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FINS Wishes You Happy Vijayadashmi (Dussehra)

China-Taiwan ties are in dire straits after Beijing's repeated air intrusions

By Srikanth Kondapalli

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It's surprising that New Delhi and Taipei have not come together and worked to address 'common challenges'.

The brazenness with which China's air force scrambled a record number of aircraft across the Taiwan Straits in the last few days is in sharp contrast to the strategic calmness with which the government and the people in Taiwan responded. For, the Taiwanese knew the antics of China's communist party for long—having engaged with them in pitched military and diplomatic battles for more than seven decades.

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China surrounded the island of Taiwan with its first aircraft carrier Liaoning twice, dominated the crucial Bashi Channel and Miyako Straits and attempted submarine blockade, besides plans for overall invasion, amphibious landings, saturation strikes with over 2,000 short-range ballistic missiles, paralysing command and control mechanisms. None of these military threats paid off for China. Nor, strangely, the Taiwanese businesses pulled out of China and continue to feed into the rise of China.

Clearly, with a $15 trillion economy and over $250 billion in defence allocations by China, Taiwan is no match to this increasingly assertive Beijing. However, Taiwan has many advantages—crucial geographical location at the convergence of sea lanes in the Indo-Pacific waters, highly globalised IT industry, ability to deploy standoff weapons by a professional armed force and inflict heavy damage on strategic assets of China and intensive democratic experiment that drew support from the world at large.

For the leadership in China, its air force intrusions in Taiwan Straits are a way to cater to the rising domestic nationalist sentiments. At its previous communist party congress in 2017, it had laid a "six Nos" policy, aimed at countering "anyone, any organization, any political party, at any time or in any form, to separate any part of Chinese territory from China". At the 100th anniversary of the communist party in July this year, President Xi Jinping alluded to "breaking heads" for anyone supporting Taiwan. With the next party congress due next year, factional politics are intensifying in China to find who can better resolve the cross-Straits issue.

By these air force intrusions, China may also be sending a signal of a spoiler to the national day celebrations in Taiwan on 10 October—termed Double Ten, a day in 1911 when the Qing imperialists collapsed. While the younger generation in Taiwan today is averse to these political symbols from China, Double Ten is still being celebrated.

China is also sending a signal to the regional powers by such air intrusions in Taiwan Straits. Japan and Australia, with whom Taiwan has been expanding relations, are possible targets. Not too long ago, Japan's Deputy Prime Minister Taro Aso said in July this year that Japan would support, along with the US, Taiwan's "survival" strategies.

Armed with the recent AUKUS (Australian-UK-US) nuclear submarine deal, Australia is a recent entrant to provide assistance in dire Straits. Penalised by Beijing for its vocal demand for a comprehensive investigation into the origins of coronavirus from Wuhan, Australia has seen substantial enthusiasm in regional security issues recently.

Read complete article on Firstpost website

AI for National Security: Indian Military Perspective

By Nihar Kulkarni

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Introduction to AI

The birth of Artificial Intelligence (AI) can be traced back to the 1950s in an American computer scientist Alan Turing's essay on 'Computing machinery and intelligence'. Later on, the term AI was used as a title of a conference held at Dartmouth College in 1955. (Morgan, 2020) Since then the development in AI started. The definition of Artificial Intelligence is 'the ability of the computer system to perform tasks that normally required human intelligence.' Automation, machine learning, deep learning are the significant areas of AI. In the decade of 1990s, the evolution of AI started rapidly across civilian and military sectors. The use of AI enhances the capacity and effectiveness of work. It is an AI technology that can be integrated into platforms or in particular equipment, thereafter equipment can perform on its own.

The effective use of AI can enhance information gathering and decision making in national security architecture. Countries like the US, China, Russia are major players in the research of AI. The US is effectively using AI in its national security architecture. It has developed several autonomous technologies such as UAVs (Unmanned Aerial Vehicle), Drones, Unmanned submarines. It has also enhanced the research on robots which can be a vital angle in warfare.

