and decentralization of command.¹⁶ This strategy is also known as "passive defense": "Measures taken to reduce the probability of and to minimize the effects of damage caused by hostile action without the intention of taking the initiative."¹⁷ The underlying objective is to manipulate perceived U.S. vulnerabilities and capitalize on geographical advantages. The shallow waters of the Persian Gulf, the narrow channel of the Strait of Hormuz and the presence of numerous small islands restrict the maneuverability of the U.S. Navy and help maximize the advantages of the small Iranian vessels.¹⁸

This strategy has led to the reorganization of the country's naval forces. Iran keeps upgrading, modernizing and readjusting them to meet new challenges and improve their performance. In 2007, the Islamic Republic of Iran Navy (IRIN) and the Islamic Revolutionary Guard Corps Navy (IRGCN) underwent a reorganization that included new base openings, a redivision of duties and a reassignment of responsibilities. This process underscored the specific culture, capabilities, operations and missions of each force. The IRIN was assigned to the Gulf of Oman and the Caspian Sea. It was originally created to be a blue-water force capable of demonstrating the power and prestige of the Pahlavi regime, operating traditional large warships, frigates, corvettes and a small number of submarines designed to carry out extended missions in open water.¹⁹

Most of its original equipment was pur-

chased by the shah from Western countries, so Tehran has had limited access to these sources since 1979 and for a number of years was not able to provide the necessary maintenance and upgrading. These restrictions negatively affected the IRIN's performance during the Iran-Iraq War. To project its capabilities, in the last few years Tehran has extended its reach by dispatching some of its IRIN vessels to the Red and Mediterranean Seas as well as to the Indian and Pacific Oceans. Like other traditional navies, the IRIN has routinely engaged in bilateral exercises with regional and international powers, including the Royal Navy of Oman, the Pakistani Navy and the Kazakh Naval Forces.²⁰ It has increasingly taken the responsibility of combatting piracy close to the Bab al-Mandab; according to Deputy Navy Commander Rear Admiral Peyman Jafari, the IRIN has escorted 2,100 cargo ships and oil tankers since 2008.²¹

By contrast, the IRGCN was given full responsibility for operations in the Persian Gulf. Created in 1983 in the midst of the war as a nontraditional force, it has adopted an asymmetric doctrine. It operates a fleet of small boats (purchased from Italy, China and other countries) that lack the ability to remain at sea for an extended period of time or to be deployed far from the homeland. The force controls batteries of relatively short range, but deadly, anti-ship missiles.

The IRIN and the IRGCN share responsibility in the Strait of Hormuz. Since the naval reorganization in 2007, both navies have engaged in a dynamic acquisition program, maintaining a large inventory of anti-ship cruise missiles, torpedoes, mines and defense equipment. Some of the weaponry have been obtained through foreign acquisitions, and some are domestically produced. While still lagging behind

major industrial countries, Iran's defense industry nevertheless "has made significant strides in equipping its navies and other military services with a broad range of capabilities."²² This means Iran can target any point within the Strait of Hormuz and much of the Persian Gulf and the Gulf of Oman. It seeks to enhance its intelligence capabilities by developing satellites, cybertechnologies and drones. Their main strategic objectives include maintaining strong deterrent measures against potential attacks, defending the coastlines, protecting oil and other commercial shipments, and projecting power.

Located between Oman and Iran and connecting the Persian Gulf with the Gulf of Oman and the Arabian Sea, the Strait of Hormuz is the world's most important chokepoint²³ — of critical economic and strategic importance to Iran, other regional powers and, indeed, the entire world. Almost all oil and natural-gas tankers from the Persian Gulf to global markets must traverse the Strait. The most recent exception is the Abu Dhabi Crude Oil Pipeline (opened in June 2012), which gives the United Arab Emirates a direct link to the Gulf of Oman and from there to global markets.²⁴ However, land pipelines do not provide sufficient alternative export routes.²⁵ Iran might have the capability to temporarily disrupt commercial traffic through the Strait of Hormuz using a combination of submarines, small boats, mines and cruise missiles. However, closing the Strait of Hormuz would cause Iran tremendous economic damage. Thus, this option would be considered only under an attack on the Islamic Republic and could have serious global economic repercussions.

Iran's naval strategy in the Persian Gulf has advantages and disadvantages. Small high-speed boats are difficult to de-

tect and identify, and enjoy a great deal of flexibility and maneuverability. On the other hand, they suffer from major limitations in firepower and endurance. Given these characteristics, they have represented a major challenge (and irritation) to the U.S. Fifth Fleet. On several occasions, they have approached large American ships, bringing the two sides to close confrontation. In order to prevent an unintended escalation, proposals such as establishing a direct hotline between the American and Iranian commanders or agreeing on rules of engagement between the navies have been considered but not approved.

