A NATIONAL SECURITY STRATEGY FOR ROMANIA AND THE PORCUPINE DEFENSE

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The purpose of this paper is to argue for a Porcupine Defense in Southeastern Europe in the context of Romania's new National Security Strategy. Romanian President Klaus Iohannis has already signed an over-arching strategy that calls for integrating more closely with the United States, NATO and the European Union in the context of dealing with Russia as the more proximate neighbor but not neglecting China and other potential threats including non-kinetic and natural catastrophes such as Covid-19. Furthermore, the Ministry of Defense is finalizing its first Strategic Defense Review (SDR).

This paper has three parts. The first lays out the propositions which should serve as foundations for both strategy and the reasons why a Porcupine Defense is needed. The second is to describe in detail what forms the Porcupine Strategy in terms of forces, kinetic and non-kinetic capabilities, technologies and systems and concepts of operations. The third posits a scenario to test and evaluate Porcupine Defense.

These are the main foundations for a Porcupine Defense:

➢ First, the national security environment has been transformed by a combination of globalization and the diffusion of power. One consequence has been the demise of the state-centric Westphalian order in place since 1648 as power has diffused to many state and non-state actors. During the Cold War, national security was largely governed by thermonuclear deterrence and the shorthand term MAD for Mutual Assured Destruction. That MAD has been replaced by a new MAD—Massive Attacks of Disruption that should be a centerpiece of any national security strategy. Covid-19 is the messenger of the new MAD. Others will follow, whether environmental catastrophes or massive cyber-attacks against critical national infrastructure.

➢ Second, national security strategy must be directed at protecting the public from dangers and threats, whether disruptive acts of man or nature, and deter, contain, defend and engage potential adversaries across a broad spectrum in which military force alone cannot achieve needed levels of security, yet must still remain credible.

➢ Third, strategy must move from a largely 20th century industrial model for security to a 21st century information and digitalized foundation, realizing two of the greatest strategic weaknesses are the absence of sufficient knowledge and understanding of changing conditions at home, regionally and globally and an effective and responsive whole of government decision-making process at home that may have to operate at the speed of light in an information age.

➢ Fourth, keeping in mind Russia's aggressive posture, Moscow should not be made an enemy simply because it is seen by the United States as a near peer competitor. As noted in the Westphalia II model, disruption may be a greater enemy.

➢ Fifth, lower cost, highly effective technologies for the 21st century information and digital age are available and obtainable, given the high level of Romanian human capital, particularly in the IT and aviation sectors.

➢ Finally, resources, meaning people and money, are not infinite. The economic impact of COVID-19 will be felt for much of the rest of this decade. Hence, defense spending is very likely to be affected. That provides two opportunities. The first is to reshape along the lines of an affordable yet effective defense. The second is using part of that spending to retool, re-invigorate and redirect Romania's defense industrial base to cutting-edge technologies that can have dual relevance to commercial as well as military markets.

Strategic and defense reviews such as those conducted in America tend to be aspirational and driven more by budget, technology, and programs then by strategy. The proposed recommendations call for a 21st century information age-based strategy as the foundation for national security and lead specifically to continuing deterrence based on a Porcupine Defense in Europe; and a Mobile Maritime Line of Defense in the Pacific; a tailored capability for limited interventions when necessary elsewhere; and a stronger appreciation for other potential non-military disruptions.

Also attached is a summary of a "Brains Based Approach to Strategic Thinking," a longer version of which was presented several years ago at the RUSI Land Warfare Conference, and which provides an intellectual construct for the Porcupine Defense. The aim is to affect, influence and even control the will and potential of adversaries in the simplest terms of stopping those actions that are detrimental to our interests and/or taking actions that are in line with our interests.

As Sun Tzu argued, defeating an enemy's strategy short of war is by far the best outcome. That is the key purpose of the Porcupine Defense.

The main conclusions are that we are now in a global environment described below called Westphalia II; that the major dangers include a different form of MAD—Massive Attacks of Disruption—in which states such as Russia and China are employing disruption as major tools, and vulnerabilities to cyber, pandemics and other transnational threats are assuming more importance in protecting and defending the nation.

In constructing a strategy, the major flaws of the last U.S. national security review must be avoided namely its largely aspirational, descriptive and often ill-defined strategic aims. Specifically, the U.S. National Defense Strategy called for "strategic competition" with near peer competitors in which the U.S. military must deter China and Russia (and North Korea and Iran) and if war comes defeat that adversary.

Unfortunately, America has not fully defined what competing, deterring and defeating mean. From what are China and Russia to be deterred: war; Belt and Road; militarizing islets in the China Seas; "active measures;" or incursions into neighbors such as Taiwan, Georgia, Ukraine and more indirectly into Moldova, Serbia and possibly Bulgaria? Further, how to defeat both in war is likewise undefined, as is the role of NATO allies other than in honoring Article 5 despite President Donald Trump's occasional questioning of that commitment. And weapons systems are not always evaluated for how they contribute to any strategy.

