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Artificial Intelligence and National Security : A Way Forward for Pakistan

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Approval Page

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Dedication

This study is wholeheartedly dedicated to my beloved parents,
Umed Ali Kalhoro and Rabia Naz Kalhoro who constantly provided me with their support and prayers.

Also to my siblings : Shaharyar, Iqra and Safaa.

Abbreviations

1. AI (Artificial Intelligence)
2. CEO (Chief Executive Officer)
3. CIA (Central Intelligence Agency)
4. CPEC (China-Pakistan Economic Corridor)
5. DOD (Department of Defense)
6. EPRS (European Parliamentary Research Service)
7. EU (European Union)
8. HAI (Human-Centred AI)
9. HEC (Higher Education Commission)
10. IMF (International Monetary Fund)
11. IISS (International Institute of Strategic Studies)
12. LAWS (Lethal Autonomous Weapons Systems)
13. MoITT (Ministry of Information Technology and Telecommunication) 14. NAIIA (National Artificial Intelligence Initiative Act)
15. NAIO (National Artificial Intelligence Office)
16. NCP (National Cybersecurity Policy)
17. NSS (National Security Strategy)
18. NSP (National Security Policy)
19. NSC (National Security Council)
20. NSTXL (National Security Technology Accelerator)
21. NGAIDP (New Generation Artificial Intelligence Development Plan)
22. OECD (Organisation for Economic Cooperation and Development)
23. R&D (Research and Development)
24. SIFC (Special Investment Facilitation Council)
25. USA (United States of America)
26. USPTO (United States Patent and Trademark Office)

Abstract

This study indulges into the motivation of constructing an Artificial Intelligence Strategy for Pakistan's Draft National AI Policy. It shed lights between two Grand AI Strategies of the United States and China showcasing their guiding principles, ideology and implementation methods. Drawing on the newly released Draft National AI Policy by the Ministry of Information Technology and Telecommunication, the study seeks to identify loopholes and shortcomings shaping the country's roadmap towards a competitive posture in this technological era. The study focuses on two superpower's AI policy in hopes to seek learning lessons for Pakistan. By examining the National Artificial Intelligence Initiative (USA) and New Generation Artificial Intelligence Development Plan (China), we investigate the influence of AI in the National Security Prism and its pivotal role. The study reveals that the Draft National AI Policy of Pakistan is missing the essence of Strategy and clarity in implementation roadmap. The research contextualises these findings within the national security dynamics providing insights into military, economical and informational dynamics. Keeping Pakistan's history, strategic culture and national power in mind, this study contributes to a deeper understanding of Strategic focus in AI Policy. In addition, it provides valuable insights for shaping an effective strategy plan in the context of Pakistan.

Keywords : AI (Artificial Intelligence) , National Security , United States , China and Pakistan

Chapter 1 : Introduction

In May, 2023, the Ministry of Information Technology and Telecommunication of Pakistan published the country's first Draft National Artificial Intelligence Policy document. The policy addresses a broad spectrum of National Targets under four pillars to achieve Artificial Intelligence superiority. Centred on the idea that the objective of National AI Policy is to place Pakistan in a competitive position to ensure AI integration keeping global trends in mind. Distancing away from the traditional approach to national security, this study highlights the need to augment AI into all spheres of national security. In articulating economic and human security as the central pillar, this research emphasises the AI Strategy as one of the avenues to make the National AI Policy successful and strengthen the country's economic muscle.

This study looks at the concept of Strategy in Pakistan's context, broadening the definition of Implementation mechanism, and suggesting time-frame phases to complement the National AI Policy. Taking the Draft National AI Policy as a mere starting point, the study seeks to generate a subtle discourse on AI Strategy and what it will mean for Pakistan.

This study is divided into four main parts. The first section deals with the concept of National Security alongside Artificial Intelligence. In doing so, it refers to how Artificial Intelligence plays a pivotal role in the National Security Paradigm. The second section deals with the Artificial Intelligence Policy of the United States decoding the thought process behind its construction and implementation method.The third section deals with the Chinese Strategy to AI Integration in their respective society highlighting important elements and lessons for Pakistan. The final part discusses the status of AI in Pakistan unfolding the loopholes in the Draft AI Policy and stresses upon constructing a National AI Strategy for successful implementation. It lays down recommendations for the Pakistani Leadership.

1.1 Introducing Artificial Intelligence and National Security

Artificial Intelligence (AI) is swiftly becoming a field of technology that is catching attention of policy makers, defence-based think tanks, investors and international intellectuals. The recent initiatives by various governments around the world have evidenced the importance of AI integration. In order to understand the concept behind such remarkable technology, it is vital to study through the definition of Artificial Intelligence. Intelligence in simple terms means the ability to learn and perform certain actions to achieve an objective (Stanford University,2020). On the other hand, Artificial Intelligence (AI) which is a term coined first by John Mcaarthy (1955) defines AI as the process of making machines smart so they may behave like humans (Stanford University,2020). For instance, teaching them the game of chess and being able to play with them. There are certain components that are involved under the umbrella of Artificial Intelligence.To begin with Machine Learning, it is part of AI that is equipped with learning from data or experience to be able to improve knowledge. Another component of AI is Deep Learning or the usage of neural networks which are often usable from small data to big data. Within this backdrop lies the art of algorithm which is a step by step written process done by a computer programer to perform the act of intelligence.(Stanford University,2020). Generally AI programs focus on certain cognitive skills which are learning, reasoning, self-correction and creativity (Techtarget, 2023).

If we study the definition of AI from a perspective of why it is being integrated by governments in the first place, the National Defence Authorization Act (2019) is a distinguished document to start with. The definition of Artificial Intelligence is given in extensive steps which includes the performance of tasks without supervision of human sight. Secondly, task performance consists of planning, learning and communication which is designed to act like humans. What this indicates is that cognitive steps are the essence of Artificial Intelligence with the core element of rationality. All of the above mentioned components of AI fall under the Narrow AI category.

Although the field of AI research began around 1940’s, the sudden interest rose in 2010 due to

the availability of big data sources, machine learning approaches and computer processing power (Artificial Intelligence and National Security, Congressional Research Service, 2020).The usage of AI can be found in civil and military. The significance behind the usage of AI is quite simple. It performs actions for human beings quicker and better. For instance locating cat videos on youtube through image algorithm settings. According to an Accenture report, AI significance depends more on what it enables one to do. It provides efficiency, accuracy, intelligent decision making which mainly gives a competitive advantage. As Bellman (1978) puts it best 'It is a system that thinks like humans'.

