New Education Policy to Make India AI-ready

U.S. Releases New Directive on Cybersecurity of Space Systems

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GOVTS MAKING POLICIES TO KEEP UP WITH TECH ADVANCES

On behalf of the World Geospatial Industry Council (WGIC), I am very pleased to present the September issue of Policy Watch. This month, attention is paid largely to three issues – Artificial Intelligence (AI), Space, and Unmanned Aerial Vehicles (UAVs). In the case of AI and UAVs, governments around the world are developing policies in an attempt to prepare for, or at the very least, stay current with the technological advances that are occurring in each field.

In the case of Space, particular attention is paid to developments occurring in India that will now allow for private launches, and in the U.S. with the recently established Space Force.

In efforts to optimize the use of AI, Egypt has established a National Council for Artificial Intelligence with responsibility for overseeing implementation of its national AI strategy. In India, its new Education Policy highlights the importance of AI by incorporating aspects into each level of education. In Saudi Arabia, where they are projecting AI to contribute $133B (USD) to their GDP by 2030, AI is playing a big role in the “Vision 2030” Strategy, and like India, are incorporating elements into their educational reforms. In the U.S., lawmakers, together with the Bipartisan Policy Center and the Center for New American Security have released a report calling for more R&D funding for AI, and more collaboration between the government and the private sector for the same.

Founded in December 2019, the U.S. Space Force has just released its first Space doctrine which represents their first articulation of Spacepower, and how it will be used to guide its deployment in multidomain operations. Also, in the U.S., the White House Space Council has recently released a report detailing its rationale for deep Space human exploration calling for a whole-of-government approach for returning astronauts to the moon and going on to Mars.

Building on the WGIC Members’ contributions to COVID-19, as described in the August issue of Policy Watch, Esri has teamed with the United Nations Population Fund (UNFPA) to create a Population Vulnerability Dashboard. The interactive tool provides access to information on populations vulnerable to the pandemic in order to boost preparedness and response, and save lives. What we mentioned in August, therefore, bears repeating here:

“While this pandemic is likely to be with us for some time, and far too many people have been affected by its impacts, we take some solace in knowing the world geospatial community is doing what it can do to ease the burden of this disease.”

So, please join me in reading this issue of Policy Watch, and most importantly, stay safe.

Barbara J. Ryan
Editor, Policy Watch
NATIONAL COUNCIL TO SUPERVISE AI STRATEGY

Egypt is undertaking efforts to optimize use of AI technology, having established the National Council for Artificial Intelligence. The Council has been placed in charge of supervising the implementation of the National Strategy for Artificial Intelligence across all sectors. Egypt has also issued a law on protecting personal data and governing the relationship between data owners and users.

A program for capacity-building has also been launched with the objective of providing knowledge of AI to all segments of society. As part of this initiative, a comprehensive program will be launched to educate all government employees on the uses of AI, to make government operations more efficient and transparent.

An Applied Innovation Center (AIC) has been established to implement a number of AI-related projects, including machine translation, early detection of diabetic retinopathy, and accurate calculation of irrigation water needed for agriculture. A new law on personal data protection has also been issued.
India’s New Education Policy (NEP) 2020 highlights the importance of Artificial Intelligence and integrates AI with education at all levels. Students will be exposed to skills such as digital literacy, coding and computational thinking through the teaching of contemporary subjects such as AI and design thinking.

Topics such as AI, Big Data Analysis and Machine Learning (ML) will be integrated with the undergraduate education to train industry-ready professionals. All universities will offer Doctoral and Masters programs in core areas such as ML. In addition, colleges may also offer targeted training in other related tasks for supporting the AI value chain such as data annotation, image classification, and speech transcription.

The policy also aims to use education as a means to make students aware about the issues and ethics surrounding AI. It recognizes that holistic education of AI-based technologies cannot be complete without raising awareness of issues such as data protection and privacy, and ethical concerns such as data bias.

Further, the National Research Foundation (NRF) will promote high-quality research in the realm of science and technology. Given the rising applicability and falling costs of AI-based predictions, special focus has been given to promoting research in this domain. A three-pronged approach has been laid out to channel research in AI:

- Advancing core AI research;
- Developing and deploying application-based research; and
- Establishing international research efforts to address global challenges in areas such as healthcare, agriculture, and climate change using AI.
King Salman Bin Abdulaziz last month approved Saudi Arabia’s strategy for Artificial Intelligence (AI), which is expected to contribute an estimated 500 billion riyals ($133 billion) to the country’s Gross Domestic Product (GDP) by 2030. Digitalization and development of AI is part of Saudi Arabia’s Vision 2030 strategy.