The US, Russia and China are trying to integrate AI technology into military equipment to enhance warfare and deterrence capability. The AI technology can be used in rockets, missiles, radars, fighter aircraft, naval platforms like submersible ships, aircraft carriers, frigates and destroyers. The integration of AI in C4I2SR (command, control, computers, communication, intelligence, information, surveillance, reconnaissance) effectively enhances mobility in decision making all the time. Image recognition, text analysis, self-driving cars, game playing are examples of the recent development in AI which are driving military applications.

This article tries to look at the uses of AI by major powers particularly the US, China, Russia for their national security and military purposes. And further, it tries to explore how AI technology would be able to contribute to India's national security.

AI in Indian Armed forces

For a country like India, the Indian armed forces have to manage its 15000 KMs land border and 7516.5 KMs marine borders; it also has to surveillance vast airspace 24*7. The smart and adequate use of AI in armed forces would enhance the capabilities and effectiveness of all forces.

UAVs, drones and loiter munitions technology can be used for surveillance and reconnaissance. The small drones can be used in tactical operations by forces. It would help to provide real-time intelligence for tactical decision making by commanders. The firepower of UAVs is lethal enough to attack enemy tanks and artillery systems. UAVs have emerged as the most potent delivery platforms; Azerbaijan has used drones and UAVs to attack Armenian forces in the war of Nagorno-Karabakh. Azerbaijan's unmanned aerial vehicles (UAVs) or drones dominated the conventional ground forces of the Armenians. (Chandra, 2020)

The use of radars and sensors to monitor India's land borders would eventually enhance border management architecture. It would help to monitor and contain infiltration on border areas. The forces can also use 'face recognition' system platforms to detect the enemy in surveillance by Drones and UAVs. The use of robots would be integrated into the close combat battle, robots would be able to enter into the target area and attack on adversaries.

Its capacities are more lethal than humans. These technologies can effectively be used in counter-insurgency and anti-terror operations by armed forces and paramilitary forces.

The AI is getting integrated into unmanned surface vehicles such as tanks and cars (Unmanned cars can be used in the military). Russia is developing 'Udar' unmanned tanks which are also able to interact with drones and can mount robots on them. (Asthana, 2021) India has established an integrated battle group (IBGs) as a part of its 'Cold start' doctrine. The Integration of AI in the battle tanks as well as communication between tanks and drones would provide the upper hand to the Armored corps. Another point the Indian Army will have to consider is the use of drones against tanks, artillery and manned force. Azerbaijan used Turkish drones to attack Armenian conventional forces. In the possible scenario, China and Turkey can export drones and UAVs to Pakistan. Thus, it is likely that Pakistan can use drones and UAVs in order to counter India's cold start doctrine.

AI can also be used in Naval platforms. The US, Russia, and China are putting efforts into research upon unmanned platforms for the navy. The use of unmanned submarines would be an integral part of naval warfare. In 2020, China has successfully tested 56 'swarm sharks', which can be integrated into the PLA Navy. China has significantly enhanced its defence investment and budgetary allotment for research in AI. The integration of AI technology in naval platforms would boost the PLA Navy's capabilities in the Indo-Pacific region.

India is also making efforts in AI for Naval platforms. India, being a major country in the Indo-Pacific region, has to dominate and control the seas for the security of sea lanes of communications and international shipping lanes. The AI technologies such as unmanned patrol vessels, unmanned helicopters, drones, UAVs can be used for surveillance and reconnaissance. The unmanned submarines or unmanned undersea vehicles (UUVs), equipped with ammunitions and short-range torpedoes would be a major deterrence to the adversaries. It would be able to provide the upper hand for sea control to the Indian Navy.

In the same way, the integration of AI would enhance Airforce's capability to acquire the target, and to avoid the enemy's air defence radars, etc. The AI technology also suggests the use of weapons to fighter pilots. In an adverse situation or dog fight, it provides an upper hand to the pilot. The US is effectively using AI for the maintenance of fighter aircraft. For example- F-35's Automatic Logistics Information System (ALIS) uses real-time data from the aircraft's engine and other onboard systems to predict the next maintenance date and the issues that need to be addressed (Malhotra, 2021)

Air Defence and Nuclear Command and Control System

The US started computerization in ballistic missile defence in 1983. They have integrated AI in Tomahawk anti-ship missile (TASM), High-Speed anti-radiation missile (HARM), Joint unmanned combat air systems etc. (Morgan, 2020) India also has a ballistic missile defence program. Several missile defence systems and missiles are integrated into the services. India can enhance their capabilities by inducting AI applications into the missile system or in command-and-control platforms to make accurate decisions based on processed information.