The usage of Artificial Intelligence in the world is essential due to solving complex problems instantly. Sections of society such as the industries, healthcare and finance are prominent examples of how AI technology is able to contribute to their enhancement (Neha Saini, 2023).To cite an example, AI is being used to stop card fraud which is done through using bots hence what AI does to block this scam is, it uses an algorithm that can detect such actions (Datadome). This proves that there is no human requirement necessary during the scouting of scam thus making it a classic enabler. Secondly, AI powered customer service is another example of common usage of this technology that provides efficiency and productivity (Meagen,2019). In addition to the customer service, AI is also being used in various businesses to provide safety for the customers. For evidence, Motive (Formerly Keeptruckin) sells AI Dash Cams to Fleet Managers across the United States and Canada to make sure road safety is observed with protection of drivers (Hitch,2023). Lastly, when it comes to the education sector, AI is not far from integrating itself among students. The Chatgpt phenomena recently have taken social media by storm.This AI based software interacts with humans by answering your queries from conducting market surveys to producing quality content (Sandip University). It has proven to be cost effective and most importantly saves time. All in all, the usage of Artificial Intelligence in different social settings have proven to be favourable.

One of the distinguished discussions in the field of international relations is the concept of National Security. Throughout history we have seen empires, nation-states and individuals declaring war in the name of threat to national security. National security is a term

often referred to a plethora of elements that is crucial for survival for a country. Security is a contested

claim. Different views claim that Security is seen through individual to national to international and global level (Baylis,2017). It is also seen from different approaches, for instance the realist school of thought emphasis on maximising military power while the liberal school of thought focuses on international cooperation to attain security. Nevertheless, National Security has evolved over time. It has gone from a basic traditional approach to a non-traditional approach. Farhan and Nadeem (Introducing International Relations,2023) argue that National Security has become a multi-pronged subject. Similar to Barry Buzan thesis on multi-faceted concepts. From military oriented to now political, social and economic focused as well.Kim Holmes (2015) argues further by stating that human security, political security, environmental security and cyber security fall under the notion of National security and governments around the world have prioritised each according to their national power. Thus, there is no uniform definition of National Security as it is an evolving principle. However, National Security is close to an area or a space that is greatly important for nation-states. Through this space, strategies and policies are made to protect it. Currently in this space, AI technology is placed.

Since it has been established that National Security compromises not only military security but other aspects such as human, political and economic security, Artificial Intelligence on the other hand plays the role of catalyst in all of the above domains mentioned. Considering AI offers efficiency, productivity and time-saving, it can strengthen the domains of National Security. Ryan Laverick (Artificial Intelligence and National Security, 2022) writes that there are three main dimensions that are more likely to be impacted by AI. They are military, informational and economic superiority. In terms of military, defence strategies are highly influenced by AI since it can predict threats. For example, Israel usage of the Gospel (AI recognition device) against threats in Gaza (Aljazeera, December 9). Moreover, when it comes to economic superiority. Allen and Chan (2017) have found that AI can lead the new industrial revolution since it offers autonomous results from automation. The economic output it can offer is substantial. In regards to informational superiority, AI can gather data and process it without human interaction for the purpose of intelligence gathering. For example, Patrict Tucker (2021) states that the role of human beings going through intelligence gathering at CIA offices have been replaced with AI-instructed machines which are far more efficient. Therefore, Artificial intelligence plays a

significant role in the National Security domain due to its exceptional contribution in securing that distinguished space.

1.2 Artificial Intelligence usage in National Security Strategy

Kim R. Holmes (2015) states that there are key elements that serve as a requirement when a National Security Strategy document is made. These elements play the role of chronological prioritisation. Preserve, Maintain, Guarantee, Exert, Dedicate. Focus and Ensure are the seven vital steps that should be considered while constructing a national security strategy. The label itself indicates that these are stages on a spectrum towards achieving the goal of the document. Similarly, the role of Artificial Intelligence in National Security Strategy is essential due to the implications it has to offer. Bipartisan Policy Center (2020) have highlighted areas that AI can bring massive change to. Starting with intelligence, AI can be useful because of the sensors and data storage availability. It can detect patterns, identify anomalies and most importantly provide insights for important decision making. Similarly, logistic and sustainability wise, AI applications can enhance the functionality and personnel involved. What this reflects is that AI in National Security Strategy offers technical progress specifically on the Machine Learning front and enhances operational level of war. Micheal Horowitz states that it is the ultimate enabler in the National Security paradigm that needs serious examination.

From the strategic point of view, Mara Karlin (Brookings, 2018) states that AI impact on the National Security Strategy is at three level; Diagnosis, Decision-making and Assessment. Diagnosis is responsible for understanding the strategic landscape in terms of regional and global. Decision-making involves the strategic employment of national power according to the nation's values and principles. Assessment is all about rethinking and revisiting decisions taken above inorder to make better steps. No doubt, AI offers both opportunity and challenges in the National Security paradigm. However, it can be optimised if strategically thought through.This involves a plan of action and defined objectives. When it comes to different levels of strategy which are tactical, operational, theatre (state) and technical, AI perfectly fits into all creating a Grand Strategy for the state to pursue safekeeping of a nation as a whole.

1.3 Objectives of the Study

The objectives are multi-pronged. The three basic aims of this research study are:

1. To understand the importance of Artificial Intelligence viz-a-viz National

Security.

2. To Analyse the Artificial Intelligence Strategy of the United States and China.
3. To fill in the vacuum of missing AI Strategy for Pakistan by suggesting/recommending a way forward and deriving learning lessons for our military and political leadership.

1.4 Rationale of the Study

The logical justification behind this study is to understand why integration of AI into the spheres of National Security plays a crucial role.Furthermore, studying comparatively the AI Strategy of the United States and China will provide us a roadmap behind the thought process of such strategies.This will further assist in constructing a National AI Strategy blueprint for Pakistan considering the domestic dynamics. Artificial Intelligence is identified as the leading tech in the current fourth Industrial Revolution. It has brought human intelligence into the machine learning process to conduct tasks on behalf of an individual with a built in system.Today AI is what the steam engine was in the first industrial revolution. The above mentioned objectives are important to achieve because Artificial Intelligence is a technology that can manipulate and transform the socio-economic sphere of national security. Secondly, analysing the AI Strategy of the United States and China will help us understand as to why there was a need to construct a strategy in the first place? What was the thought process behind this formulation and road map in integrating this tech in the society? This clearly indicates that both rival powers are in the race towards AI Superiority which makes us understand the need for studying both strategies to enable ourselves with knowing the significance behind formulating an AI Strategy. In this backdrop, achieving the last objective of this research study is equally important as it reflects the purpose of doing research in the first place. With the current global trend in emergence of AI, Pakistan must equip itself with an Artificial Intelligence Strategy to fully safeguard its National Security.Historically,

Pakistan has been weak in achieving certain national goals due to lack of ‘how’ path. The country’s leadership understands the why and what part however the how path is yet to be uniform by all stakeholders and understood wholeheartedly.