Meanwhile, the Iranians will keep improving their naval capabilities. In the foreseeable future, at least four factors are likely to affect these efforts: (1) Iranian leaders' perception of national threats and interests; (2) U.S. policies and those of its allies; (3) oil prices (higher prices mean more ability to modernize the two navies); and (4) the implementation of the nuclear deal (gradually Tehran is being freed from restrictions on buying weapons). These factors will also shape efforts to modernize and expand the ballistic-missile arsenal.

BALLISTIC MISSILES

In the last several decades, Iran has developed the largest and one of the most diverse missile forces in the Middle East, a "complex and sophisticated response to the nation's unique security challenges."²⁶ The IRGC plays a key role in maintaining and developing its ballistic-missile capability. Iranian leaders have constantly confirmed that the program is solely for defensive purposes and is part of the republic's deterrent strategy. These assurances, however, have done little to allay regional and global powers' concerns. Missile tests are widely publicized by Iranian

media, and since the signing of the JCPOA in July 2015, several ballistic missiles have been test-fired, one in late January 2017 upon President Trump's taking office. The Trump administration responded by officially putting Iran on notice. Michael Flynn, then White House national security adviser, warned that "the days of turning a blind eye to Iran's hostile and belligerent actions toward the United States and the world community are over."²⁷ In response, Brigadier General Amir-Ali Hajizadeh, the commander of the aerospace division of the IRGC, stated, "If the enemy sets a foot wrong, our roaring missiles will fall on them."²⁸ The stage is set for a broadening crisis.

For decades, ballistic missiles have been a crucial element of Tehran's military doctrine. The U.S. Defense Intelligence Agency defined the drivers behind Iran's missile programs as regime survival, making Iran a preeminent regional power, and turning Iran into an economic, scientific and technological powerhouse.²⁹ The main goals that drive the missile programs are:

- To deter potential attacks by the United States or any of its allies
- To protect the Islamic Republic's regional allies (both states and nonstate actors)
- To demonstrate technological and scientific advances both internally and internationally

The roots of Iran's sophisticated program can be traced back to the 1970s, when Iranian military officers worked with their Israeli counterparts to initiate a missile program known as Project Flower.³⁰ Iran supplied the funds and Israel the technology. These early efforts were

aborted following the revolution, but the war shifted attention back to the missile program, particularly in the face of the high attrition rate of Iran's sophisticated air force and its lack of access to parts. With the deterioration of relations with Western powers, Iran's air superiority swiftly diminished, leaving its population centers vulnerable to repeated attacks by Iraqi combat aircraft, artillery and ballistic missiles. Foreign Minister Mohammad Javad Zarif described the dramatic impact of these attacks: "Our people do not forget the fact that they were being bombarded. Everybody was providing assistance to the aggressor."³¹ In response to the Iraqi attacks, Iran purchased Soviet-made Scud-B and Scud-C missiles from Libya, Syria and North Korea,³² and following the war continued to invest heavily in developing its missile program.

Initially, Tehran relied heavily on foreign assistance, particularly from North Korea, Russia and China. But gradually it has developed an impressive indigenous capability. A recent study by the International Institute for Strategic Studies concluded that, although Iran probably remains dependent on foreign suppliers of key components for its liquid-propellant missiles, "it has increasingly focused on missiles fueled by solid propellants and has made significant strides toward self-reliance."³³ A report by the Congressional Research Service echoed a similar conclusion: "Over the past few decades, Iran has progressed from relying entirely on the outright purchase of ballistic missile systems to becoming nearly self-sufficient in important ways."³⁴ Keeping the missile program robust and competitive and developing new systems will require sustained investment and strong political support, which has thus institutionalized the pro-

gram as a pillar of the country's defense posture and a symbol of national prowess.

