



# Innovative Technologies in Countering Extremism and Terrorism

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## ABSTRACT

Terrorism and extremism are distinct concepts often interconnected in discussions about political, religious, or ideological violence. Terrorism mentions to the use of vehemence, pressure, or force to attain party-political, spiritual, or conceptual areas, disrupting normal life and exerting pressure on governments or societies. Extremism, characterized by extreme political or religious views, often involves radical ideologies and intolerance towards opposing beliefs, often seeking dramatic changes in society or politics, rejecting moderation. Extremist ideologies can sometimes lead to terrorist acts, but not all extremists resort to violence. It's crucial to differentiate between extreme beliefs and violent actions, as not all terrorists are driven by extremism. Recommendations to safeguard against security threats are proposed.

**Keywords:** Extremism, terrorism, criminal gangs, exploiters, Security threats.

## 1. INTRODUCTION

In recent years, as technology is advancing, the criminals also have access to the tools and technical know-how to modern technology, particularly the terrorists and gangsters involved in white collar crimes, bank frauds, robbery and having access to information to harm others. There are three kinds of terrorism namely revolutionary, sub-revolutionary and establishment; means formation, creation,

launching. "Ideologically motivated terrorism" is frequently observed. Smart identification systems, cutting-edge tools for acquiring and analyzing intelligence and use of the Internet can be a consequence in terrorism; these are examples of how technology can be a crucial weapon in counter-terrorism. Individual acts of terrorism are occurring round the word such as shooting in Mosque in New Zealand and recently in Texas USA where, two families suffered heavy loss of their loved ones; the

Police had to shoot the terrorist in Texas Mall. Another attack of deadly shooting occurred in Farmington, N.M. (Northwestern New Mexico) in May 2023, killing and wounding several innocent people by 18 years' boy. Therefore, it is pertinent and important to engage the most recent and innovative technology for surveillance integrated with CCTV cameras, for online identification and detection of groups of terrorists and individuals operating in public places. The devices must be installed in parks, schools, stores and other important buildings to save people from trauma and anguish [1].

## 2. PRESENTATION AND DISCUSSION

Countering terrorism and extremism involves intelligence gathering, law enforcement, community engagement, de-radicalization programs, addressing root causes, promoting tolerance, and countering extremist propaganda. Terrorism can manifest in various forms, including religious, political, state-sponsored, and ideological terrorism, with religious terrorism often stemming from extremist religious interpretations and political terrorism aiming to achieve political goals through violence. State-sponsored terrorism and ideological terrorism are driven by political and ideological motives, with complex motivations including political change, fear, revenge, chaos, and attracting attention. Terrorist acts are motivated by various factors such as political change, fear, revenge, chaos, or attracting attention, often using violence strategically to advance their agendas [2].

Terrorism significantly impacts societies, economies, politics, and international relations, causing widespread fear and instability by targeting civilians, infrastructure, and government institutions. Terrorism significantly impacts societies, economies, politics, and international relations by causing widespread fear and instability by targeting civilians, infrastructure, and government institutions. Extremism can cause social polarization, erode social cohesion, and foster tensions among different groups, potentially leading to hate crimes, discrimination, and conflicts. To combat terrorism, multi-faceted strategies include prevention through community engagement and education, and counterterrorism measures like intellect gathering, rule application, security, and international cooperation. Programs aimed at de-radicalization and rehabilitation involve providing psychological support, education, and reintegration of individuals involved in extremist activities, addressing root causes. Addressing underlying grievances like socioeconomic disparities, political grievances, lack of opportunities, and discrimination can help reduce extremism. Reducing extremism can be achieved by addressing socioeconomic disparities, political grievances, lack of opportunities, and discrimination [1].

Some important policy features of US Department of State are relevant regarding transparency, anti-corruption, arms control, combating drugs and Crime and countering the terrorism. Cyber issues. Programs of public diplomacy to educate people must be initiated to inculcate the importance of science and technology in collaboration with other nations. The Counter

Terrorism Department (CTD) in Pakistan, has been entrusted with very important responsibilities such as crime scene investigations, cross-examinations, interrogations, dealing with intelligence and anti-terrorism programs. Apart from suicide bombing and shooting to create harassment, the terrorists also commit several types of frauds to grab money and fund raising; such as, blackmailing, bank frauds, fraud using phone, computer frauds, credit card fraud, investment schemes, currency schemes, forgery and insurance fraud. Most of these frauds are committed abusing the Information Technology (IT) systems and breaking the security barriers of infrastructure of I.T Networks. In order to avoid such incidents, the financial institutions, banks and other entrepreneurs must at the first instance install the most recent licensed software for their working and that for Network Security. Banks are advised to manage their dedicated Intranet and extranet and to have departmental communications as well as with stock holders and stakeholder [3].

