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ADOPTION OF ALIN WARFARE: COMPARATIVE STUDY OF INDIA AND PAKISTAN

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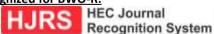
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Abstract

This study investigates how AI has impacted South Asian military strategy, concentrating on nuclear-armed India and Pakistan. The shift from deterrence to Al-driven military operations threatens regional security. The basic objectives of this study were: to explore the nature of arriving AI technology in the modern warfare domain and to assess the ongoing defense tendencies in terms of global alliances of India and Pakistan in the field of AI technology. These two countries have been engaging in realistic endeavors and with the militarization of AI, their relationships have deteriorated abruptly. A qualitative method was used to carry out this study in which Interviews with military personnel, policymakers, and other experts were used. It was concluded that it is important to recognize that each interview offers a distinct viewpoint on the role of artificial intelligence in modern warfare. The responses varied in terms of the amount of material provided, the focus particular relationships, on and acknowledgement of geopolitical problems in the region; yet, there were common themes of global alliances in artificial intelligence. Every response contributed to the existing corpus of information regarding the intricate ramifications of integrating artificial intelligence into contemporary combat, by highlighting present technology advancements, ethical considerations, and possible hindrances. The influence of artificial intelligence on the military dynamics of India and Pakistan is a subject of intense debate, with conflicting opinions on the participation of foreign powers, ethical issues, and the national security of the area.

Keywords: Conflicting, Warfare, India, Pakistan, Rift

Introduction

Al is defined as an improved version of information that can be used to practice work both digitally and physically. It is a revolutionary tool for armed forces allowing them to enhance militarization accordingly. It is used to create regional tensions that can be alarmingly disastrous at a certain stage. It is being constructed through scientific developments like data, machine learning, and algorithms. It has impacted all sorts of human labor and warfare has reached a new definition due to it. Rather, an improved and calculated version of warfare is impacting regional dynamics. As per Russian President, Vladimir Putin "AI is a new controlling warfare of the 21st century. Whoever controls AI, will control power and order of the world". Hence, Al has impacts on warfare and now it is impacting regional stability through its vast prospects (Aswani et al., 2019). In today's international system, where formal security planners of various states have accepted the significance of modern warfare technologies in their traditional strategic thinking, there is an undeniable connection between modern warfare technology and the emerging trends of Artificial Intelligence (AI). The current fight against peace and Artificial intelligence (AI) are becoming legitimately linked with Pakistan and India. The two countries have seen the essential importance of AI in formulating their surveillance rules and breakpoints. Pakistan has effectively examined the uses of AI to enhance its stealthy and hostile capabilities with its growing military (Aswani et al., 2019). From developing recreated autonomous robots filled with data to incorporating manmade data analytics for intelligent analysis in counterinsurgency solutions, Pakistan's premier institution is adopting PC-based data enhancements to keep up with its key position. Similarly, India, with its subsequent surveillance area and mechanical breakpoint, has been implementing battle plans based on PC-based data. India relies on classifying

created understanding into different parts of its security apparatus, with initiatives like the Shield Creative Work Connection driving manmade information research projects. This consolidates PC-based data-driven understanding structures along the Line of Control (LoC), detailed maintenance of military materiel, and upgrading of free vehicles for worked activities and discernment purposes. As the two countries analyze the complexities of current local and proximity security challenges, the incorporation of repeated data into their security procedures adds another point to their long-standing overall ability of man-made investigation. The information to foster powerful cycles, increase situational attention, and disrupt disaster area components highlights the importance of this knowledge in improving the future of the Pakistan-India conflict. Regardless, the striking power of recreated information also conveys moral issues, key issues, and the need for careful association to lessen the dangers associated with its use in interaction. States have been able to improve the traditional warfighting capabilities of their armed forces because of the growing global appreciation for the introduction of AI technology in the field of security and defense. They also believe that the AI-supported modern weapon system has improved the operational capabilities of their regular armed forces. The standard guard organizers of the states having threatening associations with others have underlining the achievement of present-day fighting advancements to further develop their homegrown weapon businesses (Khan & Anwar, 2021). The South Asian region, where India-Pakistan's ongoing strategic competition complicated the regional environment through a variety of doctrinal changes, is an appropriate application of this scenario. States like Pakistan and India often use modern warfare to advance their interests in the era of AI. Pakistan and India have asked to pursue realistic projects that aim to maintain deterrence through AI in this situation. The Defense Research and Development Association (DRDO) of India is utilizing simulated intelligence to forestall struggle and adjust to reasonable fighting methodologies (Cheema, 2010).