The army moves on its belly

Logistic management is the backbone of force structure. The AI can be utilized for logistic maintenance in forces for the supply chain management. Drones and unmanned helicopters can be utilized to supply regular accessories like food, clothes, medicines, ammunition to the forward posts in the border region. In India's context, it can be used to supply high altitude terrain in the Siachen glaciers.

Read complete article on FINS website

Quad & Technology Cooperation

By - Dr Jaijit Bhattacharya

Author is a noted expert in Governance & Societal Transformation leveraging technology. He is President of the Centre for Digital Economy Policy Research and CEO of the cutting edge Fintech startup, Zerone Microsystems Pvt. Ltd. He is involved in Technology Policymaking for the Indian Army and has coined the term "Technological Sovereignty".

A Quadtech equation is a pun on quadratic equations because those are little complex equations to solve. So is the cooperation in the domain of technology. It is complex and we are talking about the Quadtech equation because of one country – China.

Let me take you through a background of China because I was engaged in some of their technological pursuits from 2006 onwards. In 2004, they had a network standard called WAPI which was a wireless LAN standard that competes with what we call wi-fi nowadays which is based on IEEE 802.11 standards. WAPI was a homegrown standard in China just like India had its standards in various campuses. China went forward with protocol and proposed that anybody who is creating a device that supports wi-fi must also support WAPI. Based on this proposal, there were almost 18 rounds of discussion between the vice-premier of China Wu Yi with US Vice-President Dick Cheney.

Just to highlight how important this discussion on this small standard was that at the same time our defence minister Jaswant Singh and Steve Talbot of the USA government had 16 rounds of discussion on the nuclear deal. It is clear that WAPI was dealt with more senior people in the government and had a greater number of discussion rounds than the Indo-US nuclear deal. Perhaps, it is not that hard to imagine how important WAPI was for the Chinese government.

In the end, the Chinese Government relented because they desperately wanted to get into the World Trade Organization (WTO). WTO transformed China, as it enabled them to freely push their goods into the rest of the world. But they let go of WAPI. Chinese realized that it is a big issue to let go of the technology developed locally. They faced the brunt of it. They would manufacture but the bulk of the revenues would go to people who were holding the patents. That was a key issue that China faced.

Therefore, from then in the next 15 years (2020-21) they ended up becoming a global tech-innovation leader. That is the problem that we are facing right now. They want to have the entire technology cake. They don't want to leave it for anybody. They don't want any other standard to come in. They are grabbing technology either covertly or overtly or through IPR violations or through hacking through cyber violations. They're getting technology in any way possible. China has become a leader in technology in many areas. This is what has woken up the Quad besides the fact that there is a security issue.

Technology has become a very key issue. It is important to understand how US is responding to this challenge? In the last years of the Trump administration, America went ahead and recast the President's Council of Advisory of Science and Technology popularly called PCAST. This has been a continuous factor in US policies. There has not a heartbeat that got missed even when the presidency changed. The same policy is continued to make sure that the USA gets leadership in semiconductors and critical technology and China is thwarted from stealing IPR from the rest of the world. Therefore, Quad must be seen in that context.

If we look at the USA itself from 1791 onwards, it has been relentlessly pursuing technology and innovation. There was a report by Alexander Hamilton in 1791 called the Report on Manufactures which essentially said that America needs to get out of the slave labour and plantation driven economy and for that manufacturing is the only way forward. Manufacturing was the coolest thing to do. If a country don't get into manufacturing if it doesn't have the technology, you will never become a prosperous country. That was relentlessly followed by the USA century after a century from 1791 onwards. US wanted to be the leader in the telegraph, railroad, and semiconductors. You name the technology and the US government put its might behind ensuring that the American industry becomes leaders in each of these technologies.

This is contrary to the popular view that the USA believes in laissez-faire that anybody can do anything and the government will not interfere. The government intervened and drove the economy relentlessly century after century. This is why the USA has become the powerhouse of wealth and technology. America understands that wealth and technology are deeply connected to the extent that they have legislation which is called the CFIUS legislation which ensures that foreign entities cannot come in and buy US companies that hold key technologies.

