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US National Strategy for Critical and Emerging Technologies, 2020

The United States issued its National Strategy for Critical and Emerging (C&ET) Technologies earlier this month. In the Covid-19 era, such a document becomes more relevant because of the increasing realisation that technology is the ultimate panacea of the human race. At the same time, however, the Covid-19 pandemic has also starkly demonstrated humanity's limited technological expertise.



The United States has long led the world in science and technology and innovation. It has identified two key pillars to carry forward its C&ET policies. The first is to ensure that the 'technology advantage' remains with the United States in the future. In this regard, the US is highlighting the importance of preventing intellectual property theft with the help of patents and copyright practices. The second pillar is the promotion of the National Security Innovation Base (NISB), with a focus on sustained investments in science, technology, engineering and mathematics (STEM) education.

The C&ET list identifies 20 technology areas as priority areas, including advanced computing, data sciences, artificial intelligence, autonomous systems, human-machine interphase, space technologies, and chemical biological radiological and nuclear (CBRN) mitigation technologies.

UK MoD Releases Science and Technology Strategy 2020

The United Kingdom's Ministry of Defence recently released the 2020 iteration of its Science and Technology Strategy. Such a strategy document has become necessary because Science and technology (S&T) have become an intrinsic part of strategy- and policy-making because of three broad sets of reasons.

First, S&T have a key role in tackling challenges such as the COVID-19 pandemic and mitigating the effects of climate change. Second, large technology companies have become major players in their own right given the access they have to every aspect of people's lives and the control they exercise over the dissemination of information. Third, hostile states, rising powers, revisionist challengers, and terrorist groups have access to and are employing sophisticated technologies to undermine national and international security including by subverting democratic institutions, targeting critical national infrastructure, and disrupting global organisations. These factors make it necessary to effect a "shift from seeing S&T as a way of solving problems to a strategic theatre of competition."



To help MoD remain competitive in a world increasingly defined by S&T, the strategy highlights a three-step process: understanding the future including the changing nature of threat; making the right decisions to attain technological superiority and protect critical technologies and information; and, seizing the opportunities provided by S&T to secure the desired future.

The strategy identifies five capability challenges where emerging technologies can give the UK an edge. These are: Intelligence Surveillance and Reconnaissance (ISR); Command and Control, Communications and Computers (C4); subconventional capabilities; asymmetric hard power against powerful adversaries; and, freedom of access and manoeuvre within a denied electromagnetic environment.

US-UK Naval Cooperation: From Interoperability to Interchangeability

The US Navy's Chief of Naval Operations and the First Sea Lord of the Royal Navy announced their intention to set a new cooperative vision for 'Future Integrated Warfighting' during the Atlantic Future Forum on board HMS Queen Elizabeth on 21 October 2020. While there already exists a mature and institutionalised relationship between the two navies for the collaborative development of warfighting capabilities and with incorporated interoperability, this Statement of Intent (SOI) aims to progress from interoperability to interchangeability.

The main objective of this step is to make critical force elements transposable between the two navies; ships from one navy operating in the other navy's task force as well as frictionless cross deck operations of manned and unmanned systems from each other's ships. The major thrust areas for collaborative interchangeability include: undersea warfare, carrier operations, aligning the efforts of the US Marine Corps and Navy to become a cohesive fighting unit, and advanced warfighting programmes such as artificial intelligence, cyber, directed energy weapons, autonomous weapon systems, and advanced terminal defence solutions.



UK lieutenant being presented with US equivalent of Royal Navy dolphins. Source: www.gov.uk

Defence cooperation is a lynchpin in the US-UK special relationship. As per the House of Commons Defence Committee report (2017-2019), the UK benefits to the tune of £3 billion a year from the UK-US defence relationship. The Defence Trade Co-operation Treaty (2007) had facilitated the joint development of new weapons which included the F-35 Joint Strike Fighter programme.

Active collaboration between the two navies were further enhanced through the US DoD and UK MoD statement on enhanced cooperation on carrier operations in January 2012 and the agreement on the Next Generation Capability Cooperation of November 2018. Both navies had also concluded a statement of intent for collaboration in undersea warfare in June 2018. The latest Future Integrated Warfare Statement will run alongside earlier agreements and aims to build deeper integration in the widest possible range of existing and emerging avenues of naval operations.

Pakistan and Oman to Enhance Military Cooperation

Pakistan and Oman signed a Memorandum of Understanding (MoU) on October 20 to enhance defence cooperation through the exchange of military knowledge and expertise with a view to serving the common interests of both countries. Pakistan's outreach to Oman is part of the quest to forge strong partnerships in the Gulf region. For its part, the vulnerabilities of the Gulf region necessitate Oman enhancing defence capabilities.

Military exchanges between Oman and Pakistan have been growing since 2017. In February 2019, when Pakistan's Chairman Joint Chiefs of Staff Committee visited Oman, the two countries signed a MoU to foster academic cooperation and scientific research between Oman's National Defence College and Pakistan's National Defence University. That MoU also reviewed the existing state of military cooperation between the two countries, including the joint naval exercise *Thamar Al Tayyib* which has been held every two years since 2004.



Agreement being signed by Secretary General, Ministry of Defence of Oman and Ambassador of Pakistan to Oman.
Source: gulfnews.com

Defence cooperation between Oman and Pakistan needs to be seen against the backdrop of the historical ties between the people of Oman and the people of Balochistan province. In 1792, the Omani Sultan bin Ahmed al Busaidi was provided refuge in Balochistan after he lost his throne. He was awarded Gwadar and Makran. Gwadar was part of Oman and Pakistan purchased it only in 1958. About 30 per cent of the Omani population has its origins in Pakistan's Balochistan province. The Baloch dominate the Southern regiment of Oman's Army as well as the Frontier

Force. Oman continues to recruit the Baloch for its Armed forces.

In addition to military cooperation, Pakistan and Oman have established the Pak Oman Investment Company, which focuses on infrastructure development and financing of small and medium enterprises. The two countries have also recently agreed to enhance economic and trade cooperation under the framework of the China-Pakistan Economic Corridor. There is also a proposal to introduce a ferry service between the two countries.