The Saudi Data and Artificial Intelligence Authority (SDAIA) oversees the National Data Management Office, the National Information Center and the National Center for Artificial Intelligence. The country is establishing a National Data Bank to consolidate more than 80 government datasets, which is equivalent to 30% of the government’s digital assets. It is also planning to build one of the largest Clouds in the region by merging 83 data centers owned by more than 40 government bodies.

The Saudi Arabian government is also undertaking major educational reform to make sure students acquire the digital skills for future jobs in AI and other technologies such as the Internet of Things (IoT) and Blockchain.

Data is the single most important driver of our growth and reform and we have a clear roadmap for transforming Saudi Arabia into a leading AI and data-driven economy.

DR ABDULLAH BIN SHARAF AL GHAMDI
President, SDAIA
LAWMAKERS SEEK MORE FUNDING FOR AI R&D

U.S. lawmakers have partnered together with the Bipartisan Policy Center and the Center for New American Security to produce a report detailing guidelines for a national AI strategy. The new report makes 14 recommendations, beginning with the call for increased R&D funding. The aim is to increase funding annually to reach the goal of $25 billion per year by 2025.

The report also calls for growth in investment to occur concurrently with a growth in overall R&D. The report suggests further collaboration between the government and the private sector beyond just monetary investments, giving academia access to the massive computing power needed to continue to conduct research that benefits the advancement of AI-enabled technology.

**Recommendations**

- New tax credits to offer incentives for private companies who engage in basic R&D spending.
- Working with universities in partner nations should increase; and government agencies like the National Science Foundation should create multilateral teams of AI researchers.
- The government should invest in new forms of computing, like next-generation chips, and also collect and make available more datasets for AI training by public, private and academic groups.
- Data resulting from federally funded grants should, to the maximum extent possible, be made publicly available in accordance with appropriate safeguards to protect personally identifiable information.
- Expand broadband to rural areas to expand access to data and technology development.
PRIVATE PLAYERS CAN NOW BUILD LAUNCH FACILITIES

India’s nodal Space agency, the Indian Space Research Organisation (ISRO) has opened up its Sriharikota launch centre (SHAR) for the private sector to build their own launchpad for launching spacecraft or rockets.

ISRO will not charge anything for such launches. Instead, the Space agency will provide expertise and knowledge for setting up such facilities.

Though most centers of ISRO are either closed or working with skeletal staff because of Covid-related restrictions in different States, ISRO wants to initiate the consultation process of involving the private sector in Space activities based on their requirements.

Department of Space is in the process of setting up Indian National Space Promotion and Authorisation Centre (IN-SPACe) (which is being set up to promote, hand-hold, monitor and supervise Space activities by the private sector). But we don’t want the industry to wait till it is set up. If private entities are interested, they can apply for it (using ISRO’s Space assets) now itself.
Japan and the U.S. have decided to continue work to enhance and strengthen Space cooperation between the two countries from a broad, inclusive, and strategic perspective.

The Seventh Meeting of the Japan-U.S. Comprehensive Dialogue on Space was held recently in pursuant to the shared goal of continuing to advance bilateral Space cooperation, and to further strengthen the Japan-U.S. alliance as declared by the leaders of both nations.

The Dialogue series emphasizes a whole-of-government approach to civil, commercial, and national security Space interests and cooperation with the participation of experts from across the two governments. Both sides provided updates on their respective Space policies, including the recent revision of the Basic Plan on Space Policy on the Japanese side and similarly the release of the Defense Space Strategy on the U.S. side. The increasing importance of Space for national security was also recognized, and each side welcomed significant developments in their respective defense institutions, namely, the establishment of the Space Operations Squadron of the Japan Air Self-Defense Force and the Space Command and Space Force of the U.S.
On September 4, the White House released a new Space policy directive that was aimed at improving cybersecurity of Space systems in the country. The directive, called Memorandum on Space Policy Directive-5 — Cybersecurity Principles for Space Systems, intends to foster practices within government Space operations and across the commercial Space industry that protect Space assets and their supporting infrastructure from cyber threats and ensure continuity of operations.