Iran's defense posture requires a sophisticated and multi-purpose arsenal, including a diverse collection of short- and medium-range, solid- and liquid-fuel missiles, capable of carrying different payloads. The Shahab, Qiam, Fateh, Emad, Ghadr and Sejil missiles, among others, are mass produced and have pride of place in most military parades. Currently, there are no indications that Iran is actively developing intermediate-range ballistic missiles (IRBM) or intercontinental ballistic missiles (ICBM).³⁵ For all their sophistication, Iranian missile systems have been known to suffer from inaccuracy, which would limit the IRGC's ability to hit fixed targets and thus be sure of inflicting maximum damage. To address this problem, Iranian defense engineers and scientists have been given extensive support to improve the targeting capability of the force. This led the Iranian chief of staff, Major General Mohammad Baqeri, to claim that Iran is now capable of producing and deploying missiles that can "land no more than 10 meters away from their targets."³⁶

The stronger and more threatening Iran's missiles appear, the more nervous neighbors and the international community have become, leading to the ballistic missile program's being placed under severe scrutiny. The first category of control includes multilateral scrutiny, including the well-established Missile Technology Control Regime (MTCR),³⁷ which has been augmented by the Hague Code of Conduct (HCOC)³⁸ and the Proliferation Security Initiative.³⁹ In addition, the program has been under restrictions imposed by the UN Security Council, the United States and the European Union. In February 2006, the International Atomic Energy Agency

(IAEA) referred Iran to the Security Council. This laid the ground for a number of resolutions (1696 of 2006, 1737 of 2006, 1747 of 2007, 1803 of 2008 and 1929 of 2010) aimed at freezing Tehran's ballistic missiles. The last one (Resolution 1929 of 2010) specifically stated in Article Nine that the Security Council decided Iran "shall not undertake any activity related to ballistic missiles...and that states shall take all necessary measures to prevent the transfer of technology or technical assistance to Iran."⁴⁰ During the negotiation that led to the signing of the JCPOA, Tehran successfully resisted any restrictions on its missile program. Thus, Resolution 2231 of 2015, which supersedes all previous resolutions, used much softer language (such as "calls upon" instead of "requires"). Given this uncertainty, the Security Council decided in February 2017 that missile testing will be studied at committee level, and President Rouhani asserted that Iran "doesn't need anyone's permission to build missiles."⁴¹

Iran's program has inevitably generated a regional response, mainly from the Gulf Cooperation Council (GCC) states and Israel. While the former have aimed to deploy off-the-shelf U.S.-supplied missile-defense systems, the latter has invested heavily in a sophisticated multilayered system consisting of Arrow, David's Sling and Iron Dome, including an advanced missile counterforce capable of carrying heavy (and nonconventional) payloads to the heart of Iran's urban centers and industrial zones. These components, largely funded by the United States, have achieved different degrees of accuracy. On the other hand, since the early 1990s, Washington has been working with the GCC states to protect their main military and economic installations from potential missile attacks. Some GCC states have purchased and de-

ployed the Patriot Advanced Capability-3 (PAC-3) and the Terminal High Altitude Area Defense (THAAD), one of the most advanced missile-defense systems in the world. However, U.S. efforts to encourage the GCC states to adopt a more coordinated and integrated approach have yielded mixed results, at best.⁴² These countries do not share U.S. threat perceptions and, for some, the deployment of systems such as THAAD is seen as provocative as well as expensive.

Three conclusions can be drawn from the experience of the last few decades. First — despite unstinting efforts — bilateral, multilateral and UN sanctions have not succeeded in stopping Iran's missile program. Export restrictions have made it harder and more expensive to acquire crucial components of ballistic missiles, but Tehran has built sophisticated illicit procurement networks, consolidated its strategic cooperation with a number of suppliers and substantially improved its indigenous capacity. Second, missile-defense systems have their own limitations. True, the United States and its allies have made impressive advances, but it is also true that Iran (along with Russia, China, North Korea and other countries) have heavily invested in enhancing their missile capabilities. One can argue that the race will likely continue, with gaps and limitations on both sides. Third, Iran's ballistic missiles can hit any target in the Middle East, including Israel, the GCC states and U.S. military bases. A close examination of recent conflicts suggests that, while the military utility of missiles is limited, they can nevertheless cause severe trauma by inflicting a heavy price on population centers and threatening major infrastructures. In other words, their leverage is more political than military. This characterization fits well with Teh-

ran's broad asymmetrical doctrine. Despite sanctions and international pressure, Iran — like North Korea — is likely to keep working on advancing its missile program and testing new models.

CYBER CAPABILITY

Cyber warfare is a recent addition to a country's defense "portfolio," differing fundamentally from such military assets as ballistic missiles and other conventional weapons. First, governments do not claim responsibility for cyber attacks; in Iran's case, it does not publicize its cyber-warfare capabilities either, and has not thus far issued a cyber strategy or doctrine.⁴³ Tehran's naval and missile capabilities, on the other hand, are widely publicized by the official media. Second, it is easy to define the source of naval or missile attacks, whereas cyber attacks are usually carried out by individuals or small groups of people, whether independently or sanctioned by governments. This makes it relatively difficult to identify the culprits, let alone the source of such an attack. Third, while over the last few decades national and international strategies have been articulated to deter and respond to naval and missile attacks, as discussed above, in the cyber arena such strategies and norms are still being developed. There is no consensus on how to deter or respond to online attacks, nor can they be easily stopped. Thus, cyber warfare provides Tehran with both defensive and offensive capabilities and cost-effective and hard-to-detect means to control its critics at home and punish adversaries abroad.