1.5 Significance of the Study

It is vital to understand that Artificial Intelligence plays a pivotal role in safeguarding National Security. This technology can easily coerce the dynamics of established national security. Nadya (2021) further encapsulates that the technology of AI can benefit any sector of the society that can bring significant advantage to a country such as the automatic customer-services offered on e-commerce platforms. Similarly, when it comes to the role of AI in National Security Strategy making, Bipartisan Policy (2020) states that the United States Federal government identifies AI as a pivotal technology which will play a key role in enhancing National Security.Thus, this formulation is built within consideration of the complex international geopolitical environment and to make sure it has a key role with the relevant stakeholders.Similarly, Chinese leadership understands the importance of AI. For instance, Jinghan Zeng (2022) states that China is planning to lead the race of AI by 2030 with their AI National Strategy by placing important principles forward in the implementation road map. In contrast, Pakistan lacks a National AI Strategy and an integration framework. Studying the two strategies of rival powers from different schools of thought will help us recommend an AI strategy according to the local dynamics. Although recently Pakistan has come out with Draft National AI policy under the vision of Digitalisation Transformation, it still lacks the epicentre for AI transformation. Thus, achieving objectives of this research will help us understand step-by-step the importance of AI integration in the National Security domain.

1.6 Hypothesis

Formulating a strategy for integration of Artificial Intelligence into the National Security dynamics of Pakistan can take the country into a positive trajectory.

1.7 Research Problem

The area of concern in this research study is to understand how crucial Artificial Intelligence integration is in the National Security realm. Emerging technology plays an acute role in determining the

future trajectory of a nation-state. Industrialization is a classical example of such embracement. The role of AI in today's world challenges the established geopolitical settings. Conceptualising the AI Strategy of the United States and China collectively will help us understand as to why nations are formulating such strategies and how can it shelter National Security. Thus, to stay relevant with emerging trends, Pakistan should generate a strategy to integrate Artificial Intelligence into the political, economic and social spheres.

1.8 Methodology

This research will be purely based on qualitative data. Research is exploratory in nature. The data collection method will stem from secondary sources. Secondary sources will be based on multiple authors who are experts in the field of National Security and how emerging trends such as AI affect its paradigm. Understanding different points of view in terms of why and how AI Integration into the domain of National Security benefits the nation-state will help us understand holistically. The data analysis method will be based on Discourse Analysis.The conceptual definition of this method is to understand the language and sociological context of a specific text given in research. While on the other hand, the operational definition is how the context in the given text is applicable in ground reality. Regardless, Discourse Analysis reveals the purpose and motivation behind a written piece.The steps towards such research is quite simple.Firstly, you come up with research questions. This is followed by collecting data that can help achieve your objectives and answer your research questions. Once the data has been collected, it must be studied (coded) and relevant patterns or context must be extracted from it. Now that the relevant material is available, analysis and interpretation of that material must be carried out. Lastly, summarization of the findings takes place eventually leading to filling a research gap and contributing in the academic field. Similarly, this research will follow the steps mentioned above. We will try to understand the pattern between Artificial Intelligence and National Security within the current literature available.

1.9 Research Questions

1. What is the importance of Artificial Intelligence viz-a-viz National Security? 2. Why is there a need for an Artificial Intelligence Strategy for the US and China? 3. What lesson can Pakistan derive from the two AI Strategic Frameworks?

1.10 Theoretical Framework

The word Strategy is often used in public discourse. It refers to a state policy most of the time. A state policy however comes in shape when leadership decides to securitize the established goal. Achieving security on the other hand refers to freedom from threat inorder to keep internal image and function factor intact. National security is a relationship between Man, State and International System (Waltz,1979). In International Relations discourse, there are two main theories clashing when it comes to Security. The Realist School of Thought base their argument on self-help due to the nature of man and anarchic structure of the international system. In contrast, Liberal School of Thought has an optimistic approach by arguing that the nature of man is good and the international anarchic structure can be addressed through collective security in the form of international institutionalism, economic interdependence and democratic peace theory. Despite both schools contradicting one another, the security dilemma still exists among nation-states.Barry Buzan (Copenhagen School of Security Studies) takes the debate of security outside the traditional approach. He argues that the reality of security has changed from traditional to multi-faceted approach (People, States and Fear,1983). These include military, political, social, environmental and economic. In addition, Buzan states that each sector is prioritised according to the state's preference or national power. This is called the option of Securitization (Globalisation of World Politics, 2017). In this backdrop, countries who have holistically focused on all domains of security have managed to stay ahead. Thus, Artificial Intelligence has become an important component in technological advancement that affects all the facets of security.

Artificial Intelligence plays a pivotal role in enhancing the Buzan Model of National Security. For instance, this technology can empower the sector of politics in terms of rebooting democracy. Polly Curtis (Living with AI, 2023) states that AI could be trained in a way to verify information that is passed down to people from their respective political leadership. However, this untapped technology is not only limited to the political sector of National Security but also creates potential in the economic sector too. Majority of studies have shown that Artificial Intelligence technology has a significant impact. For

example, Accenture, which covers 12 developing economies, states that due to Artificial Intelligence,these countries will generate more than 0.5% of the world's economic output by 2035 (EPRS,2019). AI could double the economic growth rate.

Furthermore, AI equally plays a crucial role in empowering the society. Amerjit Sen (2023) indicates this reason through arguing that AI has brought the wave of automation where approaches to health sectors and workforce have changed. This has contributed drastically in efficiency and is cost-effective. Lastly but not least, AI has contributed strongly to the Military sector. It has led countries to develop autonomous machines to eliminate enemies. For evidence, NSTXL states that AI is reducing gaps in Military from the administration perspective making the surveillance usage more safer for personnels. What is evident is that Artificial Intelligence is greatly influencing different fields of national security paradigm.Countries like the United States and China constructed an AI strategy to utilise this advancement to their benefit. Pakistan should also securitize AI Strategy to equip all of its relevant national security domains to stay relevant and benefit from it.

Conceptual Model : How AI fits into the National Security Paradigm?

Chapter 2 : Literature Review

The literature Review will be a systematic literature review which basically means studying on multiple secondary sources and deriving the objectives of this research. After going through 24 Research Journals, 18 Government documents, 7 Books and 47 newspaper articles, only 44 secondary sources have come in use. These 44 mix sources have supported the rationale and somewhat answered the research questions and objectives very closely. However, it should also be clear that there is a research

gap of current available literature when it comes to how Pakistan can learn from AI Strategy.

