



Transformations in the art of war and the Internet of Military Things

NASA and Rio de Janeiro Municipality renew climate cooperation agreement

Tool allows to simulate long-term future scenarios

Russia and China seek to cooperate to build Lunar Station

Scrapping of the vaccine sector compromises human security in Brazil

European Union coordinates forces against piracy in the Gulf of Guinea

European Union develops guide document on security and defense

The outcome of the Nagorno-Karabakh War highlights the progress of UAVs

Current defrost is compatible with the worst scenarios foreseen by the IPCC

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Newsroom

The **RADAR Newsletter on Future Impacts on International Security and Defense** is a monthly digital product developed by researchers of the Prospective Scenarios in Defense and Security Research Line of the Scenarios and Simulations Laboratory (LSC) of the Brazilian Naval War College (EGN). It aims to stimulate and disseminate knowledge on signs and tendencies that may shape the world's context and impact the future of Defense. RADAR Newsletter does not represent the official opinion of the Brazilian Navy (MB) or the Brazilian Naval War College (EGN).

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EDITORIAL

We present to the public the eleventh edition of the **Radar Newsletter on Future Impacts on International Security and Defense**, with emphasis on the use of disruptive technologies, started with the 4th Industrial Revolution, which incorporate into the scope of military strategy and tactics the concept of Internet of Military Things (IoMT). In the space area, special attention should be given both to the renewal of the climate cooperation agreement between NASA and the city of Rio, and to the growing Sino-Russian cooperation for the construction of a Lunar Station. Regarding the geostrategic domain, the dispute between Armenia and Azerbaijan has demonstrated the importance of the use of unmanned aerial vehicles (UAVs) in modern warfare, as well as the coordination of the European Union in combating piracy in the Gulf of Guinea and the formulation of a collective document to achieve the objectives related to combating threats to the bloc is noteworthy. Concluding the Newsletter, we present articles of high strategic interest regarding the dependence on imported inputs in the national vaccine sector in Brazil as a threat to human security, to the acceleration of the global meltdown by monitoring different locations on the planet, to the contamination of fish from urbanization. that deeply impacts food security, and the presentation of an integrated simulation computational tool that analyzes economic and technical impacts of new technologies and regulatory frameworks.

Good reading!

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Transformations in the art of war and the Internet of Military Things

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The dynamic world scenario refers to the thought of Carl Von Clausewitz, who sees the war as a chameleon, which adapts itself according to the situation. The current moment of the 4th Industrial Revolution is being characterized by disruptive technologies, based on the massive use of robotics and autonomous systems. Inevitably, war is circumscribed by the Internet of Things (IoT) and, thus, reaches the spectrum of the Internet of Military Things (IoMT), impelling the alteration of strategies and tactics. As an example, Drones Swarming Operations are offensive actions, in the form of remotely controlled swarms, when a number of drones can overload the defense systems.

Impacts on Security and Defense:

Reflection is necessary, considering that the entire intelligence system that merges with the internet can potentially be controlled by malicious software. Therefore, a digital resilience strategy will need to be added to National Defense capable of sustaining IoMT in facing threats.

Source:

SANTOS, Daniel Mendes. "A Arte da Guerra e o Camaleão: *Internet of Things*".
Núcleo de Estudos Estratégicos em Defesa e Segurança, UFSCar. (2020).

<https://bit.ly/3dqgr4f>



NASA and Rio de Janeiro Municipality renew climate cooperation agreement

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The City of Rio de Janeiro renewed, at the end of January, a cooperation agreement with the National Administration of Aeronautics and Space (NASA) of the United States. In effect since 2015, the agreement has been extended for another five years and aims to provide, through technology transfer, a model for predicting urban floods in the city, which will allow the anticipation of the consequences of extreme weather events and the increase of the local response capabilities. In addition, an air quality monitoring application is planned. Both projects will supply the Rio Operations Center with information and should start operating in the second half of this year.

Impacts on Security and Defense:

The partnership between the city of Rio de Janeiro and the US space agency seeks to guarantee the city a better management of the impacts of climate change, in order to avoid tragedies and other consequences of natural disasters. This increases local climate and human security.