Techniques for detonating explosives early or avoiding their triggering are part of the science and technology developed specifically to combat terrorism. The majority of S&T counterterrorism technologies are very beneficial for general intelligence, law enforcement, or public health-related goals. According to [4], the psychological issues and factors cannot be ignored as they contribute towards terrorism in Pakistan, the terrorist attacks against the environment of Pakistan's history, present geopolitical environment and contemporary societal environment. The results might also serve

as a roadmap for resolving this fundamental problem. In most of the religions, there exist provision for ritual murder, martyrdom and self-sacrifice, the terrorists exploit this concept to convince their suicide bombers, attackers and shooters. This is in fact a kind of mental disorder. However, in Islam "self-sacrifice" is "haram".

One of the most salient aspects in terrorism is the extremism in various forms. In Pakistan, the NACTA (National Counter Terrorism Authority) is contributing towards eradication and countering terrorism and extremism through education, awareness and by all other relevant means. A useful document presented by NACTA in [5] is about Pakistan's narrative in connection with Terrorism and Extremism. It discusses a popular FATWA signed by 1800 renowned muslim religious scholars of all sects of Islam including scholars of Al-Azhar University and Imam-e-Kaba. It redirects the salient features of Quran and Sunnah to create harmony between all religious sects in Islam. The educational institutions must be kept under close scrutiny to observe if they are spreading, endorsing militancy hatred, terrorism, violence, extremism must be taken to law enforcement agencies for legal action. There exist different definitions and analyses of violent extremism, it is a complicated issue, used in academic settings. In different communities, depending on their particular structures, it is viewed and tolerated in different ways. The academic institutions should be prohibited and forbidden to endorse and promote hatred for Pakistan and extended training for terrorism. In the presence of Pak Army, Air Force and Pakistan Navy,

no individual, groups or provinces can declare Jihad. The role of implementation of Science and Technology is of immense importance. According to [1], technological solutions exist for almost all problems related to terrorism. Pakistan being the front state as one of NATO allies suffered heavy losses, special in terms human casualties about 70,000. The terrorists used explosives against innocent citizens by means of conservative weapons. Majority of attacks were led by terrorists infiltrating from Afghanistan into Pakistan; though the borders are well-fenced now.

Pakistan Army vacated about 50,000 square km area sideways with western border from the terrorists capturing their arms and ammunition. For this purpose, the requisite technology equipped with modern sensor devices using Artificial Intelligence algorithms is most suitable for observing, checking and monitoring suspicious people and vehicles. The technology industrialized Midas detection System by Turkey namely Bayraktar TB2, STM Kargu-2 for integrated security solutions is useful for constant watching and surveillance.

The present author of this essay had an opportunity to work with highly skilled and qualified Chinese team of experts of Department of Automation, Shanghai Jiao Tong University, Shanghai China, having position in World QS Subject Ranking: 26 and Engineering & Technology World QS University Ranking: 47. The team developed the systems for monitoring and surveillance based on automatic detection and analysis without human intervention. The entire systems have been published and reported in

[2] and [3] based on “Multi-Stream 3D latent feature clustering for abnormality detection in videos” linked with CCTV at important places. The second System works with “Multi-Level Two Stream Fusion based Spatio-temporal Attention Model for Violence Detection and Localization”. These systems may be installed at impotent places. The process of abnormal behavior in surveillance videos and its detection is essential for public safety and monitoring, which requires constant focus.

The other innovative technology termed as Geo-fencing has been very effective to detect criminals and terrorists as reported in [6]. It works in conjunction and combination with RFID (Radio-Frequency Identification), CRD (Call Record Data) along with GPS (Global Positioning System) and WiFi. The procedure is to create a computer-generated, simulated, cybernetic and virtual geographical boundary to cause and activate a marketing action to a mobile device (may be mobile phone), so that when user enters into or exits that virtual boundary around certain location in GPS or RFID is detected.

The use of innovative technology called “Demilitarized Zone” with Networks is of extreme impotence as strongly recommended in [7]. This technology provides access to the untrusted gangsters who intervene into a Network and it delivers extra layer of security to Network or LAN (Local area Network). Its major goal is to have access to untrusted networks. The companies store Data from external source like, Voice over Internet Protocol (VoIP), (Domain Name System) DNS, FTP (File Transfer Proto-

col), Mail, proxy and their web-servers in the Demilitarized Zone for security and sensitivity of DATA. The Demilitarized Zone makes it difficult for hackers and trackers to have access to the company's important information. It works with two fire walls (the hardware firewall and software firewall) to protect the working of router from hackers and trackers. Using this procedure, the disturbances caused by terrorists in communication, stealing servers, spoiling websites and causing financial loss can be avoided [8].