“Examples of malicious cyber activities harmful to Space operations include spoofing sensor data; corrupting sensor systems; jamming or sending unauthorized commands for guidance and control; injecting malicious code; and conducting denial-of-service attacks. Consequences of such activities could include loss of mission data; decreased lifespan or capability of space systems or constellations; or the loss of positive control of space vehicles, potentially resulting in collisions that can impair systems or generate harmful orbital debris,” the directive states.

**Major Threats**

- Spoofing sensor data
- Corrupting sensor systems
- Jamming or sending unauthorized commands for guidance and control
- Injecting malicious code
- Conducting denial-of-service attacks
MOON TO MARS STRATEGY UPDATED

The White House National Space Council has issued a report laying out its rationale for deep Space human exploration. Returning astronauts to the Moon and going on to Mars is a cornerstone of the U.S. government’s Space policy, and the report ‘A New Era for Deep Space Exploration and Development’, lays out a strategy to accomplish that.

A major theme of the report is that human Space exploration requires a whole-of-government approach involving not just NASA, but a host of other agencies from the National Institutes of Health (NIH) to the Department of Homeland Security (DHS).

The following five primary government roles are crucial to executing the vision described in this paper:

• Promote a secure and predictable Space environment for the long-term sustainability of Space activities;
• Support the development of commercial activity and industry in Space;
• Support research and development of new Space technologies;
• Create infrastructure needed for Space exploration and development with commercial and international partners; and
• Support advanced Space research by public and private sector research communities.
SPACE FORCE RELEASES ITS FIRST DOCTRINE

The U.S. Space Force has released its first Space doctrine. The doctrine explains why Spacepower “is a vital element of U.S. prosperity and security” and “guides its employment in multidomain operations.”

The basic principles of the Space Capstone Publication, Spacepower are:

- The United States desires a peaceful, stable, and accessible Space domain. Strength and security in Space enables freedom of action in other warfighting domains while contributing to international security and stability. The U.S. must adapt its national security Space organizations, doctrine, and capabilities to deter and defeat aggression and protect national interests in Space.

- The Space domain is the area above the altitude at which atmospheric effects on airborne objects becomes negligible. The value of the Space domain arises from an ability to conduct activities with unrivalled reach, persistence, endurance, and responsiveness, while affording legal overflight of any location on the Earth. Because of these attributes, Spacepower is inherently global.

- Military Space forces are the war fighters who protect, defend and project Spacepower. They provide support, security, stability, and strategic effects by employing Spacepower in, from, and to, the Space domain. This necessitates close collaboration and cooperation with the U.S. Government, Allies, and partners all in accordance with domestic and international law.

- Space operations are not only global, but multi-domain — terrestrial, Space, and in between.

- The U.S. Space Force values “organizational agility, innovation and boldness.”
UAVS
The U.S. has approved a policy change to reinterpret an arms control agreement to facilitate exports of unmanned aerial systems designed for military use. The decision is being seen as an attempt to help U.S. allies meet their national security requirements.

Under the U.S. government’s reinterpretation of the Missile Technology Control Regime, Category I drones (operating less than 800 kilometres per hour) would be reclassified to a lower category (Category II), and would be reviewed for approval on a case-to-case basis, the State Department said.

“This policy update maintains particular restraint, including a strong presumption of denial, on transfers of those UAS that present higher risk for weapons of mass destruction (WMD) delivery — such as cruise missiles, hypersonic aerial vehicles, and advanced unmanned combat aerial vehicles. It does so without unduly impeding exports for growing commercial and conventional military applications of other UAS,” the policy reads.
CHINA-MADE DRONES MAY SOON FACE BAN

Amid growing tension between U.S. and China, some federal lawmakers have set their sights on drones made in China, or that have Chinese components — seeking to ban them from use by U.S. federal agencies.

According to reports, the administration itself may weigh-in against drones made in China, as it has against other Chinese technology companies. Currently, there are two bills pending before Congress that seek to do just that. Senate Bill 2502, The American Security Drone Act of 2019, a bipartisan Senate bill, would prohibit any federal agency from buying drones and related equipment from any “covered foreign entity” as determined by the Secretary of Commerce. Covered foreign entities include China and the Chinese communist party.