Problem Statement

Nuclearization in the subcontinent has potentially changed the traditional security paradigm of the subcontinent and the regional security outlook of the South Asian region. In the space of AI skirmishes, Pakistan and India are forced to continually create and change. They must devote resources to examining, moving, and integrating man-made knowledge into man-made areas. In this regard, they can stay ahead in the current persistent fighting scenario and protect their public safety interests. Continual renewal of defense industries in archrivals Pakistan and India applies emerging technological advancements in the formal security mechanisms. India is currently investing heavily in its domestic defense industry to develop various Alsupported weapon systems. In addition to the brief AI-specific developments in the form of semi-autonomous weapon systems, the guest for developing a fully autonomous weapon system is still beyond Indian limits.

Research Questions

- What is the nature of arriving AI technology in the modern warfare domain?
- What are the ongoing defense tendencies in terms of global alliances of India and Pakistan in the field of AI technology?

Objectives of the study:

- To explore the nature of arriving AI technology in the modern warfare domain.
- To assess the ongoing defense tendencies in terms of global alliances of India and Pakistan in the field of AI technology.

Significance of the study:

Focusing on Artificial Intelligence holds colossal importance, especially concerning South Asia, where overall strains and military struggles are unpreventable. Given its capacity

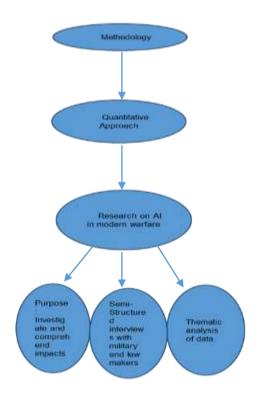
to change the components of battling, understanding the repercussions of man-made knowledge in this district is principal. For example, as per a report by the Overall Beginning stage for Urgent Evaluations, the use of man-made information in military tasks could essentially additionally foster battle limits, with recreated knowledge-filled free weapons frameworks turning out to be consistently ordinary.

Literature Review

In the discussion of AI integration in weaponry, Grace & Salvatier, (2018), argue that the military adoption of AI would have extensive and fluctuating implications on the future of warfare and the global strategic environment. According to their predictions, the innovative nature of AI has the potential to fundamentally transform every single industry, with experts estimating that 50 percent of AIdriven robots will surpass humans in all tasks by 2065 and eventually automate all human jobs by 2140. India will be able to control its influence on the decision-making apparatus (AI) of these commons soon. However, Pakistan needs to focus on how to incorporate advanced technologies in its military systems to secure its Assets and to stabilize strategic Security in the region and South Asia. According to Topychkanov, (2020), the concept of planned stability is becoming obsolete and evolving in the context of nuclear-armed South Asian countries. Consequently, the forecast of Al militarization may yield both favorable and unfavorable impacts on the tactical stability of South Asia. Cheema emphasizes that the potency of nuclear deterrents and strategic stability are essential to the peace and security of South Asia (Cheema, 2010). As the region's nations develop their AI capabilities in the military domain, it becomes crucial to carefully assess the implications of such advancements on strategic stability and deterrence dynamics. This requires comprehensive analysis and prudent policymaking to ensure the preservation of peace and security in the region. Cheema (2010) emphasizes that in the comparison between Pakistan and India, numerous deviation features will have a severe impression on tactical stability. This includes their conservative military and nuclear weapon competencies, modernization efforts on both grounds and the impact of the conventional military on irregularity on deterrence and tactical stability.

Research Methodology

The qualitative method is used to carry out this study. The basic purpose of this research was to investigate and comprehend the impacts of artificial intelligence in modern warfare specifically targeting India and Pakistan.