### 3. RECOMMENDATIONS

1. The well tested, innovative, cultured and refined technologies must be used to combat and fight with terrorists. The system for gathering intelligence must be coupled with new technology to minimize pressures and strains.
2. Methods for averting and triggering of explosives or guaranteeing their early detonation are part of the science and technology and important to fight with terrorism.
3. The terrorist use cyberattacks, DDoS and different malware, phishing to have access to their targets. Therefore, precautionary measures must be taken.
4. Following technologies being effective in the areas of combating terrorism are also recommended:
  - Biometrics
  - Data sharing
  - Drones intelligence, surveillance and targeting
5. The border security is required to be strengthened using Video surveillance of terrorists.
6. The majority of "Science and Technology policies" regarding counterterrorism technologies are very beneficial for areas related to general intelligence, law enforcement, or public health.
7. The law enforcement agencies must be strengthened with adequate funding, most recent innovative ecologies, technically skilled man power for using the technologies concerned to counter terrorism.
8. The specific countering terrorism strategies must include premature blasts recovered from terrorists to safe guard the public health.
9. In order to counter the de-radicalization, terrorism, violent extremism, sectarianism in Islam promoted by madrassas must be closely observed by task force already exiting in Government files. The concerned persons promoting such dogmas, creeds, doctrines and beliefs must be arrested.
10. The Social scientists frequently use the Information Technology, Computer Software operational research and various statistical packages, therefore they examine the patterns in occurring of

terrorist actions and carryout depth studies in the areas of terrorism by gangs, hate crime related to extremism and their social networks along with their modus operandi.

11. The Social Scientists have to focus, while conducting surveys on different terrorist groups and their dynamics with respect to society and how terrorist groups are formed and operate; investigate if these groups are instigated, prompted and activated for mass destruction using armaments by religious fanatics.
12. The Social scientists must use as advocated in [9], the internationally known and developed, during last 60 years, the Databases and famous open Data Sets on terror incidents.
13. For the sake of oversight and public safety, it is crucial to identify unusual behavior in surveillance footage. However, it is a difficult process that requires ongoing emphasis and “human care” for human-based monitoring systems. Automatic detection of such situations is therefore very important.
14. Several terrorists are arrested and produced before the court, who are acquitted. This amounts to injustice with victims of terrorists. The major reasons are that naïve cases are prepared against them; such as defective FIR against unknown accused persons, eye-witnesses are not mentioned, statement under section 161 is defective or absent from the record file, material and forensic evidence is not properly collected from scene of offence, late submission of challan and finally poor prosecution destroys the case and hence the terrorists are set free.
15. It is strongly recommended that all the defects in registration of FIR, investigation, identification parade, confessional statement and contradiction in medico-legal report must be eradicated and removed.
16. It is recommended that cell phone and telephone surveillance technology for counterterrorism purposes may be provided to the Counter Terrorism Department (CTD) Pakistan. There is an urgent need to adopt, develop and implement Data fusion and Data mining in the field of intelligence and its analysis. Moreover, introduction of protective gear, sensors for the purpose of communication is most required technology.
17. The UN Security Council and the Counter-Terrorism Committee Executive Directorate (CTED) helps nations countering Terrorist and has been providing consultation to Pakistan on counterterrorism. Pakistan may implement the useful suggestions.
18. While enhancing the efforts to implement Science and Technology, the

Universities must be encouraged to take up research projects at MS, M.Phil and PhD level in the areas of counter-terrorism coupled with other disciplines for more effective use of new technologies; in collaboration of industry with academia. The Higher Education Commission may play a pivotal role to award Research Grants.

19. The Government may also overhaul, refit and update the existing Technologies to counter terrorism.
20. The key to success is to concentrate in the Surveillance, constant security and arranging technology where ever required to combat terrorism and to detect the suspicious behavior.

#### 4. CONCLUSION

21. This is right time to use all available technologies and measures to avert and counter terrorism and extremism in all forms. We must control smuggling in the name of trade and infiltration of terrorists from Afghan borders; causing serious economic crises. The essential commodities like edible oil, wheat, rice, lentils, poultry products and meat along with several imported items from Pakistan are smuggled on daily bases. Pak Army is best in the world and all Pakistanis love and salute them. In recent acts of grave violent extremism, terrorism and harming national property and attacking the army installations, the

entire nation is with Pak Army. Strict action against the terrorists and extremists as well as persons camouflaging, masking, obscuring, protecting and instigating must be taken to task and punished according to law regarding terrorism. The terrorist activities happened on 9th May 2023, a number of terrorists are alleged to be from Afghanistan, who accompanied Pakistanis to destroy Army installations and national assets countrywide.

A beautiful quotation from Al-Quran: Sure Al-e-Imran Verse 103 is presented:

وَأَعْتَصِمُوا بِحَبْلِ اللَّهِ جَمِيعًا وَلَا تَفَرَّقُوا

Muslim scholars must promote this Quranic philosophy to counter extremism and to create coordination, congruence and harmony between various sects of Islam.

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