2.1 National Security

Kim R.Holmes (2015) defines National Security as safekeeping a nation as a whole. According to the National Security Strategy document of the United States, National Security scope can be attained while making sure certain elements are in check. These elements are preservation, maintenance, guarantee, exertion, dedication, focus and ensuring. What this means is that National Security consists of protecting the functionality of the state and keeping up with the global affairs. National security is an evolving phenomena that changes over the course of time due to dynamics of the global affairs and securitization priority of the state itself. The Security paradigm has evolved dramatically in recent times. Nation-States have transitioned from traditional security to non-traditional security that includes human security, water security, etc. Due to the changing security paradigm, regions such as the European Union have constructed a strategy under the concept of 'Dual Use' to succeed in the new established geopolitical landscape (knowledgy4pol,EU).In this backdrop, different schools of thought believe that this transition will be embraced with different attitudes. For instance, the Paris school of thought which is a similar trend to constructivism states that securitization of different domains of national security is the result of the field effect which in this case might be domestically, regionally and globally (Zaria,2016). While on the other hand, Copenhagen School of Thought emphasis on the securitization of all sectors of national security. Barry Buzan (People, States and Fear, 1983) also supports the notion of multi-faceted national security which the country shall pursue.If history can prove the evidence of transition from traditional to non-traditional security then during the cold war era,

this rise of Nuclear Arsenal for strategic deterrence played a vital role in securing national security. Over a period of time, technology is playing a similar role and protecting cyberspace became a matter of priority for nation-states.Thus, Artificial Intelligence at present is becoming what Nuclear Weapons were, a strategic deterrence leading countries around the world to construct an AI Strategy to integrate this automation tech in national security domains.

John Baylis (The Globalisation of World Politics, 2020) states that Security is a debatable concept. It has developed overtime from traditional to non-traditional security. Although, there is uniformity in agreeing with the notion of freedom from threat, the main contest point is whether it should be based upon individual, nation, international or Global. Despite the fact that security has been

broadened beyond military consideration, another dilemma within this aspect is whether it should be pursued solo or as a region. Examples such as the European Union have shown support to collective security however on the other side the disintegration of the Soviet Union suggests otherwise. There are different views on National Security when it comes to International Relations academia. The realist school of thought believes that due to the anarchic system of the international arena, the state must protect itself from all harm while on the other side of the coin liberalism contradicts this by stating that cooperation can lead to collective security. Nevertheless, this creates a space for security dilemma among nation-states thus Security or rather National Security depends upon how a country pursues it according to their historical strategic culture and leadership.

Karen Mingst (2001) further takes the debate of national security from a philosophical perspective. The author mentions Thucydides' opinion on security as the sole reason behind nation-states maximisation of domestic power to safeguard their own national security. A state seeks its security by increasing their own domestic capabilities which includes strengthening their economic muscle and investing in innovation. Thus, this leads to attaining the current domestic power known as Artificial Intelligence followed by a strategic roadmap to integrate it into the domains of National Security.

2.2 Artificial Intelligence and National Security

Artificial Intelligence threatens established geopolitical dynamics (Laverick,2022). According to the Department of Defence (USA), AI influences all sectors of society, especially political, economic and military. Its impact is as important as the Industrial Revolution which brought sweeping changes in the structure of economic and social organisation. Similarly, AI will bring changes in the socio-economic paradigm. Yuval Harari (2017) further states that the revolution within AI technology will

drastically bring change in every line of work in terms of creating new opportunities alongside challenges. These challenges include outperforming doctors and engineers due to the rise of algorithms.

Artificial Intelligence has also been categorised as a disrupted technology which promises to affect the ever changing realms of national security, geopolitical interaction, and international competition (Laverick, 2022). A prominent International Scholar and West Point US Air Force Major Micheal Duda (2021) writes that disruptive technology changes the primary means by which actors compete. What this means is that Artificial Intelligence changes the practices in the public domain. For instance the shift from normal key passwords to facial recognition. Such changes affect three fields in particular. According to Allen and Chan (2017), the future of progress in AI will have the advantage of bringing dominance under the national security domain in military, economic and information.These three domains pointed out by Allen and Chan play pivotal role in national security domain because it enables states to achieve advantages onto a new path of geopolitical dominance. Artificial Intelligence can benefit the military in strategic or tactical planning of autonomous defence systems. Secondly, AI can boost the economic sectors through placing autonomous systems in place for production such as 3D printing. Lastly, information superiority can be achieved through AI in terms of collection and analysis of data within a matter of seconds. Thus, maintaining political edge in geopolitical competition. This disruptive technology can help ensure national security in this changing environment for countries. Ignorance towards adopting these new realities can hinder national security. The United States and China have both constructed an AI Strategy to reap benefits from this tech and stay ahead of one another.

2.3 Artificial Intelligence Strategy of US

Laverick (2022) argues that leading the race of AI superiority is vital for the American National Security paradigm. The author argues that AI will disturb the social reality of national security, geo-polticial relationships and the international environment.This technology will allow countries to grow their effectiveness in multiple domains such as military or economic making it a crucial part of constructing national strategy. The National Artificial Intelligence Act (NAIA, 2020) was made with the purpose to ensure United States leadership in AI Research and Development. Secondly, lead the world in developing and usage of trustworthy AI systems. Thirdly, to prepare the current and future workforce of the country with AI integration across all parts of society. Lastly but not least, to make sure there is

coordination in terms of development among all stakeholders. Within this Strategic document, there are seven key points. To start with Prioritization of Artificial Intelligence Research & Development which is all about sustaining the lead in research. Moving on, Application of Artificial Intelligence into the National Security domains of the country so that it can be leveraged. Moreover, strengthening the AI infrastructure which is all about the access of quality data and work. Then the document states about promoting international cooperation with global allies for uniform opinion of AI usage. The document then echoes about trustworthy usage and training of the workforce to protect job security (USPTO, NAIIA,2022).

In addition, the United States has also developed strategic documents to justify crucial pillars mentioned above. For instance the National Artificial Initiative Research and Development Strategic Plan (May,2023) is another document that houses the idea of sustaining the leadership of the US on Research. The purpose behind emphasising on the Research and Development is to identify risks. This document echoes the key points mentioned above with 9 strategies. The 9th strategy is the latest update to this document since 2019. Strategy 1 talks about investments and research in the field of AI. Strategy 2 discusses human-based AI collaboration in terms of how it can benefit human day-to-day lives. Strategy 3 emphasis on ethical consideration of AI in society. Strategy 4 encapsulates the idea about safety and secure systems. Strategy 5 talks about openness of AI datasets for the public. Strategy 6 orients towards measurement and evaluation of AI systems for better utilisation. Strategy 7 reflects the need for understanding the workforce demands viz-viz with AI

developments. Strategy 8 is about public-private partnerships for better results. Finally but not least Strategy 9 highlights International Cooperation for AI research.The above sources indicate that the United States have been working on Artificial Intelligence Integration from the point of discovery.This is what makes them different from the majority of the nation-states. The Biden-Harris Administration is committed to working for trustworthy, safe and ethical AI systems that can serve positively for the public.