Semi-structured interviews with military personnel, lawmakers, Al and defense experts, and other South Asian stakeholders were done. The collected data is analyzed using thematic analysis to discover recurring themes, patterns, and ideas

Results and Discussion

Question 1: What is the nature of arriving and adopting AI in modern warfare

See Annex A

The responses given here provide an exhaustive synopsis of the consequences, difficulties, and potential benefits of using AI in modern warfare. The most salient points that came out of the responses are as follows:

R1 tells how this will affect traditional defensive systems, strategic conflicts, and the conventional to wage battles. Improvements in decision-making, predictive analytics, and autonomous systems are some of the areas that R2 emphasizes as having recently developed. highlights the R5 possibility that AI might greatly enhance military capabilities. Both R2 and R4 go further into the technological advancements related to AI in the realm of warfare, including topics like cyber operations, intelligence analysis, autonomous weaponry, and more. Several Responses including R2, 3, 6, 7, and 8) address ethical concerns, such as autonomous weapons, their possible abuse, responsibility, and the necessity of accountable leadership. R3 and 6 delve into the topic of global competitiveness and the arms race among states, driving this trend. (Delcker, Heil, et. al. 2024), To make sure that AI technologies are used appropriately and ethically, both R6 and 7 stress the importance of human-machine collaboration. R8 stresses the importance of comprehensive evaluation, regulation, and cooperation among many parties stakeholders to handle the intricate and everchanging nature of AI in contemporary combat. R9 provides a comprehensive review of Al's uses in defense. The military uses it for a variety of purposes, such as planning, guided weaponry, forecasting, identifying targets, and spying. R10 highlights the recognition of Al during armed conflicts and its use for humanitarian and relief missions international humanitarian law. (Stevic, 2024), R10 offers an additional perspective on how AI influences supply chain and logistics optimization.

Question 2: What are the ongoing tendencies in terms of global alliances of Pakistan and India in the field of AI?

Table 2: Ongoing tendencies in terms of global alliances of Pakistan and India

See Annex B

There is a range of opinions presented in these responses about the development of AI and collaboration between Pakistan and India. R1 delves further into the rivalry between Pakistan and India, analyzing the two nations' strategies for AI research and development. In it, the Indian government highlights its multipronged strategy and its cooperative relationships with technologically advanced countries. Pakistan seems to lack India's competitive capabilities in the field of artificial intelligence. R2 and R3 take a more general approach, mentioning that the two nations will most likely collaborate with other nations for a variety of purposes, such as defense and strategic applications. (Thanomsing, Sharma, 2024), There is a lack of detail in this text regarding the type of cooperation and the participating countries. R4 and 5 like R2 highlight the fact that both nations are aiming to enhance their technological capacities, particularly in artificial intelligence, and may even engage in joint projects with foreign allies. On top of that, it skips over some relationships and doesn't give a thorough comparison. R6 delves into the bilateral partnerships between Pakistan and China and the UAE, and India and the US, Australia, and France. Additionally, it. India's involvement in Al applications for both civilian and military purposes. R7 and 8 gives a more detailed comparison, explaining how India works with big nations on AI and how the government is focusing on civilian and military uses of the technology. This contrasts with Pakistan's relationships, especially those related to defense, and it reveals that details about defense collaborations focused on AI are

discussed less often, R9 prioritizes the everchanging nature of international partnerships in the AI area, taking a more comprehensive approach. Although it doesn't go into specifics on alliances, it does say that both countries are keen on using AI for commercial, technical, and strategic purposes. R10 suggests that both countries are working to the best of their abilities to form global alliances in strategic and technological areas. It shows that the relationship between Pakistan and India is weak in the domains of artificial intelligence and R&D and that there are few contacts between the two countries at the academic level. Furthermore, it emphasizes the heavy dependence on security by both countries. R11 provides accurate information collaborations, much like the previous four and five answers. This article delves into the partnerships between Pakistan and China and Turkey, as well as India and the US, Japan, and Israel. (Zainab, Ambreen, 2023), As a result of their geopolitical differences, Pakistan and India have been unable to work together on any significant initiatives. Despite many responses sharing comparable themes, such as the importance of global alliances in artificial intelligence (AI), there are differences in the amount of detail, the focus on partnerships, and the emphasis on geopolitical tensions between Pakistan and India. Responses R1, R4, R5, and R9 go into greater depth about collaborations, while the remaining responses cover more ground when it comes to AI advancements and partnerships.