Why Pursuit of Technology

Why did the USA think that they must have a technological advancement? Japan, South Korea and several other has gone down the same path. Other countries learned from America. They have relentlessly followed technology because technology is wealth. That's in terms of what India used to produce for example – wood steel. You cannot have a proper sword or proper defence equipment in the 17th 18th century without having wood steel. There was a time when nobody else in the world could manufacture high carbon steel. India created crystalline sugar from ithe Harapan civilization onwards till the time that the Chinese under the Tang dynasty in the seventh century tried to force Harsha empire to part with that technology. When the Harsha empire for 20 years did not pay heed, the Tang dynasty and Tibetans banded together to send a troop across the Ganga plains slaughtered 3000 people got hold of those who were manufacturing sugar and took them back to China. The effect of this event is such that we now call sugar as Chinni because Chinese started exporting sugar back to India. Indians realized the ability or the power of technology be it with zinc, shipbuilding, calculus, trigonometry, we can go on and on and on.

This is contrary to the view that we got rich by selling vegetables to America or Europe in the 16th & 17th centuries. No, we were selling technology be it textiles or be it steel. Anything that we were selling out of this country was driven by technology. What we lost out on was technology.

If you look at even the India Britain technology history, in 1813 UK passed the legislation banning Indian build ships because shipbuilders in Britain went to the King and said 'if British government do not stop the Indian ships, British shipping industry will die of starvation and when the royal navy needs repair there will not be a local industry to support that'. British ship building industry could not compete against the Indian ships because Indian ships were bigger, better, stronger with a lower life cycle cost. So, they went ahead with the legislation and banned it. This is all recorded in the British parliament. This is not a jingoistic statement. It's all recorded.

That was the first recorded Atmanirbhar step that Britain took. That's the importance of technology. India might have continued to build ships and would have had the best shipbuilding industry in the world. But it was cut short because of the Atmanirbhar policies that the British put on top of us.

QuadTech Challenge

Now Quadtech challenge is that China has become a leader in various technologies. That's worrisome for everybody around. That is where we need to have a mechanism to find out how we can counter this challenge otherwise every aspect of our life will be controlled by an entity that does not believe in the rule of law. That's the biggest issue. We see it happening since the time there was a cyber bombing of the centrifuges in Tehran which is pretty similar to the epoch-making event of the bombing of Hiroshima Nagasaki in 1945. The same is the impact of the first cyber bombing that happened which got the nuclear centrifuges of the Natanz nuclear site of Iran to spin out of control and got damaged physically.

The worm that was used is called a Stuxnet. The same worm has been now redeployed by China. China since this incident has taken over multiple cyber attacks.

Cyber security is one dimensions of the cooperation that we need between four Quad players. If you look at the dragon attacks, I m calling them the dragon attacks because they're coming from China. Last year Mumbai had a massive power outage the entire city came to a grinding halt. People could not move, banks did not operate, ATMs did not operate. The same happened with the USA where they accused China of having a globally hacking spree. The entire IPR of Microsoft was taken out.

Microsoft entire system was hacked, and everything was taken out of the Microsoft systems. Similarly, Chinese hackers were suspected of massive cyber-attack in Australia. The attacks in Australia were far more severe than the attack on Mumbai. Same in Japan, as it lashes out against alleged Chinese military cyber-attacks. This is not just a single event. It's been happening again and again.

This is only one dimension of technology which is cyber. We see the brunt that's being faced by not just Quad but the rest of the world. Eventually the dragon is encircling. Even though key technology leaders globally is Japan and the USA along with Britain, France, Germany. India is catching up.

Militarily Quad has banded together or at least geopolitically banded together as Australia, Japan, India and the USA. Between these four countries, we have almost one-fourth of the world's population one-fourth of the world's GDP perhaps more than 30 per cent of the world's GDP. However, we see that we are being pushed out of many of the markets. Seventy per cent of the smartphone market in India is owned by Chinese smartphones. All detailed information including chats and phone calls of most people in this country can be accessed by the military of the nation that manufactures these phones. Why won't they as they would like to know all important chatter. They are knowing that because we are using a technology that goes straight through their hands and through their servers. So we have a massive economy that is significantly compromised. It's not just India, it is same with Australia, Japan and the USA.