The starting point for any analysis is a crisp and clear definition of what national security means; establishing which components are vital, necessary or discretionary; how strategic, military, diplomatic, economic, financial, social, cyber, climate change, demographics; space, AI and other technologies, as well as education, are integrated; and outline the minimal levels of capability and objectives for each of the agencies of government that have national security responsibilities in this disruptive Westphalian II world.

Further, an assessment of the national decision-making structure is essential to ensure an effective, whole of government approach is in place and the resources are used most effectively and efficiently.

Finally, challenge and "red team" ruthlessly the assumptions that underpin the recommendations for any national security strategy. No strategy or policy can overcome mistaken or erroneous assumptions as any structure cannot long survive atop a flawed or faulty foundation.

Geostrategic, Political, Economic, Military, Social, Environmental, Technological and Disruptive Challenges of Westphalia II

First, a new era of international politics is upon us. I call this Westphalia II. From 1648 and the Treaty of Westphalia, until 1991, international politics was dominated by states and state-centric interactions. The combination of the implosion of the Soviet Union and the effects and consequences of the diffusion of power and globalization have eroded and diminished the Westphalian state-dominated system. One effect has been to raise the strategic imperative of preventing and containing disruption in assuring national security.

Individuals and non-state actors became empowered at the expense of traditional states. Osama bin Laden, al Qaeda, the Islamic State as well as large numbers of other organizations including well-known hackers illustrated this empowerment and the disruption that could be brought to bear for ill or for good. September 11th catalyzed this "new" disruptive threat, and the war on terror began as the Westphalian System seemed to break down under these attacks.

But China and Russia were not dormant. China's economy grew to the second largest in the world, and an engine and source for international growth. Meanwhile, China was building a modern military as well as leading in many technologies that will change the 21st century.
Under Vladimir Putin, Russia re-established itself as a major power through actions and foreign policies that were clever, exploitive, and made best use of minimal resources. The annexation of Crimea in 2014 marked a turning point as Western insistence on the rule of law and respect for national borders was directly challenged. And Russia modernized its military, linking its conventional forces with so-called "information and hybrid war", with the power to disrupt.

The result has been an end to the old state-centric Westphalian system, with several profound exceptions. Irrespective of size or power, many states and transnational dangers now have the power to disrupt. Afghanistan, Iran, India, Iraq, Israel, Lebanon, Libya, North Korea, Pakistan, Saudi Arabia, Syria, Turkey and Ukraine have become more important in international politics, entangled in the still undefined "competition" and rivalries between and among the United States and China and Russia. And each is a possible "flash point" for conflict or crisis, with the potential to disrupt much of the international order.

In Westphalia II, interdependence links virtually every state and not merely at the speed of light. Trade, finance, media, disease, and social interactions have almost ubiquitous access to most societies, even relatively closed ones such as China and Saudi Arabia. This means any successful national security strategy must incorporate these global interactions with dangers and challenges that produce mutually assured disruption, the latter graphically underscored by the spread of Covid-19. Among this assessment, cyber and climate change could be the next Covid-19 and require collective, not just individual action, if the positive aspects of interdependence are to be maintained.

National Security and Defense: First and most importantly, national security must rest on as complete knowledge and understanding as is humanly possible to obtain of the national security environments and circumstances. The U.S. failed in that regard in Vietnam and then in Afghanistan and Iraq in 2003. Knowledge and understanding of Russia likewise has often been distorted by undue analytical emphasis on potential military threats. As a result, one of the most disruptive dangers for Russia and China - - political internal implosions - - has been overlooked. Neither is the USSR. But both have major issues and problems.

China has many such problems. A shadow banking system; excessive real estate; an underclass of almost half a billion; and a history of peasant revolts and revolutions. Russia too has huge demographic, succession, social and economic problems we often ignore.

Regarding Russia, Putin has no intention of invading the West. The Russian order of battle is concentrated in the Southwest in which the Black Sea is strategically more important than the Baltics. Further, if the Russian army were to move west, it would have to do so by invading and marching through Belarus, Ukraine and Moldova first or Finland, Sweden and Norway in the North.

Soviet and Russian strategic doctrine has never separated nuclear from conventional weapons. During the Cold War, its war plans called for early use of nuclear weapons. The probability is high that this thinking has not changed.

China's "Belt and Road" and Russian "active measures" present far greater challenges than a possible military confrontation in the various Chinese coastal seas, Taiwan or in the Baltics. China is betting its future economic growth on "Belt and Road" to provide access to resources and most importantly to larger markets for Chinese goods and services. But spending potentially trillions of renminbi on Belt and Road means less money for domestic improvements, particularly to raise standards of living for hundreds of millions of Chinese and modernize infrastructure, already grounds for discontent and criticism at home.