Question 3: Are there any notable differences or similarities between the defense tendencies of New Delhi and Islamabad regarding Al technology in modern warfare?

Table 3: Differences or similarities between the defense tendencies of New Delhi and Islamabad regarding AI

See Annex C

Code Name Designation Response R1 Attique Ahmed Associate Professor The similarities and differences go parallel in the evolving competition of India-Pakistan in the domain of AI technologies. The similarities are based on the integration of AI technologies in their formal defense system, the application of AI technology in the cyber domain, and the increasing both state's development of UAVs and semi-automated weapon systems, where the development of fully-automated systems is still a major challenge for both states. This factor creates a big difference between Indian and Pakistani strategic engagements with other nations.

R2 Dr. Taugeer Husain Assistant Professor, Yes, there are differences and similarities between India and Pakistan in their approach to AI in defense. India focuses on an all-encompassing strategy, integrating AI into civil-military domains, while Pakistan emphasizes AI development for economic, educational, and social development. Both nations, however, demonstrate a commitment to leveraging AI for military purposes, with initiatives like India's Make in India initiative and Pakistan's Cyber Command and Cognitive Electronic Warfare program.

R3 Dr. Lubna Dean (NDU) Given historical patterns, both nations are likely to prioritize technological advancements, including AI, to enhance their defense capabilities

R4 Fahad Nabeel Lecturer lt is difficult to comment on the differences or similarities between the defense tendencies of both India and Pakistan because of the absence of a publicly available official viewpoint on AI integration from a military perspective. According to Pakistan's draft Al policy, AI and allied technologies can provide invaluable services in effectively combating terrorism and achieving defense targets. The policy acknowledges the impact AI has caused in several defense sub-sectors like intelligent surveillance systems, automatic drones, geographic target detection, autonomous path tracking in missiles, autofocus in tanks and guns, target detection and recognition, and

enhanced night vision. However, there is no official Indian position on defense-related priorities.

The major difference would be the Indian global outreach consideration while Pakistan is mainly focusing on responsive measures for the Indian threat.

R5 Khushboo Farid Teaching Of course yes, there is a huge Associate difference between the defence tendencies of India and Pakistan regarding AI and robotics technology in modern warfare. Pakistan's vision is more heavily weighted toward the development of AI for social, educational, and economic advancement. The goal of the Government Initiatives for Artificial Intelligence and Computing (PIAIC) is to advance blockchain, AI, and cloud computing opportunities for national industry, research, and education.

R6 Dr. Usman Amjad Assistant
Professor Both seem to work in similar directions like adopting modern technologies including AI for warfare. But the notable difference is the expenditure India makes towards R&D is significantly large as compared to Pakistan.

R7 Dr. Yasar Central Project Director, (NCAI)

Al technology has become a key factor in shaping the modern warfare capabilities and strategies of various states, especially those involved in regional conflicts and rivalries. India and Pakistan, two nuclear-armed neighbors with a history of hostility and mistrust, are no exception. Both countries have been investing in developing and acquiring Al-based systems and platforms for enhancing their defense and deterrence postures. (Rind, Pirali, 2024), However, there are also notable differences and similarities between the defense tendencies of New Delhi and Islamabad regarding Al technology in modern warfare.

R8 Zahid Niazi Inspector Special Service Department Both New Delhi and

Islamabad are investing in AI technology for modern warfare, but there are notable differences in their approaches. India's defense strategy emphasizes indigenous development and partnerships with technologically advanced nations, while Pakistan focuses on acquiring AI capabilities from allies like China and Turkey due to resource constraints