2.4 Artificial Intelligence Strategy of China

During the year 2017, the Chinese leadership developed the New Generation Artificial Intelligence Development Plan which is the strategy of integrating AI systems into the society's setting

(Huw Roberts, 2020). The document simply states that by 2030, China aims to become the world leader in AI. The State Council further defined the time-frame of achieving certain goals. For instance by 2020, they aim to maintain competition and develop policies. By 2025, the Chinese leadership believes in achieving a major breakthrough in terms of AI theory and applications. Lastly, by 2030, they aim to become the pivotal place on earth for AI innovation. This development plan aims to hit three key areas which are international competition, economic growth and social governance. The Chinese leadership believes that through this plan, China can enhance its hands and dominance in the technological front. Similarly with the United States initiative, China also plans on partnering up with its private community (Vincent Wang, 2020). Moreover, there are basic principles that this development abides by which are chronologically placed. Firstly, the AI development plan is based upon the technologically led which is all about investing in the research and development sector. System Layout is the second guiding principle which focuses on application layout of AI into equally depts of society fulfilling the socialist system.Thirdly, the market-dominant is the area where market will be prioritised in regards to what AI tech should be placed to achieve maximum efficiency. Lastly but not least is the idea of open-source and open which echoes the idea of ethical usage between all government bodies and private enterprises. Gregory and Allen (2019) have argued that Chinese leadership believes that AI Integration Strategy will fully manoeuvre the future trajectory of a country in terms of military and economic power.

2.5 Status of Artificial Intelligence in Pakistan

The Ministry of Information Technology and Telecommunication recently came out with Draft National Artificial Intelligence Policy (2023) under the Digital Pakistan vision. This document aims to place Pakistan in a competitive posture in the current era of IT revolution. However, Aneel Salman (2023) states that it has multiple short-comings. He argues that the objectives and goals of the policy lack clarity and focus. There is inadequate mention of explicit objectives, coordination and monitoring mechanisms. Moreover, ethical consideration which is the current stage of prospect in USA and China AI's Strategy is a missing component. Moreover, Aneel (2023) argues that before integrating latest technology into the socio-economic setting of Pakistan, it is vital to improve the quality of IT

infrastructure in the country. These loopholes will hold back Pakistan as it will not help in implementation. Despite the loophole mentioned by Aneel, the biggest gap in Pakistan architecture design of Digitising Pakistan with AI is the absence of 'Strategy'. There is the What part and Why but the 'How' part seems to be missing. That is known as Strategy or in simple terms the roadmap for bringing AI into various sectors of the society. One of the reasons behind Pakistan's political and economic turmoil is the absence of strategic planning which depends on long-term and sustainable policies. In this backdrop, Pakistan's Draft AI policy needs a strategic plan.

Chapter 3 : Artificial Intelligence and National Security Strategy in USA

No comfortable historical reference captures the impact of artificial intelligence (AI) on national security. AI is not a single technology breakthrough, like a bat-wing stealth bomber. The race for AI supremacy is not like the space race to the moon. AI is not even comparable to a general-purpose technology like electricity. However, what Thomas Edison said of electricity encapsulates the AI future: "***It is a field of fields … it holds the secrets which will reorganise the life of the world***." Edison's astounding assessment came from humility. All that he discovered was "very little in comparison with the possibilities that appear.

(National Security Commission on Artificial Intelligence, Final Report, page 7)

The quote above epitomises the importance of Artificial Intelligence in National Security. As depicted above, AI is not some simple technology, it is an unexplored field within a field that can help countries achieve evolution. Hence, the United States has constructed a strategy to utilise this magnificent technology for its socio-economic developments.

The National Artificial Intelligence Initiative of the United States materialised through the National Artificial Intelligence Act of 2020. This is a comprehensive document that oversees and implements the strategy for AI in the United States. Its purpose is to make sure the United States leadership continues in AI research and development and constructs trustworthy systems in private and public sectors. Furthermore, it aims to ensure a smooth transition of Artificial Intelligence into the workforce across the board.This initiative consists of six strategic pillars through which the United States will lead the AI leadership.

3.1 Strategic Pillars

1) Prioritise Artificial Intelligence Research and Development

Through decades of leading leadership in AI Research and Development (R&D), the US have achieved transformative technologies that have changed lives, empowered the working industries and protected holistically the domains of national security. This is the result of solid and long-term policies based on ambitious research programs that have drastically improved

front lines of AI. It is important to note that these are not just financially invested ideas but the impact of such investments are critically investigated on. The goal of this pillar is to sustain the leadership of the United States in AI R&D. This will be carried out via generating new avenues that can contribute to economic security. To further solidify this cause, the government has issued an AI Strategy Plan Document that outlines the implementation roadmap which includes an AI portal for researchers/contributors, progress report and National AI research institutions around the country.

2) Strengthen AI Research Infrastructure

For AI to function at its full capability, high quality of data, models and computational resources are required. The Federal Government is investing in such resources to benefit the Nation's AI R&D sector. In doing so, this will expand the pie of experts, researchers and industries which will participate in this evolution and contribute immensely in the competitiveness of the country. This will provide equal growth in the AI field and will equip the nation with application knowledge. The goal of this pillar is to maintain safe,secure and private AI Architecture. The National AI Research Resource Task force scope is to maintain measures mentioned above.

3) Advancing trustworthy AI

One of the main goals of the National AI Initiative is to ensure that the United States constructs a framework for trustworthy use of AI in public and private sectors. As the country deeply follows the values of freedom, human right advocacy, rule of law, right to privacy and

ensuring the opportunity to pursue dreams. In order for AI technologies to be trustworthy, features such as accuracy, explainability and interpretability, privacy, reliability, robustness,safety should be promoted and security against attack is mitigated. Fairness during deployment should be considered as equally important. The goal of this pillar is to gain social trust and confidence in order to fully embrace the integration of Artificial Intelligence. Initiatives such as Risk Management Framework and Privacy-Enhancing Technologies are steps to make sure that there is ethical usage of AI.