Russian "active measures" are aimed to disrupt and extend beyond propaganda, cyber, mis- and disinformation and interference in the domestic affairs of other states. Putin has made Russia far more influential abroad. The interventions in Syria and Libya; improved relations with Israel and Saudi Arabia; sales of S-400 missiles to Turkey; Nordstream II to make Europe more dependent on Russian energy; and efforts to break NATO's cohesion present more immediate challenges and tests than does its military, a military that is far smaller than that possessed by the entirety of NATO.

History offers a lesson in thinking about Westphalia II. In Vietnam, Afghanistan and the second Iraq War, the United States had air, sea and land dominance. Initially in Vietnam, Afghanistan and Iraq after 2003, the enemy had no army, navy or air force. Yet, the U.S. and its allies could not "win."

What is needed is an "unconventional" approach to countering Russia (and China) to reverse the cost exchange ratio in our favor, strategically and militarily, and to protect and defend against disruptive events. And unlike Anti-Access, Area Denial (A2AD) strategies, Porcupine Defense entails imposing damage and costs against an attacker and not merely defending against an attack.

Towards a National Security and Defence Policy and Strategy: The primary task of a national security strategy is protection of the nation through the ability and will to deter, contain, defend and engage potential adversaries and to address non-military dangers across all of government in which force alone is not the sole solution.

Defending means having a credible, ready, and capable force no matter its size. While this could lead to a significant change in force structure, the assessment and examination of a Porcupine Defense in Europe (and a Mobile Maritime Defense in the Pacific with the aim to contain China to the first island chain) to make any initial attack so costly that deterrence is reinforced should be undertaken. Given obvious resource constraints, Romania must focus on Europe but be aware of Asia in terms of new partnerships rather than on military solutions alone.

Both Porcupine and Maritime Defenses are predicated on finishing the transformation of a largely 20th century industrial base military to a 21st century information-based structure. One reason is to outflank Russian (and Chinese) "conventional" and industrial based capabilities with unmanned systems; long range

strike; electronic and information warfare; standoff weapons; deception; decoys; diesel submarines; and other pain-imposing capabilities to blunt any potential attack, reversing the cost exchange ratio to our favor.

In the UK, the amalgamation of 77 and ISR Brigade and the creation of Strategic Command are important steps in moving to a 21st century information-based strategy. The Romanian MoD should be examining that construct. To that end, a "strategic innovation command" reporting to the Minister of Defense through the Chief of Defense might be created to experiment with new concepts and using current systems in new ways in table top and computer war games and then with small units in the field. The intent here is to use experimentation as the means of moving to somewhat different force on a timeline, to ensure continuity.
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Finally, engagement is vital. NATO and the EU are strategic tools for engaging Russia on confidence building measures, arms control and means to reduce unwanted or accidental interactions between militaries. Officer exchanges should not be discounted, but probably at war colleges or staffs that de-conflict zones where both sides are operating military forces (If China is to be contained or deterred, the West has no alternative except to rely on friends and allies. Already, many Asian states whose trade with China is far larger than with the U.S. are turning to China and away from America and America First policies. That in turn will require a new or altered system of alliances, responsibilities, and divisions of labor among the United States and its global partners if contain, deter, defend and engage are to work).

Obviously, militaries must be prepared to fight. However, setting Russia and China as "enemies" that dominate planning risks becoming a self-fulfilling prophecy. Further, regarding NATO, the aim of spending 2% of GDP on defense is not as important as stated by Washington and Brussels. The central issue is ensuring spending is done smartly and actually enhances the Alliance's as opposed to individual member's military capacity and capability.

Moving to a Porcupine Defense can achieve these aims, and at a lower cost to national treasuries. Greater emphasis must be placed on less expensive technologies in a "high-low mix" construct where Romania and others can focus on the lower end and the U.S. the upper. In parallel, the implications for space, cyber, AI, machine learning, gnome, quantum and other potential game changing technologies must be part of this review.

What Else Is Needed and What Else Must Be Done*:* For Romania, as the National Security Strategy is completed and the Strategic Defense Review is in its final stages, another effort is unnecessary. However,

both the strategy and SDR need to be executed. That permits examining different options for achieving those objectives. This is what is needed. And in developing alternative strategic options, each must be ruthlessly challenged and "red-teamed". This assessment, including costs and benefits, is essential. Here are three possible national security options:

Option 1 is more of the same but more efficiently and effectively organized. This means marginal change. But it is least disruptive. The downside is that this model is unlikely to be affordable for the long term and may have less value and utility vis a vis the Westphalia II world.

Option 2 emphasizes the "contain and engage" aspects of the strategy, relegating "defend" more to nuclear deterrence assured by the U.S., UK and France, with less emphasis on military force and more on the non-kinetic means to assure security relying on a whole of government strategy to deal with disruption. This option is likely to be less resource-demanding at the cost of military capability.