Conclusion

These comments share some themes, but each offers a unique viewpoint on artificial intelligence in modern warfare. This domain includes technical advances. challenges, legal ramifications, and the global business landscape. Here are some featured replies. The many perspectives help explain the complicated military effects of artificial intelligence. The responses depict a complex Al rivalry between Pakistan and India. India has a broad strategy and strong ties with technologically advanced nations, but Pakistan's competitive skills are lacking. Their commitments are complex, as evidenced by their contacts' complexity and emphasis on collaboration. The lack of coordination between the two states shows that geopolitical issues impede significant collaboration. India's concentration on Al dominance and military integration contrasts with Pakistan's focus on economic and social growth. This shows that the nations have different views. The responses vary in terms of emphasis information, on relationships, and understanding of regional geopolitical difficulties, but global AI alliances are common. Each comment sheds light on the complicated effects of integrating artificial warfare intelligence into modern highlighting current technological advances, ethical issues, and potential impediments. The Pakistan-India artificial intelligence arms competition threatens regional security. Artificial intelligence in combat has ethical, legal, and geopolitical implications, as shown by several answers. This means that the

military is unprepared for Al's complex difficulties. There are several opinions on how artificial intelligence will affect South Asia's military dynamics, including external powers, ethics, and national security

References

Aswini, N., Kumar, E. K., & Uma, S. V. (2018). UAV and obstacle sensing techniques—a perspective. International Journal of Intelligent Unmanned Systems, 6(1), 32-46.

Cheema, Z. (2010). Indian Nuclear Deterrence: Its Evolution, Development, and Implications for South Asian Security. Karachi: Oxford University Press.

Delcker, J., Heil, J., Ifenthaler, D. et al. First-year students Al-competence as a predictor for intended and de facto use of Al tools for supporting learning processes in higher education. Int J Educ Technol High Educ 21, 18 (2024). https://doi.org/10.1186/s41239-024-00452-7

Grace, K., Salvatier, J., Dafoe, A., Zhang, B., & Evans, O. (2018). When will AI exceed human performance? Evidence from AI experts. Journal of Artificial Intelligence Research, 62, 729-754.

Haney, B. S. (2020). Applied artificial intelligence in modern warfare and national security policy. Hastings Sci. & Tech. LJ, 11, 61

Khan, Y., & Anwar, Z. (2021). India-the United States civil nuclear deal (2008): security implications for Pakistan. PalArch's Journal of Archaeology of Egypt/Egyptology, 18(08), 3515-3520.

Minhas, A. S. (2018). Space weapons: a rapidly evolving threat to south Asian strategic balance. Ndu journal

Rind Mudasir Ali, & Pirali Aliyev. (2024).

Modernization of Higher Education with
Artificial Intelligence Learning Applications.
International "Journal of Academic
Research for Humanities", 4(1), 29–36.
Retrieved from https://jar.bwo-researches.com/index.php/jarh/article/view/373

- Stevic, A. (2024). Under Pressure? Longitudinal Relationships between Different Types of Social Media Use, Digital Pressure, and Life Satisfaction. Social Media + Society, 10(1). https://doi.org/10.1177/205630512412392 82
- Thanomsing, C. and Sharma, P. (2024), "Understanding instructor adoption of social media using the technology acceptance model", Journal of Research in Innovative Teaching & Learning, Vol. 17 No. 1, pp. 47-65. https://doi.org/10.1108/JRIT-04-2022-0021
- Zainab Bibi, & Ambreen Abbasi,. (2023).
 Freedom of Information VS Right to Privacy:
 Cyber Stalking-a Legal Perspective.
 International "Journal of Academic
 Research for Humanities", 3(3), 85–94.
 Retrieved from https://jar.bwo-researches.com/index.php/jarh/article/view/309