Source:

RIO DE JANEIRO. Prefeitura Rio. "Com renovação de parceria entre Prefeitura do Rio e Nasa, cidade ganhará modelos de previsão de inundações e qualidade do ar". *Canal da Prefeitura do Rio de Janeiro*, (2021). <https://bit.ly/2QUAu3s>



Tool allows to simulate long-term future scenarios

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Neoenergia, an energy company, presented a computational simulation tool that analyzes the economic and technical impacts of new technologies and regulatory frameworks in an integrated manner. The tool aims to create a sustainable business model due to changes in the sector, in addition to deepening the Smart Future project (or SmartF - Simulation and Modeling of the Future Regulatory and Technological Environment), developed through the Research and Development initiative regulated by the National Electric Energy Agency (Aneel). The tool allows the evaluation and future simulation of several long-term scenarios simultaneously and with quick forecasts. The forecast for the completion of SmartF is the end of 2022.

Impacts on Security and Defense:

The usability and applicability of SmartF can serve as a basis for building simulation tools and / or forecasting prospective scenarios in future study areas, which need applications that assist in these analyzes, but are deficient of technology.

Source:

AGÊNCIA CANAL ENERGIA. "Neoenergia desenvolve ferramenta que simula o futuro do setor elétrico".

Agência Canal Energia, (2021).

<https://bit.ly/3fDhalk>



Russia and China seek to cooperate to build Lunar Station

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Russia is preparing a memorandum of understanding that will be signed with the Chinese government to cooperate in the creation of the International Lunar Research Station. According to Roscosmos (Russian Space Agency). There is no date yet for the signing of the agreement, since the process of discussion with China is still open. However, it is possible that the official announcement will take place in St. Petersburg during the Global Space Exploration Conference, scheduled to take place in June 2021. The initiative is mainly the result of the Chinese vision of creating a base at the South Pole, operated by robots.

Impacts on Security and Defense:

The rapprochement between Russia and China in the creation of a lunar station is the result of the correlation of forces operating in space geopolitics through the dispute for leadership in the sector. The future cooperation has a close relationship with the Artemis Project, under the leadership of the USA, acting as a response to this initiative.

Source:

JONES, Andrew. "Russia, China to sign agreement on international lunar research station". *Space News*, (2021).

<https://spacenews.com/russia-china-to-sign-agreement-on-international-lunar-research-station/>



Scapping of the vaccine sector compromises human security in Brazil

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In the 1980s, Brazil had at least five institutes with the capacity to produce vaccines for individuals. Today, there are only two institutes: Bio-Manguinhos (Fiocruz) and Instituto Butantan. As a result of the lack of investments, prospective view and lower cost / benefit when importing from countries like India and Korea, this strategic sector has become highly dependent on imported inputs, as evidenced by the pandemic of COVID-19. This scenario contrasts with the high investments in the national manufacture of vaccines for animals, in which approximately 90% of the immunizers used for cattle come from 30 national factories. On the other hand, Brazil imports most of the vaccines used by SUS (Brazil's national health system), compromising the State's capacity to guarantee human security in terms of health.

Impacts on Security and Defense:

Brazil has experience in vaccination campaigns that would quickly be able to immunize its population. However, there are no vaccines available to a significant portion of society to date. Brazil needs a Biodefense strategy, as the absence of immunizing vaccines against important diseases compromises human security and the consequent capacity of the country to resume its economic growth.

Source:

PASSARINHO, Nathalia. "Coronavírus: Brasil tem quase 30 fábricas de vacina para gado e só 2 para humanos". *BBC News Brasil* (2021).
<https://www.bbc.com/portuguese/brasil-56171059.amp>



European Union coordinates forces against piracy in the Gulf of Guinea

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The European Council approved a pilot project to implement the concept of Coordinated Maritime Presence (CMP), in the Gulf of Guinea (GG) region, to address the problem of piracy that impacts directly European Union vessels. In recent years, the region has constantly suffered from pirates targeting merchant ships, especially oil tankers. In 2020, these attacks increased by 20%, making the Gulf of Guinea the most dangerous maritime area in the world. The European project, therefore, foresees the ability to coordinate and carry out joint naval exercises of the European Union Navies in strategic maritime environments in the region.

Impacts on Security and Defense:

Despite originating in West African countries, piracy in the GG represents a multifaceted international security challenge that affects various actors and activities in the international community. Thus, it is natural for the response to come in the joint and coordinated form of the States directly affected, for example, through multilateral action to resolve complex issues of maritime security.