Option 3 is the Porcupine Defense in moving towards a 21st century information age force and force structure. In essence this option will yield a more agile and deployable military force along with enhanced capacity for dealing with adversarial political, i.e. "active measures" and non-kinetic threats as well as transnational disruptions from cyber, climate change, forced migration and other challenges of the Westphalian II world in order to protect the public and to deter, contain, engage and defend potential adversaries.

Given the critical importance of knowledge and understanding, a stem to stern review of how people serving in government and in civil society are educated on national security is vital. The most formidable weapon any state has is the space between the ears of its people. The mind and intelligence are far more important in protecting national security than any single weapon.

While the military has a formal educational system, the same is not true of other branches of government. And military education should be evaluated to determine how well not only the foundations for sound strategic thinking and analysis are laid but also how continuous pursuit of knowledge, learning and understanding is inculcated. Similar approaches are needed in all the relevant ministries.

Public education remains vital. The better a public understands its government and its policies, the safer the nation will be. Perhaps less glamorous than studying military campaigns and history, this must be part of any national security strategy. In the 21st century information age, messaging and optics may be as important as traditional reliance on armies, navies, air forces and police. This should not be forgotten.

Last, innovation, invention and imagination are crucial. As ascribed to Churchill, 'now that we have run out of money, we must engage our brains.' Melding this into any strategy is difficult. Yet in the world of Westphalia II, when more knowledge is being created on a rapid basis than existed throughout history, brains and intellect will reign. In sum, the best defense is a smarter defense. Money, no matter how important, need not be the only vital ingredient. And as noted in the attachment, the aim of strategy must be to affect, influence and control the will and perception of friends, allies, non-committed and potential adversaries.

And a strong and convincing narrative and indeed "lobbying" operations are vital to gain political, public and allied support and to signal to Moscow that Romania is indeed too formidable an adversary, despite its size, for any type of outside interference, influence operations or actual intervention.

The Porcupine Defense: The geostrategic and political purpose of the Porcupine Defense is to demonstrate to Russia that any form of interference will not only be countered. The cost will be so great as to discourage and therefore deter hostile acts by Moscow against Romanian interests and of course NATO's and the EU's.

The military purpose is to disrupt any initial Russian military attack by targeting command and control, logistics lines and other weaknesses with kinetic and non-kinetic systems; threatening Crimean bases with long range missiles; neutralizing the Black Sea fleet; and supported by rapidly deployable forces from NATO. The intent is to impose such costs as to discourage aggression in the first place. Further, these capabilities are exportable to other states and through arms sales.

According to the IISS, this is the status of Romania's military: The Romanian armed forces consist of just under 70,000 personnel with 35,800 in the Land Forces; 10,700 in the Air Force; 6,600 in the Navy; and about 17,000 in other assignments. The military served with great distinction and gallantry in Afghanistan and Iraq where an extraordinarily close bond was fashioned with the U.S. and U.K. militaries. Further, Romania's senior military leadership are very well educated at war colleges with many possessing PhD's.

The MoD began a three-stage restructuring in 2015. The first two stages were to reach compatibility with NATO forces, which was achieved in 2017. The third stage is to modernize further by replacing its MiG 21's; acquire modern combat helicopters; Patriot air defense systems and the HIMARs rocket artillery. Plans to acquire four corvettes and to modernize its frigates have been delayed by legal protests currently

in the court. Romania also has set aside $10 billion in procurement funds for modernizing its military capabilities over the next four years.

A first consideration for the Porcupine Defense is geography. Romania shares no borders with Russia. If an attack were to come, aside from the obvious one of from the air with aircraft or missiles, it would have to be mounted through Ukraine, Moldova or by sea. Of course, partisan or indirect attack from Transnistria/Moldova and Serbia is possible. While neighboring Bulgaria and Hungary are NATO allies, in the future, both could be leaning closer to Russia. The scenario of a "land grab" of Ukraine's Serpent or Snake Island about twenty miles off the eastern mouth of the Danube follows as a test case of the Porcupine Defense.

The possible routes of military ingress to Romania from the North and northeast borders with Moldova and Ukraine are well known. If Russia were to invade Ukraine, by the time its forces made their way to the western border, if they did, they would have been greatly attrited. In any event, it would not be a campaign that would be completed overnight. So Romania and presumably NATO would have advance warning and enough time to deploy Porcupine Defense. And if Russia were to use a sea route, it would be to blockade and seal off Romania's access to the sea.

To deal with the Black Sea first, Constanta should become a version of Kaliningrad/Koenigsberg, with the capacity for an active defense to impose real costs and damage to deter attack. With Aegis Ashore and the M-K airbase as well as NATO's multi-national headquarters nearby, Constanta would be used for stationing cruise missiles as well as an array of electronic warfare systems. This calls for a land-based cruise missile coastal defense capacity. To complicate a potential attack and targeting, a number of highly protected bunkers and locales from which to move these missiles would be constructed giving a mobile capacity.