77 | Page

Appendix Annex A

Table 1: Nature of arriving and adopting AI in modern warfare

Code Name Designation Response R1 Attique Ahmed Associate Professor The arrival of modern ward has greater impacts on the battle fighting capabilities arms forces. The increasing the capabilities arms forces. The increasing the capabilities are supported the capabilities.	
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battle fighting capabilities arms forces. The increasi	ne conventional
arms forces. The increasi	
states towards the ada	
technology in their defenc	
to the role of modern to	
reshaping the leading milit	_
states, their convention	
preparedness, and the m	
advanced weapon systems	_
contesting visions of state	
international peace and s	_
them remain inflexible in t	
strategic disagreemen	ts due to the
advancement of traditional	
R2 Dr. Tauqeer Husain Assistant Professor The integration of Artifici	al Intelligence in
modern warfare involves	advancements in
autonomous systems, pre	dictive analytics,
and enhanced decision-ma	king. AI is adopted
for tasks like surveilla	ance, target
identification, and strat	egic planning,
improving efficiency but a	lso raising ethical
concerns about autonomo	us weaponry and
potential mis	use.
Don (NDII) The neture of adenting Art	ificial Intelligence
R3 Dr Lubna Dean (NDU) The nature of adopting Art	
in modern warfare involves	-
leveraging advanced te enhanced decision-makin	_
capabilities. Al-driven syste	
role in autonomous we	
operations, and intellig	•
revolutionizing the dyna	-
However, ethical concerns	
responsible governance	
aspects in navigating the int	
the complexities of mo	
R4 Fahad Nabeel Lecturer Al is transforming mode	
multiple ways. It has the po	
enhance military capabili	- :
major issues faced in mak	
about the impact caused	_
warfare is the limitation of	
data. Leading AI states like t	•
Russia have presented limit	
ways in which they are em	

			technologies within their military systems and operational doctrines.
R5	Syed Hussain Rizvi	Deputy Director (MOI)	The nature of AI in modern warfare is multifaceted, with both opportunities and challenges that require careful consideration by military leaders, policymakers, and society as a whole. The development and deployment of AI technologies in warfare have sparked a global competition and arms race among nations seeking to gain military advantage. This competition drives innovation but also raises risks of escalation and instability.
R6	Khushboo Farid	Teaching Associate	Currently, the military landscape is undergoing a change due to the integration of artificial intelligence (AI), as a result of the development and deployment of AI-powered military systems that hold the promise of enhancing the efficiency of military operations. Yet, this modernization raises apprehensions regarding accountability and ethical considerations in the utilization of AI within military contexts.
R7	Zakwan Hazarvi	Advocate Supreme Court	The adoption of Artificial Intelligence (AI) in modern warfare brings automation, enhanced situational awareness, and precision to military operations. However, ethical and legal concerns arise regarding the use of AI-driven autonomous weapons and accountability for AI actions. Humanmachine collaboration remains crucial to ensure responsible and ethical use of AI technology.
R8	M. Umar	Senior Research Officer- Al	Al in modern warfare is revolutionizing strategic capabilities with advancements in autonomous decision-making systems and platforms.
R9	Dr. Usman Amjad	Associate Professor	Artificial Intelligence is being widely adopted and actively used in modern warfare. All developed militaries have started working on design and development of AI based tools, techniques, algorithms and machines for modern warfare. The applications of AI in warfare are not only limited to robotic soldiers but also from military planning, guided weaponry, forecasting/prediction, target identification, spying etc.

R10	Dr. Yasar	Central Project Director, (NCAI)	Al poses significant challenges and risks for the defense sector, such as ethical, legal, moral, and strategic dilemmas, as well as the possibility of escalation, miscalculation, and loss of human control. Therefore, the nature of arriving and adopting AI in modern warfare is complex and dynamic, requiring careful assessment, regulation, and cooperation among different actors and stakeholders.
R11	M. Shahrukh Shahnawaz	Advocate High Court	The laws governing the armed conflict has recognised AI, and AI is being used in an armed conflict as well, but while the priority is to win a war, the laws of war (or the International Humanitarian Law) are trying to use it for humanitarian and relief purposes.
R12	Zahid Niazi	Inspector Special Service Department	The arrival and adoption of Artificial Intelligence (AI) in modern warfare bring enhanced situational awareness, autonomous systems, predictive analytics, cyber warfare capabilities, improved target identification and tracking, and optimized logistics and supply chain management.

Annex B

Table 2: Ongoing tendencies in terms of global alliances of Pakistan and India

Code	Name	Designation	Response
R1	Attique Ahmed	Associate Professor	The decades-long India-Pakistan rivalry has forced the governments of both states to empower their conventional war-fighting capabilities with the support of AI technologies and the quest for acquiring AI technologies has resulted in the creation of India-Pakistan technology-specific alliances around the globe. Contrasting Pakistan, Indian approach is briefly diversified and based on the formulation of multiple cooperative engagements with the technologically advanced and economically developed nations, whereas the government of Pakistan is lacking competitive capabilities against Indian developments in the field of AI.
R2	Dr. Tauqeer Husain	Assistant Professor	Both countries are likely to engage with multiple international partners and organizations to leverage AI technologies for various purposes, including defense and strategic applications.

