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Chief for expanding navy's operational footprint in Indian Ocean to blunt china

With growing strategic importance of the Indian Ocean as China is strengthening its maritime capabilities in this region, Navy chief Admiral Sunil Lanba on Friday emphasised the need for continued efforts towards expanding the Indian Navy's operational footprint so as to be a stabilising force in this crucial ocean sector.

Chairing the four-day conference of Navy commanders here which ended on Friday, Lanba stressed the need for modernisation, indigenisation so as to bolster the Navy's capabilities in the Indian Ocean region. Indian Navy plays a key role in this region as all the crucial sea lanes enabling the country's trade pass through it and the Service is shoulder the responsibility of securing these lines of communication.

Foreign Secretary S Jaishankar interacted with the top commanders on the geo-political developments with focus on the Indian Ocean region and outlined key imperatives pertaining to India's foreign policy and diplomatic initiatives. Chiefs of Army and IAF also shared their views on the current security situation with the Navy top brass, officials said here. The conference also reviewed security measures and mechanisms for coastal defence, infrastructure, force development and logistics support management.



Hyper-nationalism does nothing to help the Army



NAMITA BHANDARE

A soon-to-be-launched news channel has declared public enemy #1. Not poverty, disease or illiteracy, it's Pakistan.

The channel isn't on air, but if you watched the news on other channels this past week, you'd imagine that war had been declared as retribution for Pakistan killing and decapitating two of our soldiers - not for the first time.

News channels went into overdrive, and a senior officer had to clarify. No, he told

Hindustan Times, India had not destroyed Pakistani bunkers and killed several soldiers. "They [TV channels] go ballistic without asking us anything," said the unnamed officer.

It wasn't just hyperventilating channels. Political parties too were piggybacking on public outrage. Ironically, the BJP, which not so long ago was accusing the then ruling UPA of weakness with regard to Enemy State Pakistan, was now fending off the same theatrical accusations (including the

predictable wearing of bangles, presumably a sign of weakness since they are worn by women).

This noisy media-public-politician caucus is placing our army at the edge of dangerous hyper-nationalism. Even otherwise restrained anchors swore not to invite Pakistani enemies on their shows, because, after all, who wants to be seen as anti-national? Never mind that journalism means listening to all sides.

The pitch is so high that any questioning of army action, no matter how legitimate, invites abuse. When Lt Gen H.S. Panag questioned the army's decision to tie an alleged Kashmiri stone-pelter (he wasn't) to the front of an army jeep, he was trolled on social media. The tenor of chatter on Whatsapp and email groups of retired officers was triumphant. "Ironically, many had been hard task masters and upholders of human rights while in service. It's as if, in keeping with changed times, they had given in to baser instincts," says General HS Panag.

Elsewhere, anchors saw the action as a masterstroke that helped avert a bloodbath

instead of asking the obvious question: why parade him for four hours?

"Media should be asking about lapses with regard to Sukma and the decapitation of soldiers," says General Panag. Instead, it's joined the '10 heads for one' chorus.

We do the army no favours by placing it on a pedestal from where it cannot be asked legitimate questions. We do it no favours when we seek to draw it into an emotional public debate.

Military action cannot be based on populist sentiment; wars are not fought and won in TV studios. A solution, when found, will not happen by placing hot emotion over cool strategy.

Those who feel strongly about supporting the army, including our loquacious anchors, need not feel disheartened. There is a place for citizen action. It is here: <https://www.bharatkeveer.gov.in/index.php>, Happy donating.

Namita Bhandare writes on social issues and gender. The views expressed are personal

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Advent of AI: can India be ahead of curve?

By Saurabh Kumar

A recent McKinsey Global Institute report, “Artificial Intelligence (AI): Implications for China”, should be of interest because of its pertinence for India as much as China. It appears to have been commissioned by the Chinese counterpart of NITI Aayog and is noteworthy for that reason as well.

State of Play

The Report pronounces authoritatively on the advent of AI (which it defines as “machines mimicking cognitive functions typically associated with the human mind”) globally:

“Advances in data collection and aggregation, algorithms, and processing power” have taken the idea (of AI) from “futuristic speculation to present day reality”. Computer systems no longer need to be “programmed to execute rigidly defined tasks”. They can now “adapt to new data”, without need for reprogramming (explicitly), on the strength of “generalised strategy inputs”.