Cyber warfare can take different forms: sabotage, espionage and disruption of services. Generally, the United States, Russia and China are considered ahead of other countries, but since the late 2000s,

Iran has invested substantial resources in developing its cyber capabilities. More specifically, it has sought to develop them in response to perceived internal, regional and international threats, particularly on the cultural level. Iranian leaders often speak of Western cultural invasion and efforts to pollute the minds of Iranian youth and spread lies about the regime, so they see the cyber realm as a major theater of such confrontation. Protecting the youth from the appeal of American culture and its "soft power" has been a constant goal since 1979. But the elite has had a closer encounter with the cyber world and seen it in action in the contested 2009 presidential election, which posed a significant threat to domestic stability. The leaders of the Green Movement, Mir-Hossein Mousavi and Mehdi Karroubi, utilizing Internet-based resources, not only mobilized their followers but also directed them into street protests against the regime. This experience has intensified the authorities' efforts to control and monitor online activities and websites. The Basij-e Mostazafin (mobilization of the oppressed), an arm of the IRGC, plays a leading role in these efforts.

The last few decades have also witnessed significant advances in electronic warfare and the use of computer programs to jam adversaries' missile-guided defense systems.⁴⁴ Israel reportedly employed electronic-attack and computer-network-penetration techniques to neutralize Syrian air defenses during the airstrike on the al-Kibar nuclear facility in 2007.⁴⁵ Three years later (December 2011), Iran claimed that it captured a U.S. stealth drone by jamming its command-and-control downlinks and spoofing its GPS.⁴⁶ Although Washington denied the Iranian claims and instead suggested that the drone crashed due to a system malfunction,⁴⁷ speculation that

Iran's cyber-warfare capabilities were responsible for the crash has not gone away.

Cyber warfare is also known to have been waged against Iran's nuclear program, as a report by the U.S. Army's Strategic Studies Institute suggests, describing the discovery of the Stuxnet virus at Iran's nuclear facility at Natanz as "the watershed event that spurred the Islamic Republic to make its cyber capability a priority."⁴⁸ The cyber worm is believed to have been the first use in the world of an offensive cyber weapon to cause physical damage to an industrial facility.⁴⁹ It caused the centrifuges to speed up and slow down erratically, damaging approximately 1,000 machines. Eventually, the Iranians figured out the problem and were able to address it, but not before Stuxnet caused serious disruption in the nuclear program. But Stuxnet was not the only computer virus to infect Iran's networks; other viruses, such as Duqu and Flame, have been discovered since the late 2000s.

In response, in May 2012, Ayatollah Khamenei issued a decree creating the Supreme Council of Cyberspace (SCC),⁵⁰ the significance of which can be gleaned from its membership: representatives of the supreme leader, the president, the speaker of the parliament (Majlis), the head of the judiciary, the director of the Islamic Republic of Iran Broadcasting, the minister of information and communication, the minister of culture and Islamic guidance, the commander of the IRGC, and the national police chief.⁵¹ The creation of the SCC underscores the increasingly prominent role cyber warfare plays in Iran's national security strategy, leading to the creation of a National Information Network (NIN), accessible only from within the country. In separating the country's Internet from the World Wide Web, Tehran hopes to protect

its online infrastructure from cyber attacks by domestic, and foreign, enemies.⁵²

In addition to these protective measures, there have been reports accusing Iran of carrying out cyber attacks in both the Persian Gulf and the United States. The list includes the Saudi state oil company Aramco, the Qatari natural-gas firm Ras-Gas, the Sands casino in Las Vegas, several major U.S. banks, the New York Stock Exchange and the Bowman Avenue Dam in Rye Brook, New York. These attacks are said to have cost the United States and its allies millions of dollars.⁵³ In March 2016, the U.S. Department of Justice indicted seven Iranians for their involvement in cyber attacks. All of them live in Iran, and there are no indications that Tehran will extradite them.⁵⁴

