**Challenges to deterrence**

[Dr Shoaib Baloch](https://dailytimes.com.pk/writer/dr-shoaib-baloch/%22%20%5Co%20%22More%20Articles%20by%20Dr%20Shoaib%20Baloch)

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Michael J. Mazarr defines deterrence as ‘the practice of discouraging or restraining someone-in world politics, usually a nation-state-from taking actions, such as an armed attack.’ It involves an effort to stop or prevent a state from taking military action against another state. A weak state often tends to undertake preemptive military action against a perceived threat, but a powerful country deters the weaker power from taking undesirable actions. In the new era of deterrence, there are multiple challenges to deterrence, including cyberwar, space superiority, artificial intelligence and autonomous weapons, hypersonic weapons, anti-missile and air defence capability, and conventional wars under a nuclear shadow.

When a state develops a cyber capability, it can disrupt the control-and-command system of the adversary. Despite developing strategic and tactical or even nuclear weapons, a state is vulnerable to armed attack provided that its rival enjoys cyber superiority. In the age of modern technology, cyber security is indispensable to protect critical infrastructure, military installations, and government machinery. Only nuclear weapons cannot ensure deterrence as the command-and-control system remains under threat of rival power that may disrupt the attack. Deterrence does not work when one state develops cyber capability and ensures that the other state cannot carry out a second strike because its military prowess can be neutralized through cyberattacks.

Another problem that can fail deterrence is the race for space superiority. During the Cold War, the US and the Soviet Union were engaged in a space race that provided them the incentive to gain space superiority to achieve zero-sum military prowess. It increased the risk of star wars or Strategic Defense Initiative (SDI) between two great powers. Even in contemporary international politics, several states appear to be in the race for space exploration to gain space superiority. For example, India is striving to be a space power through scientific exploration to gain a military advantage against China and Pakistan. With space superiority, India can get geospatial information that facilitates the country to hit accurate targets in any military action. It creates security challenges for Pakistan which lacks space advantages vis-a-vis India. In this case, credible deterrence cannot be ensured as India disregards or even miscalculates Pakistan’s nuclear option.

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Apart from space superiority, artificial intelligence and autonomous weapons can render deterrence impracticable. Artificial intelligence uses sensors to determine targets and provide optimal pictures of the battlespace in real time. It also assesses post-attack damages that can help in pre-planned decisions about the outcomes of any military targets. Although it seems dangerous to feed artificial intelligence with the command-and-control system’s information to detect attacks and generate spontaneous responses to intercept missiles or any other weapons, artificial intelligence and autonomous weapons are being integrated into the security paradigm. It fails in deterrence because artificial intelligence assesses the damages of military actions and the response of the adversary.

As many countries have developed hypersonic weapons and delivery systems for nuclear warheads, it can compress space for reliable second-strike capability which is indispensable for successful credible deterrence. When a state launches hypersonic weapons, it shrinks time for thinking to determine whether the target could be achieved or not by the adversary. Thus, such a state preemptively strikes before damages to its second-strike capability. It consequently leads to the failure of deterrence. A preemptive strike becomes imminent as decision-makers become fearful of losing their deterrent might and they authorize a strike before the enemy’s attack.

With improved defence technology, the growing anti-missile and air defence capability of one state over the other has also created obstacles for deterrent might. Once offensive systems were dominant over defences in a military posture of major powers, new defence technologies have made it possible to intercept and neutralize the first strike through missile defences and space-based systems. Recently, in a retaliatory strike on Israel, Iran rained more than 300 missiles and drones. It was not only the first direct attack on Israel, but it also demonstrated Iran’s largest-ever conventional show of force. However, the US and Israel intercepted and destroyed most of these drones and missiles in space through anti-missile and air defences. This attack makes deterrence questionable in two ways: Israel’s offensive military might not deter Iran from direct attack, and Iran did not achieve its strategic objectives as its missiles and drones could not hit the targets.

Under the nuclear shadow, the growing possibility of conventional wars seems to have created another loophole in the deterrence system. When conventional deterrence was overwhelmed with the development of offensive weapons, nuclear deterrence promoted a strategic restraint regime and states continued to avoid wars.

For example, after the development of nuclear weapons, India and Pakistan have avoided limited wars. Although both strategic rivals have not engaged in full-blown war, they have fought several skirmishes since 1999. When India launched an air strike in Balakot in 2019, it signified the fact that states could engage in conventional warfighting despite the presence of nuclear weapons. However, Pakistan demonstrated its conventional capability and prevented India from achieving strategic objectives by projecting its conventional power in tandem with nuclear deterrence.

Similarly, Iran has also carried out airstrikes against alleged militant outfits inside a nuclear power country: Pakistan. Pakistan’s nuclear posture is not against Iran or non-nuclear countries, yet nuclear deterrence as well as Pakistan’s conventional primacy has not repelled Iran from military misadventure. Another example is Iran’s recent retaliatory strike on Israel, which possesses nuclear weapons. In response, Israel has also launched drones against Iran, which has latent deterrent might. It signifies the fact that there are growing possibilities of conventional wars under nuclear shadow. Nevertheless, given strategic miscalculation, bounded rationality, cognitive biases, fog of information, and preemptive strikes on account of lacking second strike capability, the risk of escalation and nuclear exchange cannot be brushed aside in a volatile strategic environment.

*The writer is a strategic affairs and foreign policy analyst, based in Islamabad.*