The naval coastal defense capability would be expanded with the stationing of Stealth missile boats and at least two submarines along with the equivalent of Captor mines and other anti-ship weapons in Constanta and nearby giving Romania a powerful offensive threat.

The ground forces would be equipped with systems to disrupt, delay and achieve mission kills rather than wholesale destruction of the Russian ground and air forces. Despite the addition of Patriot (and Aegis Ashore), Russia would dominate the air. Hence dispersion is vital. In dispersing forces however, each unit from the battalion down should have combat systems that form the quills of the porcupine and highly sharpened.

For example, consider a company or battalion sized force equipped with thousands of inexpensive drones; long range missiles; upgraded Stinger and Javelin missiles; new electronic and information warfare systems for deception, mis- and dis-information; lighter than air and aerostats as well as Low Earth Orbiters for reconnaissance and C3I; and IED's with 20,000 pound of explosive to block potential points of advance on the ground.

In this case, drones would form the main battery designed to attack command and control and logistical choke points. Inexpensive and autonomous, "Swarm" attacks would confound and confuse any attacker. For those who doubt this capacity, the 2018 PyeongChang Winter Olympics featured some 5000 drones intricately maneuvering in mass formations to produce an extraordinary sound and light show.

Deception would be crucial. During World War II, General George Patton commanded the fictitious First U.S. Army Group (FUSAG) armed with rubber and papermache aircraft, tanks and field artillery, all designed to convince Hitler that the invasion would come at the Pas d'Calais and not Normandy. Deception in all domains is vital, especially cyber and electronic. In that regard, new vulnerabilities exist as many soldiers will carry cell phones despite orders to the contrary.

As the Russians showed in Donbass, cell phones can kill. One senior Ukrainian army officer posed a serious threat to Russian forces. Russian intelligence sent a doctored text to the officer's mother asking her to call him immediately. He did. The Russians pinpointed his location and with an artillery strike killed the officer. The information age is now central to warfare.

Deploying in large unmarked trailers or vans, five or ten tons of high explosives as super destructive IED's to destroy logistics routes is an effective and inexpensive technology. The aim is to disrupt and thereby delay or confound an attack. Soldiers are dependent on resupply not only of ammunition and reinforcements. In terms of weight requirements, water and batteries to power all the electronics equipment are considerable. This is not World War II.

Upgraded anti-air Stinger and anti-vehicle Javelin missiles likewise would be formidable defenses. While the Russians are dependent on heavy artillery and fire support, dispersion and the use of drones and deception would harass and complicate the targeting problems as they can operate well behind the forward edge of the battlefield (FEBA) leaving the leading elements vulnerable to man portable missiles. And as the U.S. learned in Vietnam (and Somalia) and the Soviets in Afghanistan, helicopters are not bullet proof.

AI would be vital in providing unit commanders near instantaneous operational options. Obviously, command, control and communications would be attacked. So, local jam proof internet would be part of the kit. And as satellite communications too are vulnerable, procurement of low-cost Low Earth Orbiter satellites (LEO) that could be launched in crisis would be needed. That said, Romania also must maintain a capability for intervention for up to three battalions to include not only its coasts and borders but the Danube.

Romania needs the capability to threaten Crimea and to contain the Black Sea fleet. 400-mile range cruise missiles that can be fired from air, surface, land or submerged platforms need not be expensive. As "low fliers" operating tens of feet above the surface even at sub sonic speeds detection is difficult especially if jamming and "window" —- that is radar blocking metal strips dropped or fired into the air—are used.

For the Navy, that would mean building diesel air independent propulsion submarines along the lines of the German 209. It has the domestic capability to do that. Four would suffice meaning at least one and possibly two can be kept at sea, armed with cruise missiles. The Navy should also (build) or acquire modernized Stealth missile boats such as China's Type-22 and Sweden's Visby class. The procurement of sea mines such as the Captor Mk-46 torpedo likewise will present a major threat to the Russia fleet. In combination with fixed and towed sonar arrays that at least can threaten Russian submarines with the risk of detection are not expensive.

To complement surveillance and command and control, three systems can be constructed in Romania. The first is the aerostat or "blimp," that is a lighter than air system. Romania deployed these in Afghanistan. Current Romanian law would need to be modified as at present, aerostats are considered to be a potential means to intrude on or surveil civilians. But that can change.

Second, long range radars can be mounted on these aerostats that can look deeply into the Black Sea for example. And third, ground based Over the Horizon (OTH) radars likewise complement surveillance even though fixed land-based sites are readily targetable.

Instead of buying more F-16's, the Air Force ought to investigate acquiring probably at very low cost, A-10 Thunderbolts. Given that the U.S. has an abundance of these aircraft, in mothballs that would be the source. And A-10's are ideal in the anti-ground attack role because of their survivability against anti-aircraft fire.