In addition to these national-security drivers, pride is another major reason behind Iran's substantial investment in cyber capabilities. Like the nuclear program, cyber power is seen by Iranian leaders as a symbol of the country's scientific advancement and an effective tool for marketing the country as a regional technological hub and Internet-access leader. Indeed, since the 2010s, the government has succeeded in expanding Internet access to rural villages and increasing Internet speed in urban centers. Despite political restrictions, Iran today has one of the largest numbers of Internet users in the Middle East, and a substantial blogging community.⁵⁵ Inevitably, Iran's growing cyber capabilities have intensified concern in Washington; the 2017 Worldwide Threat Assessment refers to the possibility of cyber attack from such countries as Iran as a real danger. America's "adversaries," the report notes, "are becoming more adept at using cyberspace to threaten our interests and advance their own, and despite improving cyber de-

fenses, nearly all information, communication networks, and systems will be at risk for years.”⁵⁶ Iran, Russia, China and North Korea are listed as the main cyber threats. The emerging consensus is that cyber deterrence should not be restricted to the cyber domain; the United States must be able to respond to cyber attacks by all necessary means, including diplomatic, informational and economic as well as military.⁵⁷

THE WAY FORWARD

With few exceptions, since the revolution, relations between the United States and its Persian Gulf allies, on one side, and Iran, on the other, have been characterized by mutual suspicion and hostility. The conflicts in Iraq, Syria and Yemen today are largely seen as proxy wars between the two sides. Each claims it wants peace and stability, while blaming the other for the escalated regional tension. Since early 2017, the rhetoric has further intensified. In May, Prince Mohammed bin Salman — then Saudi deputy crown prince and minister of defense — threatened to take the fight to Iran: “We are not waiting until there becomes a battle in Saudi Arabia; we will work so that it becomes a battle for them in Iran.”⁵⁸ Brigadier General Hossein Dehqan, Iran’s defense minister, responded with his own threat: “If the Saudis do anything ignorant, we will leave no area untouched except Mecca and Medina.”⁵⁹ Within the context of this persistent tension between Washington and its allies and Tehran, Iranian strategists have intensified their asymmetrical defense strategy to confront adversaries with greater military and financial resources. Naval forces, ballistic missiles and cyber capabilities have arguably given the Iranians certain advantages. These capabilities are relatively cheap to acquire and maintain and have the poten-

tial to inflict a heavy economic and political price on adversaries.

The broad goal is not, we argue, to fight the United States and its regional allies militarily, but rather to weaken the political will to initiate and sustain military operations. While the threat is omnipresent and the Islamic Republic has never shied away from grandstanding, the United States and its regional allies need to take note of Iran’s social dynamism when plotting a more coherent response to the perceived Iranian security threat. First, Iran’s domestic and foreign policies are shaped by both ideological orientation and perceived national interests. The experience with Iran suggests that perceived national interests gradually take hold of the leadership and generally come to shape policies. While regime survival is the core, economic prosperity and power projection also play their part in shaping Iran’s behavior.

Iran’s regional policy is not driven by an attempt to promote its Shiite ideology. As Ali Vaez argues, “As a Persian nation among Arabs and Turks, a Shiite state among Sunnis, there are natural barriers to Iran’s reach.”⁶⁰ Further, evidence suggests that the more enmeshed Iran is in the regional and global systems, the more accommodating and less aggressive it becomes. Indeed Iran has never been totally isolated; despite Western pressure, Tehran has managed to maintain good relations with several of its neighbors and global powers such as China, Russia, India, Japan, South Korea and the European Union. Amazingly, since the implementation of the nuclear deal (January 2016), Iran’s international relations have blossomed; Iran-EU trade has risen by 78 percent compared with 2015.⁶¹ Tehran has also further strengthened its economic and strategic ties with Russia, China, India and

other Asian powers. As we have shown, asymmetrical warfare is an essential part of Iran's strategy of survival, and once perceived in these terms should help lift the barriers to closer economic cooperation.

Signing huge arms deals is likely to bring more strife and instability to the Persian Gulf region and beyond. Ironically, these deals were signed at almost exactly the same moment millions of Iranians were celebrating the outcome of their twelfth presidential election, largely a choice between continuing engagement with the world and relative moderation against a hardline ideological orientation. Instead, we argue that accepting the Islamic Repub-

lic as a major regional power and engaging in a serious dialogue to reconstruct the security landscape by including all parties are more likely to reduce tension and help to address areas of mutual interest such as the stability of energy markets and the war on terrorism. The resurfacing of tension between Qatar, on one side, and Saudi Arabia, the UAE, Bahrain and Egypt, on the other, further underscores the need for an inclusive security approach and a deeper understanding of the economic and strategic challenges facing the region. The way to overcome these challenges is more engagement and cooperation, not military confrontation.

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