As a result, many “machine learning systems have already been developed for commercial use” with rapidly growing varied applications in “sectors such as finance, health care and manufacturing”. Recent breakthroughs have pushed boundaries even further, enabling AI systems to “learn, discover and apply rules by themselves” and “match or surpass human intelligence”.

Although machines that can perform the full range of cognitive tasks that humans can do are said to be “still decades away”, the advances made are predicted to have a disruptive impact on all economic activity (world-wide) because of the “dramatic... boost (in) productivity” they are going to bring about in their wake: “AI systems improve productivity by completing existing job activities more efficiently” — they can “make industrial machinery, supply chains, logistics routing and other (management) processes more efficient ... by predicting failures, identifying bottlenecks and automating processes and decisions”.

China

The Report estimates that “half of all work activities in China could be automated, making it the nation with the world’s largest automation potential”. It terms that country as “one of the leading global hubs of AI development”, “with its biggest tech companies driving significant investments in R&D”.

But then it goes on to temper that assessment with the observation that “China will need to focus on building its innovation capacity” so that actual adoption of AI manufacturing or other applications is “not just among its technological giants but across its traditional industries” also.

A mixed picture, in other words, veering more towards mapping of potential, generally, than description of actualities.

The reason for the Report’s positive assessment of China’s AI prospects is that “its huge population can generate a tremendous volume of data, which is a prerequisite for ‘training’ AI systems” — these systems “must be fed huge quantities of data so that they can ‘train’ themselves and continuously improve and refine their output”. Also that its “wide range of industries provide a fertile market for deployment”.

In terms of the likely overall impact (of AI enabled automation), the biggest is foreseen to be on employment, alongside the potent “productivity injection” that would be imparted to the economy.

“Hundreds of millions of ... jobs made up of routine work activities and predictable, programmable tasks will be particularly vulnerable. While impact on the labour market is likely to be gradual at the aggregate level, it can be sudden and dramatic at the level of specific work activities, rendering some jobs obsolete fairly quickly.

Overall, AI will raise the premium placed on digital skills while reducing demand for medium and low skilled workers...”.

The Report recommends five priorities for China’s AI strategy:

“building a robust data ecosystem; spurring adoption of AI within traditional industries; strengthening the pipeline of specialised AI talent; ensuring that education and training systems are up to the challenge; and establishing an ethical and legal consensus among Chinese citizens and in the global community”.

India

All five apply with equal validity for India, muted is mutandis i.e. after making allowance for the different, lower, degree of preparedness of the economy at the ground level for making the AI transition.

So also the other offerings that are made to China in the Report in respect of “the three key building blocks of AI development: data, algorithms and computing power”.

As such, the contents of the Report provide a useful point of departure for preparing for the advent of AI. One hopes that strategic analysts and senior decision-makers in NITI Aayog (and in the line Ministries concerned such as the DOE, DIPP and MOD) would be at it already, with expert and inter-Ministerial Task Forces (and a nodal point) mandated to identify both thrust areas and weaknesses for accelerated/remedial action.

Strategic Considerations

Unlike the First and Second Industrial Revolutions (which passed India by) and also unlike the Third (digital one, which the country stumbled into somewhat fortuitously thanks to Y2K), conditions would seem to be conducive for India to attempt to be “ahead of the curve” in this Fourth one on AI, robotics, nano-technology, etc, and usher it in pro-actively. (Instead of waiting passively for it “to happen’ via a market driven trickle down.)

What is needed is a strategic approach — a “central mind” of Government, as it were, focussing on the different dimensions in all their complexity, so that timely decisions to do whatever it takes to join the front-ranking countries in utilisation of AI enabled systems all round, in manufacturing above all, at the earliest can be taken in a holistic and long term perspective.

The IT revolution in the country has already brought in some early harvest of incipient AI aspects (in the form of Apps, e-commerce, etc). It has also provided the requisite base for an AI take-off. But our sights in this regard should not be limited to the digital domain. Howsoever advanced (in “intelligence”) the virtual world might get, it is the real, brick and mortar economy that forms the mainstay of human existence and which should therefore be the focus of the national endeavour to tap AI. AI-led manufacturing in particular, because of its ubiquitous (and unimaginably huge), impacts on costs and quality of almost every kind of produce.