R3	Dr Lubna	Dean (NDU)	Both Pakistan and India have engaged in developing their technological capabilities, including artificial intelligence. These countries may form collaborations with various global partners for research, development, and implementation of AI technologies
R4	Fahad Nabeel	Lecturer	According to publicly available data, Pakistan has entered into alliance with at least China and the UAE to cooperate in the domain of AI. On the other hand, India has entered in such cooperation with multiple countries, including the US, Australia, and France. Unlike Pakistan, India has entered into cooperation with several countries by focusing on both civil and military applications of AI.
R5	Syed Hussain Rizvi	Deputy Director (MOI)	India has been expanding its AI capabilities through strategic partnerships with leading AI nations such as the United States, Japan, and several European countries. While, Pakistan alliances in the field of AI, particularly related to defense and security, are often tied to its military relationships. While specifics about AI-focused defense collaborations are less publicized, partnerships with countries like China and Turkey could involve exchanges in AI technology and applications in defense mechanisms.
R6	Khushboo Farid	Teaching Associate	The geopolitical landscape and international collaborations in AI are dynamic and can change over time. Typically, countries engage in bilateral and multilateral collaborations, research partnerships, and participation in international forums to advance their capabilities in AI. Both Pakistan and India have shown interest in harnessing AI for economic, technological, and strategic purposes
R7	Zakwan Hazarvi	Advocate High Court	Pakistan has developed closer ties with China in the field of AI, benefitting from Chinese investments and collaborations. Meanwhile, India has been strengthening its partnership with the United States in AI, participating in initiatives and fostering collaborations. Both countries have also engaged in international collaborations to advance their AI capabilities. The evolving global alliances reflect the growing importance of AI in shaping national strategies and technological advancements.
R8	M. Umar	Senior Research Officer- Al	Both Pakistan and India are forming global strategic and technological alliances with other countries within their capacity.

R9	Dr. Usman Amjad	Asssiatant Professor	Pakistan and India being a traditional rival have very weak ties with each other in AI and research and development. There are just few academic level ties having some joint research papers, other than that, there is no major joint venture.
R10	Dr. Yasar	Central Project Director, (NCAI)	The field of AI is rapidly evolving and transforming various sectors of society, including defense, economy, education, and health. Pakistan and India, as two major South Asian countries, have different approaches and priorities in developing and adopting AI technologies. Pakistan's vision is more focused on AI development for economic, educational, and social development, while India's ambition is to become a global AI powerhouse and a leader in AI-military integration.
R11	M. Shahrukh Shahnawaz	Advocate High Court	Both countries rely heavily on security, and security expenditures dominate their budgetary and economic policies, and therefore, they both themselves along with their allies such as China, Russia, the US, and in case of India, Israel, are exploring ways to utilise AI for armed conflict related purposes.
R12	Zahid Niazi	Inspector Special Service Department	In terms of global alliances in the field of Al, Pakistan and India are both actively engaging with various partners. Pakistan has collaborations with China and Turkey, while India has partnerships with countries like the United States, Japan, and Israel. However, there are no significant joint initiatives between Pakistan and India in Al due to geopolitical tensions and historical animosities. Both countries primarily focus on building their Al capabilities domestically or through partnerships with non neighbouring countries.

Annex C

Question 3: Are there any notable differences or similarities between the defense tendencies of New Delhi and Islamabad regarding AI technology in modern warfare?