As the ground forces would be reconfigured for the Porcupine Defense, a vital complement is using the Reserves as the base for an insurgency force and home guard. This force would be prepared to wage guerrilla warfare against an advancing force to harass, disrupt and confuse. During World War II, in some cases resistance forces were effective. In Vietnam, the insurgents were very effective in imposing casualties and forcing the U.S. to spend an inordinate amount of time and resources in largely wasteful and counter-productive "search and destroy missions."

Surely this force would be a powerful reminder of the Soviet experience with the Mujahideen in Afghanistan. And along with the Reserves, it could be oriented towards Moldova and in the West Serbia in the event either or both were used for "active measures" and hybrid warfare including the presence of mercenaries in Moscow's equivalent of Blackwater—the Wagner Group.

This force along with Reserves would have a secondary task of dealing with disruptive crises from environmental catastrophes of weather or floods; pandemics; and other dangers.

The sum and substance of these technologies and concepts form the heart of a Porcupine Defense. What might this mean for the Romanian defense industrial base?

Romania has a highly educated population in technical, scientific, information and aircraft sectors. The Ministers of Defense and the Economy had agreed in 2019 to allocate a substantial amount of Euros in the hundreds of millions to incentivize and stimulate the defense industrial base to modernize as part of a 21st century defense information-based infrastructure. This effort fulfills Article 3 of the Washington Treaty, calling for nations to provide for their own defense.

At least four areas should be priorities. First, focus on drones, longer range missiles and associated command and control to include LEO satellites and aerostats. As of now, the largest manufacturer of drones is China's DFI that sells to the commercial market. The technology is readily available. Several weeks ago, in the countryside, I observed a four-year-old drone with a battery life of about one hour respond to hand and voice commands as well as having its own terrain avoidance system. The cost was about 130 Euros. And it was old technology.

Several modular types of drones are needed divided into longer (2-3 hour duration flights) and shorter (1 hour) and to be configured for attack, reconnaissance and command and control, deception, and resupply. Possibly constructing smaller versions of Predator and Reaper that can remain airborne for up to twelve

hours can be investigated. Aerostats can fill those missions at distance to reduce vulnerability and are easily manufactured. Their physical shape and large surface areas are ideal for mounting radar and other sensor arrays.

A naval version could also be designed for ASW and anti-ship warfare. During WW II no ship escorted by a blimp was sunk by a U-boat. And the drone industry obviously has commercial viability both for delivery and doing basic chores in and out of the home.

Construction of longer-range cruise missiles, LEO launch systems and aerostats are complements to Romania's aviation industry, one of the world's oldest. As Space-X and other commercial ventures have shown, launch vehicles need not be expensive and can even reusable. Here joint ventures may make sense to exploit Romanian human capital.

Second, emphasis must be placed on information-denying, deception and decoy, jamming, mis- and disinformation systems. Romania has a good technical base for this sort of work. Given the number of computer war games that are in the marketplace, the technology is real. Counters to "deep fakes" and other active measures including hacking and theft would be part of this initiative.

Third, construction of submarines and Stealth missile boats will take advantage of Romanian ship building capacity.

Finally, Romania must become self-sufficient in producing its gun powder for its ammunition. Dependence on Serbia is not a wise choice.

As much as possible, these technologies would have dual use and certainly export potential as part of a Porcupine Defense. Asian states would be prime customers, hence placing at least some attention on China.

To the degree possible, joint ventures and other means of teaming with foreign partners should be pursued. Of course, many of the systems are in direct competition. And here success is having more technical competent and lower cost options than the competitor.

How would the Porcupine Defense work in practice? As suggested, war games and table exercises are needed to examine a plethora of scenarios to determine how, where and why Porcupine is effective; where it is not; and determine its strengths, shortcomings and weaknesses. Space precludes offering more than one scenario.

It is 202X. COVID-19 had dramatically hurt global economic growth and led to more states turning in-wards. NATO support for the wars in Afghanistan and Iraq had been ended with the exception of a few train and assist teams. At the same time, NATO cohesion had weakened. America First had taken its toll. America continued to place its geographic priorities on Asia and China intensified its belligerent attitudes towards Taiwan. Japan and South Korea relations worsened as South Korea continued reconciliation with the North. And the China seas became largely Chinese dominated lakes.

The calamitous way a hard Brexit finally separated the UK from the EU also reduced Britain's influence in NATO. After butting heads with France and Greece, President Erdogan withdrew Turkey from NATO's military structure as Charles de Gaulle had sixty years before. Russia continued to put greater pressure on Ukraine to move back into Moscow's orbit.

NATO had abandoned any idea of granting Ukraine or Georgia membership as it was struggling to maintain its own coherence. NATO was impotent to prevent the near war between the Gulf States and Israel against Iran and its allies, averted only after Iran lifted its blockade of the Strait of Hormuz that sent oil prices to new heights and suspended attacks against Saudi oil facilities after an Israeli-UAE joint F-35 air raid de-stroyed much of the Natanz nuclear facility.