All forms of contests between nations, leading to the ultimate one in “comprehensive national power” (to borrow a Chinese, albeit commonsensical, concept), will boil down to a question of cost (and quality) competitiveness in manufacturing — a preview of which is already evident in more and more countries throwing in the towel before the gigantic (and seemingly invincible) sweat factories in China.

And manufacturing not being a strong point of the Indian economy, here lies the rationale for self-conscious “strategising” to foster “AIsation” (instead of leaving it to market forces to do at their own pace). A laissez-faire approach is fine in the digital domain, given the vibrant scene in the virtual world, but not in the real one. (Except perhaps in selected FMCG and other luxury goods sectors that are on “auto-pilot” course, and would be best left undisturbed.)

For the rest — for the bulk of the manufacturing/mining sectors — a strategy for “leap-frogging” on the strength of AI-led systems will have to be devised. This is the only way for late industrialisers like India to avoid getting caught in a bind (because of climate change begotten limits on per capita consumption of energy and raw materials) in their effort to catch up with the affluent economies.

The strategic approach thus entails, necessarily, going all out to think, and act, big. And afresh, out of the conventional wisdom box. And even naively, may be, but stemming from national needs and priorities.

The Vision Thing

Two possible components of a national “AIisation strategy” offered in that vein for consideration.

First, could collaboration in AI enabled manufacturing related technologies — of any kind (not excluding outright purchase), in any sector, available anywhere — (be made to) form part of the “wish list” of the nation’s diplomacy in its interaction with the industrially developed world? Appropriate desiderata in respect of each such country would need to be identified. This is a painstaking and time-consuming (inter-Ministerial) task that can obviously not be done at the last minute, on the eve of a VVIP visit.

Second, how about declaring priority for AI-enabled robotisation of tasks/activities that human beings ought to be spared from doing on normative grounds — of human dignity, health and safety? Segregation of plastics and glass from urban waste; handling of hazardous hospital waste; clearing of sludge in sewage pipes, dredging of filthy “storm water” drains and frothy lakes; skinning of hides from carcasses of dead animals and manual scavenging being some obvious examples.

Could that prioritisation be given the form of dedicated “National Technological Missions” mandated to work on, and gather together all necessary technologies and “know-how” for, making/assembling suitable robots? With outright import of “demonstration” pieces in the interregnum until domestic manufacturing capability is developed, irrespective of cost? The pilot “demonstration” projects would serve to spur those engaged in development of indigenous production capacity to deliver faster. At the same time, they would manifest public reaffirmation of the State’s commitment to a scientific approach to socio-economic problems in favour of the downtrodden and the ‘outcast(e)’ — antyodaya in some tangible way — and thereby go some distance in nurturing a modern sensibility in society in the process.

(The writer, a former Ambassador, is a strategic analyst with a background on China. He is currently an Adjunct Professor at the National Institute of Advanced Studies, Bengaluru where he anchors the “India in the Chinese Media” project (www.niasindiainchina.in))



Sat, 06 May, 2017

South Asian diplomacy lifts off on 2230-kg ISRO satellite GSAT-9

Communications satellite to be used by all neighbours except Pakistan

Fulfilling a commitment Prime Minister Narendra Modi had made at the Kathmandu SAARC summit in 2014, the Indian Space Research Organisation (ISRO) Friday launched a communications satellite that will serve the needs of all countries in South Asia, except Pakistan which opted out of the project.

Modi and leaders of the other participating countries who joined via video conference — Afghanistan President Ashraf Ghani, Bangladesh Prime Minister Sheikh Hasina, Bhutan Prime Minister Tshering Tobgay, Maldives President Abdulla Yameen, Nepal Prime Minister Pushpa Kamal Dahal and Sri Lanka President Maithripala Sirisena — watched as the geosynchronous satellite launch vehicle GSLV-F09, carrying the 2230-kg GSAT-9 South Asia satellite, lifted off from the Satish Dhawan Space Centre in Sriharikota, Andhra Pradesh, at 4.57 pm.

“Two years ago, India made a promise. A promise to extend the advanced space technology for the cause of growth and prosperity of our brothers and sisters in South Asia. The successful launch of the South Asia satellite marks the fulfilment of that. With this launch, we have started a journey to build the most advanced frontier of our partnership,” Modi said.

“As governments, our most important task is to secure growth, development and peace for our people and communities. And I am convinced that when we join hands and mutually share the fruits of knowledge, technology and growth, we can speed up our development and prosperity,” he said.