Source:

ABIODUN, Eromosele. "EU Moves to Take Control of Maritime Security in Gulf of Guinea". *Thisday* (2021).
<https://bit.ly/2PokbeL>



European Union develops guide document on security and defense

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The European Union's Strategic Compass was presented in June 2020 by the Ministers of Defense as a proposal to be a guiding and transparent document in the collective ambitions and in the instruments for achieving the objectives related to combating threats to the bloc. As a complement to the European Union's Common Security and Defense Policy (CSDP), the strategy document includes three stages: mapping threats to the European Union, completed in November 2020; outline the strategic objectives, expected to be approved in May 2021; and to define the political guidelines for military planning and employment, with the forecast that the program will be approved, according to the initial schedule, in the first half of 2022.

Impacts on Security and Defense:

When implemented, the Compass will allow greater alignment between the countries of the bloc in terms of mitigating the identified threats, contributing to international security, especially maritime security in a transatlantic context. In addition, it is necessary to follow the matters discussed, as they tend to have externalities beyond European borders.

Source:

EUROPEAN UNION: "Portugal quer fazer avançar Bússola Estratégica da EU". *Lusa* (2021). <https://bit.ly/2QTfnhP>



The outcome of the Nagorno-Karabakh War highlights the progress of UAVs

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The war between Armenia and Azerbaijan demonstrated the importance of the use of unmanned aerial vehicles (UAVs) in modern warfare, especially for the armed forces of Azerbaijan. The supply of such equipment by countries like Turkey and Israel provided conditions for their armed forces to cause huge casualties in the Armenian armed forces, resulting in a ceasefire favorable to the Azeris. With the result of the conflict, the importance of UAVs in mountain, forest and snow environments is rising, while the main battle tanks face an imminent tactical obsolescence in these environments, which will mark several debates in the strategic planning of the countries.

Impacts on Security and Defense:

The high utilization of UAVs in the Nagorno-Karabakh conflict demonstrates their importance in these situations, which can be decisive in a belligerent scenario. In addition, UAVs usage urges the need of States to reformulate the design and use of the current terrestrial means of combat, in particular the Main Battle Tanks (MBTs), as well as the need to develop means to nullify their possible threats.

Source:

DAVIS, M. "Drones baratos versus tanques caros: uma virada de jogo no campo de batalha?" *Forte.jor.br* (2020). <https://bit.ly/3doRjLs>



Current defrost is compatible with the worst scenarios foreseen by the IPCC

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A study funded by the British Environmental Research Council found that the acceleration of the global meltdown is consistent with the worst scenarios foreseen by the International Panel on Climate Change (IPCC). This was the first international survey on the issue to be conducted by satellites, showing that the last three decades have experienced an increase of 65% in the progression of the defrost. The study monitored sea ice from the Arctic, from southern portions of the oceans, 215,000 mountain glaciers, Greenland and Antarctic glaciers, as well as Antarctic ice platforms. The greatest absolute losses occurred in the Arctic Ocean and on the south pole platforms. Suspended glaciers have suffered almost 25% of the melting observed in 23 years. These are important sources of drinking water and can contribute to populations to minimize global water stress.

Impacts on Security and Defense:

The accelerated defrost, by raising the sea level, impacts coastal communities, causing forced displacements. In addition, they change basic characteristics of coastal ecosystems, destroying entire habitats by altering their essential characteristics. In this way, it puts the human, economic and environmental security of the affected areas at risk.

Source:

ENVIRONMENT NEWS. "Global ice loss increases at record rate".
University of Leeds. (2021).
http://www.leeds.ac.uk/news/article/4756/global_ice_loss_increases_at_record_rate



Fish contamination by sewage threatens food security

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A study carried out on samples of the marine environment and fisheries in the Myanmar archipelago found about 67 pathogens, 78 different types of material contaminants and 60 types of toxic sediments that can cause a public health emergency. These wastes from coastal urbanization have a profound impact on food security. After all, seafood remains one of the most traded commodities in the world, surpassing the combined trade value of sugar, corn, coffee, rice and cocoa. The global supply of seafood for human consumption has exceeded population growth, increasing at an average annual rate of 3.2%.

Impacts on Security and Defense:

According to the World Health Organization (WHO), diseases associated with food and water contamination cause 1.38 million deaths per year. Given the importance of seafood marketed as a global source of protein, it is imperative to develop strategies that guarantee the safety of consumption of these foods and, consequently, public health.

Source:

LITTMAN, Raechel A. "Coastal urbanization influences human pathogens and microdebris contamination in seafood". *Department of Ecology and Evolutionary Biology, University of California* (2020).

<https://www.sciencedirect.com/science/article/abs/pii/S0048969720325985?via%3Dihub>



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