4) Train AI-Ready Workforce/Education

For the United States, labour is a national asset. The advancement in today's technology is slowly changing the nature of work. This causes opportunities and challenges for a worker. The more progress there is in the development of AI, the more benefits the country will reap through creation of jobs and opportunities at innovation. This will help with productivity in the country.However, Automation has caused eeriness in losing jobs and gap between occupation and skill set. To fully equip the workforce, the Government is making sure that schools, colleges and workplaces are training their subjects by re-skilling them with this latest technology.

5) International Engagement

An International ecosystem that encapsulates AI R&D, open market for the US AI Industries and development of an ethical framework for adopting AI is in the interest of the United States. This will help build values and interest. The United States is in favour of collaboration and partnerships in terms of analytical research and evidence based approach. As indicated above, the US believes in freedom, human

rights, rule of law, etc. To protect these rights, the nations that will use AI Technologies must reflect these values and commit to helping the nation. Alongside the global allies, the United States aims to collaborate to achieve such goals.

6) Leverage AI for Government and National Security

The primary goal of the United States within this framework initiative is to have the lead in usage of AI in its public and private sectors. Apart from the handsome investment in the research and development wing, there are efforts to demonstrate AI across the society. Such efforts are bringing remarkable results for instance in healthcare, transportation, education, science, agriculture, weather, etc. This is the result of decades of thought process and action which have led to generation of new systems/theories in AI. This will further translate into practical applications. The essence of this goal is to apply Artificial Intelligence to improve National Security and provisions of government services.

3.2 Implementation Strategy

Apart from the strategic pillars of the National AI Initiative, the United States have strategically constructed various different bodies within the government to holistically keep the communique constructive to achieve the designed goals. For instance, the National AI Initiative Office situated at the white house main purpose is to be the focal centre across the federal government, agencies and industries. Similarly, the Select Committee on AI is in charge of AI Research and Development between all the strategic pillars. This committee makes sure that all the strategic pillar goals are met among the federal government and concerned desks.Machine learning and AI Subcommittee is in charge of implementation and operations component of Select Committee where AI Administrators and leaders make sure policies are at play. Furthermore, the AI R&D Interagency working group is in charge of coordination of Federal AI R&D among the 32 participating agencies for supporting the activities ordered by the Select Committee under the banner of the pillars mentioned above. The National AI Advisory Committee plays a vital role because this department consists

of experts from AI related backgrounds. These include the Academicians, industries, federal bodies, etc. They also advise the President on the status of AI and its capability followed by recommendations. The National AI Advisory committee's subcommittee on law enforcement provides guidelines for use of AI in law enforcement. This body also advises the President on various issues such as data security, privacy rights, adaptability of AI law, etc. Lastly but not least, the National AI Research Resources task force is involved in constructing a sustainable roadmap for AI Research in terms of computer resources and data quality.This includes additional educational tools and user friendly support. Moreover, the US AI initiative has also

published strategy documents to further make sure implementation takes place at ground realities. For instance, the National AI R&D Strategic Plan (2023) is a comprehensive document that outlines 9 strategic steps to achieve the full scope of AI Research and Development. What the above bodies indicate is that the United States AI Strategy is a whole-of-all government approach which is the result of decades of thought process. Giving such importance to a technology means that this is a future worth looking at. It is important to also understand that these pillars followed by various divisions and delegations of important tasks are supported through strategic documents. These documents indicate national level steps for the federal government alongside relevant stakeholders to achieve the National goal.All these departments and agencies have their individual strategy in achieving goals which further contribute to a larger setting of National AI Initiative. All together, these documents provide a framework for the US to ensure they have the lead on Artificial Intelligence.

3.3 AI Capabilities of the United States

In this section, this study will be discussing the Artificial intelligence capabilities of the United States in the three aforementioned domains of military, economic and information. This is important because it will help readers understand the nature of the AI race between China and the United States and its vital need for long term outlook in terms of national security.With regards to military AI capabilities, the Americans have invested heavily in sophisticated defensive suits. For instance, the Congressional Research Service report (2020) indicates that the US military is looking into developing AI applications for a range of military functions

such as the concept from semi-autonomous to autonomous vehicles. Project Maven is another prime initiative where AI is being used to identify insurgent targets in Iraq and Syria. From a broader perspective, the ‘Sea Hunter’ built by the US Navy further encapsulates the idea of autonomously navigation in open seas. The lethal autonomous weapons systems (LAWS) is a special class of weapons that consists of sensor suites, computer algorithms and destroy a target without any human control. This will help the military in regions where there is a communications problem. Apart from these projects, the Department of Defense (Memorandum 2020) which is part of the NAII issued out ethical principles to materialise the projects above to build a trust among the civil society. These are responsibility, equitable, traceable, reliable and governable.

In terms of economic AI capabilities, the United States has gone through a greater progress in comparison with other two domains. This is because the usage of AI is in every aspect of society, from AI powered advertisements to installed algorithms in autonomous vehicles. Paul Oh (2019) states that the private sector has welcomed AI with a positive attitude as the majority of banking and financial industries have set up virtual assistants to accommodate as many customers as possible. For instance, Sam Daley (37 AI examples shaking up business across industries, 2023) states that AI-powered robots have been taking complex tasks of humans and performing them remarkably. Hanson Robotics is building a robot for commercial and consumer markets called Sophia which is going to perform advanced social-learning tasks. This is perceivable that the future social learning will be taken by AI-powered machines.

Lastly, the informational AI capability of the United States is mainly related to Big Data analytics and open source intelligence processing. The intelligence community of the US plays a vital role in national security. Patrick Tucker(2021) states that the American source intelligence collection has been equipped with AI systems that have taken jobs of readers at the CIA Open Source Center which gather information from articles around the world to monitor political developments and emerging trends. Furthermore, the author also mentions the National Geospatial

Intelligence Agency whose job is to inform mariners around the world about threats such as the pirates or new navigation information is being taken by such technology. In addition to these agencies, the NSA has used AI in predicting threat analyses. Overall the informational domain of the US AI capability is strong.With these lessons, the United States aims to protect its founding principles and lead the world in AI Capabilities.

Chapter 4 : Artificial Intelligence and National Security Strategy in China

The China State Council came out with the New Generation Artificial Intelligence Development Plan (2017) which is a strategy to integrate AI into society settings.The purpose of this thought process is to make China the world leader in AI by 2030. According to Gregory Allen (2019) Chinese Leadership believes that being at the forefront of AI is vital for the future of military and economic power competition. Moreover, they believe that China should take the lead on Global leadership in AI tech and reduce its vulnerabilities. What this reflects is that the AI has become an important aspect for the Chinese National Security where they will try to improve upon all the angles. The 'Made in China 2025' complements this strategy and will seek to tool China further into evolution.