Each of the other six leaders also spoke, thanking India for the satellite and stressing on the need to cooperate more closely on development issues. At least two of them echoed Modi in saying that the South Asia satellite was an example of *sabka saath sabka vikas*, one of the governance themes of the Modi government.

The satellite carries Ku-band transponders which India's neighbours can make use of — free of charge — for different needs. A communication satellite can be used for a variety of purposes like broadcast services, tele-medicine and tele-education, banking networks, and direct-to-home television.

However, the launch of GSAT-9, fondly named South Asia satellite, is less about space technology and more about geopolitics. The GSAT-9 is a regulation communication satellite, not very different from the several that ISRO has launched over the years. There were the INSAT series of satellites earlier, the last of which flew in 2007, and now there is a whole constellation of GSAT-series of satellites, providing a vast array of services over the country.

What makes the GSAT-9 stand out from the rest is the fact that it is actually an exercise in neighbourhood diplomacy, the kind of which has not been attempted earlier.

The satellite is meant to cater to the requirements of countries in India's immediate neighbourhood, most of whom have almost negligible presence in space. In keeping with its own status of being one of the top space powers, India is providing these countries with access to transponders on the satellite free of charge. Usually, this kind of transponder space is made available commercially and ISRO has leased out transponder space to several private and foreign organisations earlier.

The satellite was proposed as an effort to share the fruits of space technology with all countries in the region. This kind of international collaboration in space exploration and technology is best exemplified by the European Space Agency which has more than 20 countries as members.

But even before baby steps in that direction could be taken, Pakistan, which had earlier agreed to be part of the collaborative effort to build and design the satellite, pulled out, forcing a change in the name from SAARC Satellite to South Asia Satellite.

In the region, Pakistan and Sri Lanka are the only two countries to have launched communication satellites. Both took the help of China. Afghanistan has leased a part of French telecommunication satellite, Eutelsat 48D, for its use, while Bangladesh is planning to launch its own satellite, *Bangabandhu-1*, later this year.

The Indian offer to make a satellite that all the countries in the region can use freely is an act of generosity. Hard strategic calculations have weighed in, and these have barely been disguised. ISRO has hardly been discreet in acknowledging that it is also an attempt to prevent China from offering similar services in the region. In fact, in an interview to *The Indian Express*, shortly after the SAARC Satellite was announced, ISRO chairman A S Kirankumar conceded as much, though he did not name China.

“...in this region, you also have a large number of other players trying to come in and get into (space) operations,” he had said, while giving reasons for India's offer for making a SAARC satellite.

It is no coincidence that China has helped launch communication satellites for both Sri Lanka and Pakistan with which it has a growing partnership in space technology. For India, it was also a little disappointing to know that some of the other countries in the region, like Bangladesh, were taking the help of western countries in running their space programme when ISRO could offer comparable services at a fraction of the cost.

The South Asia Satellite is, therefore, also an attempt by ISRO to look for newer markets for its services in the immediate neighbourhood. ISRO has so far launched satellites from 23 countries, but none from the region.

Sat, 06 May, 2017

Electric Propulsion System could reduce fuel, be a gamechanger



REUSABLE VEHICLE

The EPS technology, coupled with an efficient reusable vehicle on which work is ongoing, could help Isro reduce launch cost considerably. In May last year, Isro successfully launched a scaled-down version of the reusable launch vehicle technology demonstrator (RLV-TD), adding wings to India's dream of eventually building a vehicle that can go into space, deploy satellites and come back. Senior scientists had estimated it could bring down the launch cost to one-tenth of the present cost.

The Geostationary Communication Satellite-9 (GSAT-09) became the first Indian spacecraft to carry an Electric Propulsion System (EPS), which was successfully tested with Friday's launch, paving the way for development of future satellites that will be considerably lighter.

“The EPS can significantly reduce the fuel satellites need to carry. This leaves more room for payloads if we want to pack more into the satellite, and it reduces the satellite weight which helps us decide how to launch it,” a senior scientist explained.

The GSAT-09 carried just 25% of chemical fuel it would have had to carry in the absence of EPS. The 2,000-kg class communication satellites generally carry around 200-300 kg of chemical propellants which push them into the desired orbit and

keep with them alive for more than a decade.