Believing that the Black Sea could be made a Russian lake, Kremlin leaders embarked on plan to accom-plish that aim creating the crisis that forms the scenario for testing the Porcupine Defense.

In June, Moscow imposed an ultimatum on Ukraine: join the CSTO and sign an act of friendship with Russia or risk the annexation of Donbass into Russia. Moscow sailed the Black Sea fleet; declared a block-ade of Ukrainian seaports and sent a small detachment to occupy Serpent Island, scarcely twenty miles off the mouth of the Danube and of course Romania.

The Black Sea fleet had sortied to enforce the blockade and a no-fly, no-sail zone around Serpent Island extending fifteen miles in all directions. Moscow implied that Constanta, Romania's major seaport and the second largest in Europe could be affected if it allowed entry of Ukrainian flagged ships. That zone was a direct infringement on Romanian territorial claims as well as its sovereignty.

Russia activated its internet warriors with a propaganda campaign alleging Ukrainian attacks against Russian speaking citizens and posted videos of a Ukrainian frigate attacking a Russian merchantman and then being quickly sunk by Kalibr missiles fired from one its smaller combatants.

NATO immediately called an Article 4 meeting to consult on this growing crisis. After tumultuous debate, the alliance decided that Russia's actions fell short of the Article 5 criterion of an attack against one and that Romania had the option of using international law and the International Court of Justice for resolution of the threatened blockade. However, the alliance did not prevent individual NATO members coming to Romania's aid. However, Turkey objected from its now more remote status threatening to close the Bosphorus and not permit transit of warships of states that were non-signatories of the Montreux Convention. Despite strenuous objections, Turkey was adamant in preventing passage. That left only the land and air routes.

In this crisis, Serbia initially declared neutrality meaning it backed Russia and closed off land and ground passage east asserting that was the best way to contain the conflict. Its media was filled with anti-NATO and anti-Romanian propaganda.

A divided NATO could not force the issue. Hungary, with its authoritarian rule, abstained from the Article 5 meeting and was ambiguous about permitting transit to the conflict region. Practically, Romania was isolated with Bulgaria as the only access point. And Bulgaria chose to be silent on the issue of access.

Romania concluded it had no option except to respond to Russian aggression as NATO and the EU were of little help. The president declared on national television that any state violating Romanian territory and territorial waters of twelve miles would be met by deadly force. Bluntly that translated to mean that "Little Green Men" would be shot on sight and warships in violation would be sunk.

Romania understood that the strategy must be to induce, coerce, compel or cajole Russia to evacuate Serpent Island, although Ukrainian, as it was a clear and present danger to Romanian sovereignty. This was a very high-risk strategy. But the option of giving Moscow a free hand smacked of invasion. The Romanian defense staff believed the prospect of Russia taking military action in response would trigger Article 5. However, fearing that contingency, NATO's Secretary General warned Romania's president that any attack by Russia would have to be unprovoked, unanticipated and unambiguous if the alliance would even consider invoking Article 5.

The Romanian Army began a pre-planned exercise on its borders with Moldova and Serbia deploying the Porcupine Defense as well as moving large white, unmarked trailers to critical logistical choke points. These vans reportedly were loaded with 20,000 pounds of high explosives. The Reserve/Guerrilla force was part of this exercise.

Romania deployed two of it submarines to trail the Black Sea Fleet in proximity to Serpent Island along with its Stealth Patrol boats to shadow that fleet as well. Romania also flew numerous drones over the Black Sea to show that capability along with activating its Aerostat fleet. And it published a Notice to Mariners that it was preparing to test fly a long-range cruise missile over the Black Sea. And the Romanian Army began moving its land-based cruise missile force to various protective shelters raising readiness and signaling that it was taking precautions should conditions escalate.

The Romanian Minister of Defense and Chief of Defense met with Ukrainian counterparts to begin planning for a joint Ukrainian-Romanian amphibious assault to recover Serpent Island. Ukrainian amphibious ships would carry both Romanian and Ukrainian troops for the mission. The military kit for a Porcupine Defense that was light and lethal was perfect for retaking the island. A-10's also were on station to provide fire support for any assault on Serpent Island as well as supporting the border exercises.

Brilliantly, Romania practiced creative information warfare. The Minister of Defense told the press that while he did not believe reports of "Little Green Men" being shot by Romanian troops upon crossing the border, they were being investigated. While the story was invented, Moscow was listening.

The Telecommunications produced a "deep fake" video of the Russian president being medevacked from the Kremlin to a Moscow hospital. It went viral in minutes reaching over one billion hits. Concurrently, a cyber-attack with IP's originating in Serbia and Moldova was launched against the Black Sea Fleet Head-quarters, interrupting communications with the deployed units. Stories were circulated that Moldova and Serbia wanted no part of a wider conflict. This dis- and mis-information so confused the Kremlin that it would take several days for it to recover.