The legislation would also prohibit the use of any federal funds to buy the covered drones or associated components or systems. House Bill 4753, the Drone Origin Security Enhancement Act, would lead to a similar ban on purchases of drones and related unmanned aircraft systems (UAS) by the Department of Homeland Security. The legislation was passed by the House of Representatives in February and sent to the Senate, where it was referred to the Committee on Homeland Security and Governmental Affairs.

Senate Bill 2502, The American Security Drone Act of 2019, a bipartisan Senate bill, would prohibit any federal agency from buying drones and related equipment from any ‘covered foreign entity’ (including China) as determined by the Secretary of Commerce.

House Bill 4753, the Drone Origin Security Enhancement Act, would lead to a similar ban on purchases of drones and related unmanned aircraft systems (UAS) by the Department of Homeland Security.
SPECIAL INITIATIVES
India’s Commerce and Industry Minister Piyush Goyal last month e-launched the National GIS-enabled Land Bank system for six States. The system is being developed by the integration of the Industrial Information System (IIS) with State GIS systems. Goyal said that the government was confident that other States/UTs will be onboarded by December 2020, emphasizing that this is only a prototype and will be developed further with inputs from States — to make it an effective, transparent mechanism of land identification and procurement.

In a separate development, the Minister stated that India will start a Geographic Information System (GIS) based land buying service on a pilot basis to attract foreign companies. Addressing USIBC’s (US-India Business Council) India Ideas Summit through video conferencing, he said India will identify land for setting up industries through a GIS-based tool. Goyal revealed that the GIS system will have a Google Earth view where a “person sitting in Iceland can locate land in India and buy it”.

“Every investor in the long run is looking for credible ways of doing business when he engages with a country. The Aatmanirbhar Bharat program wishes to prepare India to work with the world on equal terms. We want to offer India as a reliable business partner,” Goyal was quoted as saying.

### Modern Methods

1. **The National GIS-enabled Land Bank system for six States is being developed by the integration of the Industrial Information System (IIS) with state GIS systems**

2. **The system will work as an effective, transparent mechanism for land identification and procurement**

3. **There will be a GIS-based land buying service on a pilot basis to attract foreign companies**

4. **The system will have Google Earth view where a person sitting abroad will be able to locate land in India and buy it**
NITI Aayog, the main policy think tank of the Government of India, has engaged Oracle to help it modernize its vital IT infrastructure underpinning the Aspirational Districts Programme. As a key project of the Indian Government, it is aimed at helping improve the quality of life of citizens in 112 of India’s most impoverished districts — constituting 28% of the country’s population.

“This program is aligned with our Prime Minister’s vision of a New India. It focuses on improving people’s capacity to participate in India’s economic development. Data-driven decisions will help identify the strengths and weaknesses of these districts and pave the way for their progress. By using a range of Oracle Cloud services, we are looking to fast-track their transformation by providing simplified data access, increased process automation and real-time data governance,” Amitabh Kant, CEO, NITI Aayog, was quoted as saying.

This program involves assimilating thousands of data points from multiple sources and different formats from across India which are checked for data accuracy (triggering alerts in when the data feeds appear to be inconsistent), and integrated for analysis and reporting. Critical to the success of the program is for this data to be fed back in real-time to administrators, district collectors, government officers and the general public via a highly visual and intuitive dashboard.

This program focuses on improving people’s capacity to participate in India’s economic development. Data-driven decisions will help identify the strengths and weaknesses of these districts and pave the way for their progress.

AMITABH KANT
CEO, NITI Aayog
The United Nations Population Fund (UNFPA) has teamed with Esri to create the UNFPA COVID-19 Population Vulnerability Dashboard. The interactive tool provides public health workers, policymakers and citizens access to information on populations vulnerable to the pandemic, to boost preparedness and response, and help save lives.

The dashboard uses census data from 94 countries. Some of the statistics listed are populations at older ages, residential density, access to amenities, health sector readiness and COVID-19 real-time updates. Commenting on the dashboard, Esri Global Business Development Manager Linda Peters was quoted as saying, “National and subnational disparities in vulnerability can be striking. How these differences affect overall transmission, and health risk is shaped by critical factors such as the scale and timing of government lockdowns. But geographic comparisons help us anticipate potential risks, and remind us of the huge differences in underlying development needs and health sector readiness between countries.”

Geographic comparisons help us anticipate potential risks, and remind us of the huge differences in underlying development needs and health sector readiness between countries.

LINDA PETERS
Global Business Development Manager, Esri