This means the workload a 5,000-kg satellite can take can be achieved by a 3,500-3,700 kg satellite equipped with EPS.

“To cut that burden to just 25% is a gamechanger. It allows us to manage satellites with long lives -GSAT-09 has 12 years of expectancy -more efficiently,” the scientist said. This will also reduce India's dependence on foreign satellites. Currently, Isro uses foreign launch vehicles to launch heavy satellites. While the Geosynchronous Satellite Launch Vehicle (GSLV) family, especially the Mark-III to be tested later this year, will augment its capacity, much more is needed.

The EPS on GSAT-09 will begin functioning two weeks after the launch, when the satellite will eventually go to its final slot in space, and continue to operate after that.



Sat, 06 May, 2017

Researchers develop synthetic soft retina

The replica is made of hydrogels and cell membrane proteins

Scientists from the University of Oxford have developed a synthetic, soft tissue retina that closely mimics the natural retinal process.

The researchers believe that their efforts could lead to the development of less invasive products that closely resemble human body tissues, helping to treat degenerative eye conditions such as retinitis pigmentosa. The condition changes how the retina responds to light, causing people to slowly lose vision.

Until now, artificial retinal research has used mostly rigid, hard materials.

“The human eye is incredibly sensitive, which is why foreign bodies like metal retinal implants can be so damaging, leading to inflammation and/or scarring. But a biological synthetic implant is soft and water-based, so much more friendly to the eye environment,” said lead researcher Vanessa Restrepo-Schild from Oxford University. Just as photography depends on camera pixels reacting to light, vision relies on the retina performing the same function.

The retina sits at the back of the human eye, and contains protein cells that convert light into electrical signals that travel through the nervous system, triggering a response from the brain, ultimately building a picture of the scene being viewed.

The synthetic, double-layered retina replica consists of soft water droplets (hydrogels) and biological cell membrane proteins. Designed like a camera, the cells act as pixels, detecting and reacting to light to create a grey scale image. “The synthetic material can generate electrical signals, which stimulate the neurons at the back of our eye just like the original retina,” Ms. Restrepo-Schild said. The study was published in the journal *Scientific Reports*.



Sat, 06 May, 2017

Do your jeans have a Bluetooth connection?

Paris show displays ‘smart’ denims that can give you street directions and send e-mail alerts

A young man in a white T-shirt pulls on a dark blue denim trucker jacket, tucks his smartphone in an inside pocket and puts in-ear headphones in his right ear. He mounts a fixed-gear bike with flat, slightly curved wide handlebars. Riding through the streets of San Francisco, he occasionally taps or swipes his right hand over the left cuff of his jacket, as the directions he’s listening to continually pop up on the screen of this advertisement.

It’s an ad from iconic U.S. jeans maker Levi Strauss for Project Jacquard, an initiative with Google that the companies started two years ago for so-called “smart” denim. The future of the popular fabric was the focus at a recent international fashion fair in Paris.

Wearable innovations - The fair featured many wearable innovations such as a waterproof jacket with sunscreen bands and a cable in the pocket to recharge a cellphone, or jeans that keep your body temperature stable. Once mainly the purview of athletic gear — with moisture-wicking shirts and trousers and then clothing that can track motion, heart rate, and body temperature — the new trend for fashion designers is to take everyday wear and transform it using new technologies.

French-based fashion company Spinal Design, for example, has created jeans that can give wearers directions without having to whip out the mobile at every single intersection.

Through Bluetooth sensors stitched into the jeans’ waistband, the smartphone stays out of sight.

“Sensors will vibrate right if you need to turn right, left if you need to turn left,” said Spinal’s innovation director Romain Spinal.

In 2015, the company designed a bikini that tells women when it’s time to apply more sunscreen. The two-piece retails for €149 euros (₹ 10,500) and comes with a detachable ultraviolet sensor that, through a smartphone or tablet, sends a “sunscreen alert” when the sunbather’s skin needs more cream.

The Spinal jeans, made in France, cost €150 euros and also have e-mail notification capabilities. “They will vibrate differently depending on whether the message received is from your family, your friends or work, in a way that you won’t have to constantly check your e-mail on weekends or on vacation,” Mr. Spinal said.

On their end, Google and Levi expect to release their denim jacket sometime this year, but it will come with a hefty \$350 (₹ 22,500) price tag due in part to its special interactive fabric that allows the jacket’s wearer to order various products online.