When the Russian president went on television to refute the rumors, the link was interrupted by another cyber hack and manufactured stories that seemed to originate from China stories reported that the broadcast was another deep fake. Electrons and not bullets were turning the tide against Russia.

To circumvent Turkey's refusal to allow passage through the Dardanelles, the example of the so-called Tanker War of the 1980's in the Gulf would be repeated in an equally innovative manner. Then, the United States had reflagged foreign owned oil tankers with the clear meaning that any attack by Iran risked a wider war with America. In this crisis, Romania had "bought" a U.S. nuclear submarine and reflagged it as its own. While the submarine was still manned by a U.S. crew, legally she was Romanian and hence had standing to transit from the Mediterranean to the Black Sea. That she was nuclear was not mentioned, only that a submarine had been purchased.

To ensure Turkey would not block the transit, the submarine sailed at night at modified periscope depth avoiding detection. Now Russia had to contend with Romania possibly having nuclear weapons at its disposal when the submarine surfaced and was identified in the Black Sea.

In an optimistic conclusion, Russia decided to take the high ground and retract from Serpent Island claiming a diplomatic victory. Of course, some will assert no Romanian government would resort to such a bold and risky strategy. On the other hand, given the geostrategic scenario, Romanian leadership would likely conclude that this was an existential danger. If Russia had been able to control access to the Black Sea and threaten blockade of Romanian seaports, that was unacceptable.

The history that comes to mind was the Cuban Missile Crisis of 1962. To circumvent American superiority in nuclear weapons and Intercontinental Ballistic Missiles, Soviet leader Nikita Khrushchev ordered shorter range Soviet nuclear missiles to be stationed in Cuba. He reasoned that no president would object as America had Jupiter missiles in Turkey aimed at Russia and once the weapons were in situ using force to remove them would be rejected as too dangerous. Khrushchev could not have been less correct.

President John F. Kennedy responded with a "quarantine" to isolate Cuba with a de facto blockade. Khrushchev blinked. Russian missiles and military forces would be withdrawn. The parallel with this scenario is clear.

Now suppose Romania's current defense plans were in place. What capability would Romania have to respond to this and other scenarios? And in all likelihood the Porcupine Defense would be no more expensive and perhaps far less in costs.

Two other recommendations follow. First, Romania should start now with examining and analyzing the Porcupine Defense in tabletop and more extensive war games. The defense industrial base must be engaged to determine which of these technologies are applicable and what will be needed to bring each on line. Second, education is crucial. There needs to be a major review on education for military and civilian personnel in service and part of the Ministry of Defense from entry to flag officer levels. Distant and virtual learning are vital. Romania has a robust educational infrastructure as a solid foundation for making the transition from a 20th century industrial to a 21st century information-based defense.

To Conclude: This decade of the 21st century could be the most demanding for NATO since the end of the Cold War. Disruption and the new MAD—Massive Attacks of Disruption— form the new strategic paradigm. Other disruptors to include climate change, cyber, social media, debt, terror, drones and failed and failing government will dominate national security thinking. Covid-19 is the precursor of this massive transformation. Defense must accommodate and respond to this environment.

To do so, the most important weapon is our collective intellects, striving to be innovative and imaginative in fielding solutions for safeguarding national security. The concepts of Westphalia II, MAD and a Porcupine Defense are offered for serious consideration. To repeat Winston Churchill's famous advice, "Now that we have run out of money, we must think our way out of danger."

No better advice could apply today. Brains, not brawn nor bullets are the not so secret, secret weapon— But only if we use them.

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A BRAINS-BASED APPROACH TO STRATEGIC THINKING:

First, to be effective, any strategy must be knowledge-based to allow and facilitate as complete an under-standing of all conditions as possible, from basic aims to intimate analysis of the adversary, various courses of actions and assumptions underlying each, and the consequences including the resource im-plications, costs, the objective calculation of affordability in blood and treasure and a implementing a process of continuous learning and pursuit of knowledge.

Second, this approach must have a 21st century mindset based on an understanding of conditions, espe-cially the challenges of the Westphalian II system of international politics described above and the need for a 21st century information and digitized based national security strategy in which the new MAD is Massive Attacks of Disruption that underscores the dangers of terror, cyber, environmental catastro-phe, especially Covid-19 and other challenges such as climate change that now confront national secu-rity by destabilizing international and domestic orders.

Third, the aim must be affecting, influencing and controlling the will and perception in order to get friends, allies, adversaries and others to do what we wish or to stop taking actions that are detrimental to our national security in part by greater innovation, ingenuity and inventiveness often called out of the box thinking. Indeed, we need to dismiss the notion of any box or constraints on our thinking.

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