4.1 Guiding Ideologies and Principles

The Artificial Intelligence Strategy of China abides by certain guiding ideologies and principles. The State-Council believes that the development ideologies should be multi-pronged. Starting with AI integration in economy,society and national defence as a primary preference. Secondly, building capacity for scientific and technological innovation. Thirdly, protecting national security. Lastly but not least, prioritisation of building multiple clusters that includes knowledge, technology,industry and culture. To complement these underlying guiding ideologies, Beijing has also developed basic principles in which the Artificial Intelligence Strategy will be pursued.

1) Technology - Led

The first principle is all about absorbing the global developments in Artificial Intelligence. It should be able to identify the front of Artificial Intelligence that is most beneficial in terms of changing established dynamics and making breakthroughs. This should be able to build capacity in the innovation department.

2) Systems Layout

Following the notion of research foundation, the system-layout principle discusses how the systematic approach to development in all sections of the society can achieve the target of a strategy. In order for AI to fully be integrated into the depths of society, the system layout approach is to make sure the integration takes place at all levels. Since China follows a socialist system, this approach is of importance for the Chinese leadership as it will connect important projects and planning together.

3) *Market-Dominant*

As per the title of the third principle, market-dominant is about letting the market decide what application of Artificial Intelligence is vital. Application is stressed here. The consumer market which includes companies and buyers must decide what technological line would they prefer to play the primary role of products. Alongside, what products must be commercialised. The work-force must be trained according to the demand.

4) *Open-Source and Open*

The concept behind Open-Source and Open is that the Chinese leadership believes in the promotion of joint innovation and sharing whether it is between the industries or academia or production units. They want an open door policy between national defence and economic power houses so they may jointly pursue civilian innovation projects and technological achievements. Moreover, Beijing wants to advocate for Global effort in research and development so that ethical-usage can be promoted and innovative resources allocation on a global scale.

4.2 Implementation Strategy

The New Generation Artificial Intelligence Development Plan (2017) of China is a comprehensive document that consists of the layout of how the Chinese leadership aims to pursue the plan of becoming the world leader of AI by 2030. The document (Graham Webster, Full Translation of NGAIDP, 2017) first discusses the three key steps where each step has a timeline and a specific goal. Firstly, the Chinese leadership aims by 2020 for China to sustain competitiveness with other major powers in the AI market and establish policies/regulations. Within this phase they aim to develop AI theories which can track progress in data collection and basic intelligence. Secondly, the competitiveness in the AI sector will be recognized by the world as to what China has achieved in terms of standards, service systems, and ecological chains. Finally, by 2020, they aim to further develop the AI environment by opening up new applications that can establish AI norms followed by policies. By 2025, it aims to achieve a major breakthrough in AI Theory and in world leading application as stated in the document. Within this stage it also aims to construct and implement ethical laws and standards for AI. This is also the stage where China will enter the AI Global Industry as a high-value contributor. Manufacturing, intelligent medicine plus cities, agriculture are all the fields in which Beijing intends to dominate by 2025. Lastly, by 2030, it aims to become the world innovation centre for AI.This phase will include new generation AI-theory and architecture. Multiple breakthroughs in brain-led developments, intelligence building, etc. The AI industry of China will become the planet leading level that includes expansion of development in social governance, national defence and national security. In addition to all this, China also aims to establish training centres where AI technological development can be promoted and innovation.

Now that the strategic objectives and implementation time-frame has been discussed above, the Chinese leadership also believes in the deployment method which is based upon four key steps. Starting with the idea ‘constructing an open and cooperative AI technology’ which reflects on the idea of strengthening AI systems, talent teams and general infrastructure. Moving on, the next focal point is increasing AI’s characteristics of integration in the society through maximising its potential by encouraging communication and coordination at grass-root levels. The next deployment method is about accepting the change

of AI in the market and creating an environment by playing the role of enabler rather than regulator. This will bring strong attributes to innovation and industrial chain. The last deployment feature is

simply acknowledging the role of science and technology where Chinese leadership agree that national innovation capability can only be enhanced through scientific breakthrough.This can only be achieved when an intelligent society is built that is surrounded by state of the art technology.What can be understood from the Chinese AI strategy is that their implementation framework is as strong as their guiding pillars.

4.3 AI Capabilities of China

The overall Chinese capabilities when it comes to Artificial Intelligence still lags behind the United States comparatively.Although China holds excellent technology in the field of AI, the United States leads the AI Development overall. The Chinese have been working on closing the gap among the two countries despite challenges such as import of foreign knowledge and technology (Robert,2021). The military AI capability of China in regards to investment is similar to the United States however it still lags behind them. Jon Harper (2022) states that the armies of both countries are investing heavily in AI capabilities in order to tackle each other in the future conflicts. Although both countries may be at par when it comes to budget, China has invested majority in the research and development sector and only a fraction of it in applications of AI systems. These applications of AI systems in the military can be seen in intelligence analysis, predictive measures, information warfare and target recognition (Ryan Fedasiuk,2021).

In regards to the economic AI capabilities of China, the Chinese approach to economic utilisation of AI is more active than that of the United States. This activism has been shown during the post-covid era for economic recovery. For example, Kai Fu Lee (2021) who is the CEO of Sinovation Ventures sheds some light on the usage of AI in economic sector by stating that ‘the Chinese economic recovery from its short-lived pandemic blip has been boosted by its world beating adoption of AI… commercial applications are flourishing: a new wave of automation and AI infusion is crashing across a swath of sectors, combing software, hardware and robotics’ (p.2). He also provides examples by highlighting drones being sent out on fields for agricultural purposes. Overall, the Chinese leadership is employing AI for efficiency and productivity which will bring less risk factors

for workers in the factories. Such measures will give an edge to China and boost their economy for strategic growth.

In terms of informational AI capability, China goes well head to head with the United States

due to its sophisticated planning. In the field of analytics, China has a remarkable advantage which allows mass data harvesting on domestic and global level (NSCAI, 2022). The reason behind this is due to scrutiny of what is being shared online. Cate Cadell (2021) puts it best by stating that the country maintains a country wide network of government data which was developed over the years to keep an eye on what is being shared in the public domain for security reasons. The story does not end here only but the Chinese informational capability also includes tapping into United States data collection as well. For evidence, Cadell (2021) highlights Chinese state media software programs that mines Twitter and Facebook and creates a database of foreign academics and journalists. With all these advantages, it is clearly evident that China's AI capability is superior and focused mainly on data storage domestically and globally, especially the western world.