Table 3: Differences or similarities between the defense tendencies of New Delhi and Islamabad regarding Al

		regarding A	
Code	Name	Designation	Response
R1	Attique Ahmed	Associate Professor	The similarities and differences go parallel in the evolving competition of India-Pakistan in the domain of AI technologies. The similarities are based on the integration of AI technologies in their formal defence system, the application of AI technology in the cyber domain, the increasing both states on the development of UAVs and semi-automated weapon system, where the development of fully-automated systems is still a major challenge for both states. This factor creates a big difference between Indian and Pakistani strategic engagements with other nations.
R2	Dr. Tauqeer Husain	Assistant Professor	Yes, there are differences and similarities between India and Pakistan in their approach to AI in defense. India focuses on an allencompassing strategy, integrating AI into civil-military domains, while Pakistan emphasizes AI development for economic, educational, and social development. Both nations, however, demonstrate a commitment to leveraging AI for military purposes, with initiatives like India's Make in India initiative and Pakistan's Cyber Command and Cognitive Electronic Warfare program.
R3	Dr Lubna	Dean (NDU)	Given historical patterns, both nations are likely to prioritize technological advancements, including AI, to enhance their defense capabilities
R4	Fahad Nabeel	Lecturer	It is difficult to comment on the differences or similarities between the defense tendencies of both India and Pakistan because of the absence of publicly available official viewpoint on AI integration from military perspective. According to Pakistan's draft AI policy, AI and allied technologies can provide invaluable services in effectively combating terrorism and achieving defense targets. The policy acknowledges the impact AI has caused in several defense sub-sectors like intelligent surveillance systems, automatic drones, geographic target detection, autonomous path tracking in missiles, autofocus in tanks and

			guns, target detection and recognition, and enhanced night vision. However, there is no official Indian position on defence related priorities.
R5	Syed Hussain Rizvi	Deputy Director (MOI)	India and Pakistan have recognized the strategic importance of Artificial Intelligence (AI) in modern warfare and defense. While both countries are at different stages of AI adoption and development, their defense strategies reflect an understanding of AI's potential to transform military capabilities. The major difference would be Indian global outreach consideration while Pakistan is mainly focus towards responsive measures for Indian threat.
R6	Khushboo Farid	Teaching Associate	Of course yes, there is huge difference between the defence tendencies of India and Pakistan regarding AI and robotics technology in modern warfare. Pakistan's vision is more heavily weighted toward the development of AI for social, educational, and economic advancement. The goal of the Government Initiatives for Artificial Intelligence and Computing (PIAIC) is to advance block chain, AI, and cloud computing opportunities for national industry, research, and education.
R7	Zakwan Hazarvi	Advocate High Court	India has been focused on collaborations with the United States and other global partners, while Pakistan has strengthened ties with China in the field of AI technology. India has traditionally allocated a larger defense budget, potentially allowing for more extensive AI technology implementation compared to Pakistan.
R8	M. Umar	Senior Research Officer-Al	Both nations are increasingly adopting AI in their military infrastructures, their exact defense tendencies in AI are not clear. Therefore, precise comparison may not be possible.
R9	Dr. Usman Amjad	Asssiatant Professor	Both seem to work in similar directions like adopting modern technologies including AI for warfare. But the notable difference is the expenditure India make towards R&D is significantly large as compared to Pakistan.
R10	Dr. Yasar	Central Project Director, (NCAI)	Al technology has become a key factor in shaping the modern warfare capabilities and strategies of various states, especially those involved in regional conflicts and rivalries. India

			and Pakistan, two nuclear-armed neighbours with a history of hostility and mistrust, are no exception. Both countries have been investing in developing and acquiring Al-based systems and platforms for enhancing their defense and deterrence postures. However, there are also notable differences and similarities between the defense tendencies of New Delhi and Islamabad regarding Al technology in modern warfare.
R11	M. Shahrukh Shahnawaz	Advocate High Court	Well, it is being considered and presumed the India might develop its own AI technology, while Pakistan will rely heavily on importing the AI technology and tools from other countries, but both these countries will use it violate human rights, crush political opposition and interfere in the affairs of each other and their neighbours, only contributing to the growing instability of the South Asia and neighbouring regions.
R12	Zahid Niazi	Inspector Special Service Department	Both New Delhi and Islamabad are investing in AI technology for modern warfare, but there are notable differences in their approaches. India's defense strategy emphasizes indigenous development and partnerships with technologically advanced nations, while Pakistan focuses on acquiring AI capabilities from allies like China and Turkey due to resource constraints