Also Japan, Australia and India has been facing severe bullying by China. So the issue is about China. Therefore when we talk about quad tech it's concerning China.

As a strategy to counter such threats, USA went ahead and banned android for Huawei. It will not stop Huawei but it will delay them same as what happened with the centrifuge of Tehran. It will not stop Iran from creating the nuclear bomb it'll only delay them. That will probably give some breathing space to the USA corporations and perhaps Indian, Australian and Japanese corporations to be able to get back in the game.

Globally China has an extremely disproportionate share of the smartphone's market. The smartphone is personal equipment. It is almost tied to a body. So, everything that we do include our oxygen levels in the body can be measured by the sensor in many smartphones. Therefore, everything about us is known to somebody who may be interested in knowing things about us. Also, it is a mechanism of pushing apps that are made in China. Therefore, there is a further compromise. Also, in terms of critical infrastructure, you can compromise a large number of people at the same time. Typically, you really can't compromise one person and sabotage a critical infrastructure but when you can compromise many people because all of them are using smartphones you can compromise that infrastructure and that's extremely worrisome.

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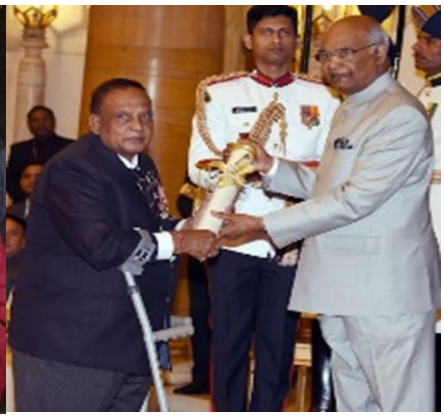
Nation is Indebted to:

Padmashri Murlikant Rajaram Petkar

Born: 1st November 1947





A true man with grit and fighting spirits beyond limit, Murlikant Petkar's story is unique one. And his life journey is explicitly narrated in the book "Courage beyond Compare"

Mr Petkar's love for the sports shone through in his early schooling years as he excelled at sports like wrestling, hockey and athletics. Murlikant Petkar later enrolled in the Boys Battalion of the Indian Army in Pune, he soon established himself as a strong sportsperson and excelled at every sport he tried a hand at. In 1964 he was chosen to represent Indian Army in Boxing at the International Services Sports Meet to be held at Tokyo, Japan. On returning, he was transferred to Secunderabad where he started training to be an armorer in the Corp of Electronics and Mechanical Engineering (EME) along with preparing himself for the Nationals.

Unfortunately, this star player found himself at the onset of the 1965 Indo-Pak War at the Sialkot Sector while he was in Kashmir. Petkar suffered multiple gunshot wounds, was run over by a car, lost his memory and as a blaring reminder of the horrific incidence still has a bullet lodged in his spine. However, showing extraordinary courage, he made significant recovery over the next two years. His interest and love in sports continued in spite of all odds. He continued his practice even though handicapped.

Among his many recognizable feats, the most extraordinary one is that Padma Shri Murlikant Petkar brought India its First ever Olympic Gold Medal in the Summer Paralympics held at Heidelberg, Germany in the August of 1972. At the same event, he had also created a new world record in 50 M Freestyle swimming (37.33 seconds).

Throughout his sporting career he has won laurels for the country at events like the Stoke Mandeville International Paraplegic Meets held in England where he consistently outdid his own records and won the General Championship Cup for 5 consecutive years (1969-73); the 3 rd Commonwealth Paraplegic Games held at Edinburgh, Scotland where he bagged Gold in 50 M Freestyle Swimming, Silver in Javelin Throw and Bronze in Shot-put; the International FESPIC Games in Hong Kong in 1982 where he created another world record in 50 M Swimming, among others.

Mr Petkar, worked at TELCO Pune 1972 onwards in Public Relations Department.

In 2018, Murlikant Petkar was awarded Padma Shri. This happened 45 years after he won India's FIRST Paralympics Gold medal.

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