Chapter 5: Artificial Intelligence : Opportunities and Challenges for Pakistan

The vision of 2025 of Pakistan that falls under the banner of Digitizing Pakistan has outlined a roadmap for the country to integrate technological advancements into various different societal

settings. This includes public-private partnerships to enable educational institutions to adapt a flexible curriculum to enhance the youth's understanding of latest global technological trends. Within this vision, the government has launched programs such as the Special Technology Zones Authority, the National Center of Artificial Intelligence etc to give solutions for establishing smart cities, smart cropping, disaster management and others. Yet there seems to be a lack of an Artificial Intelligence Strategy to integrate this technology into the domains of National Security.

5.1 The need for an AI Strategy

To consolidate the population of 220 million which is swiftly digitising, Pakistan should work on the architecture of the technology ecosystem which has developed over the time and rethink on how AI integration can facilitate the public and bring an economic boom cycle. An AI strategy needs to be constructed, encouraged, and supported to contribute at the national and international level. In order for a strategy to be built, there must be a policy at the backhand. Although the Ministry of Information Technology and Telecommunication came out with the draft National AI policy in May (2023), the essence of strategy is missing.

The purpose for developing an AI Policy is to create a competitive posture. However, without a peculiar roadmap, one can not lead the country towards an Artificial Intelligence revolution with a policy. The policy needs guiding principles followed by an ideology which further gives shape to a strategy on achieving a set goal. If either of the steps is missing, the jigsaw will crumble. Similarly, Pakistan has historically failed to achieve certain goals due to various reasons. These include political turmoil, undemocratic regimes, short-term and elite based economics, etc. However, the midst of all this lies the absence of strategy in achieving certain goals. By Strategy, we are discussing a roadmap on how to achieve a goal step by step. The roadmap includes the purpose of initiating a policy followed by how it can be

achieved through specific mentioned steps constructed by experts in the field. For instance the United States AI policy known as National Artificial Intelligence Initiative is backed by AI Strategy documents which showcases steps on achieving the pillars. Correspondingly, Pakistan needs an AI Strategy that is collectively agreed by civil-military leadership in order to have a proactive stance which can be used to tackle crisis on all fronts and keep up with the Global AI trends. The reason behind strategizing a policy is to achieve better decision-making, coordination and to provide direction

which in this sense is integrating AI into all depths of society.The sole purpose of launching a National AI Strategy is to align policy and implementation roadmap together simultaneously in order to stay relevant in contemporary developments. Pakistan has already missed out on industrial and information revolution (Khaqan Ahmad,2020). Missing out on the AI revolution is compromising the economic and national security front. The global competition for AI is growing every day and countries are already reaping benefits from implementing AI strategies. The USA and China are great examples discussed above. Within our neighbourhood, India has launched its National AI Strategy (2018). It is vital to understand that countries which have given significance to national AI strategy will benefit from a strategic point on all national power fronts whether it is economic, political, social, governance or others.The most important in this is the economic front which AI can drastically improve and Pakistan is in desperate needs for the economic boost considering the current economic crunch.It is necessary for Pakistan to construct a National AI Strategy.

5.2 Status of Artificial Intelligence in Pakistan

According to the Centre for Aerospace and Security Studies, countries around the globe have adopted AI practices in multiple spheres. In this backdrop, Pakistan is slowly opening up to integration of AI into different sectors of society. This is evident in the shape of National Policies for example the National Security Policy (2022-2026), National Cybersecurity Policy (2021), Personal Data Protection Act, Digital Pakistan Policy, Pakistan Cloud Policy and Draft National AI Policy (2023). However, it is important to realise that these documents have shortcomings and it overlaps on many fronts. Despite the flaws, Pakistan also faces traditional and non-traditional security issues which hampers her strategic growth. From political turmoil to economic instability are few examples to cite. These obstacles stagnate the State's focus on actual strategic concerns. Thus, the current emerging

trends of AI in the National Security Paradigm is a wake-up opportunity for the Pakistani leadership to realise its importance of securitisation. It is crucial for Pakistan to rethink its long term strategic checklist (Military's Guide to Artificial Intelligence, 2023).

The National Cybersecurity Policy (2021) was constructed under the framework of Digitizing Pakistan. In terms of Artificial Intelligence application, there is no clear indication on formulating a strategy to integrate this tech onto different domains of the society. There are many loopholes in this document which reflects on the absence of robustness. For example Amna (ISSI,2021) states that there is no proper time limit in policy implementation, the policy text contains risks that were not discussed

on how to tackle them and the consequences of this National Policy will end up as a tug of war between federal institutions. What this shows is that the foundation brick of an Technological architecture is weak and due to the weak foundation the idea of advancement of technology, in this case AI can not be fully utilised.Furthermore,according to International Institute For Strategic Studies (IISS, 2021), India has been increasing its offensive capabilities alongside its International partners.Thus, Pakistan is not immune to cyber attacks and should understand the potential advantages of integrating AI in Cyber Security architecture to mitigate such cyber attacks before they even enter our algorithm system(Javed, Zeeshan, 2022).

Technological advancements and innovation have made breakthroughs in multiple domains. Artificial Intelligence is a prime example in this backdrop. The transition from automation to autonomous prism is shaping a whole new picture of reality. Hence, Nation-States around the globe have securitized this transition and conceptualised it in the shape of an AI Strategy.According to OECD (2021), 69 Countries have so far created their National AI Policy to integrate technology into their socio-political framework. As far as Pakistan is concerned, a National AI policy has been pushed at various forums from public to private stages. Recently, the Ministry of Information Technology and Telecommunication has launched a Draft of National AI Policy. Under the banner of Digitalize Pakistan, this document aims to raise awareness to the public on AI, work on developing the existing workforce, invest in R&D, develop regulation framework and ethical practices. Every country's National AI strategy have been placed on certain pillars, MoITT have prioritised four elements which are Market Enablement, AI Awareness and Readiness, Building a

Progressive and Trusted Environment and Transformation & Evolution.The launching of National AI policy no doubt is a positive manoeuvre from the Ministry. Transformation in the sectors of Healthcare,agriculture,industry,education and what not will make public administration efficient. However, it is very important to realise that for a National Policy to be successful, it must have a strategy for it.Aneel Salman (2023) argues that the Draft National Artificial Intelligence Policy contains multiple loopholes. Given the fact that this document stance is all about transformative foundation when it comes to the country's integration of advanced technologies, it has shortcomings in various domains.Aneel (2023) argues that there is a lack of measurable objectives and clarification.He adds explicitly that this policy has an absence of ethical-consideration. However, what is far more important than the above finding is the fact that there is an absence of implementing mechanisms. In simple terms, there is no clear strategy of integrating AI technology into the multiple sections of the

society. Although the policy mentions that AI can enhance the targeted socio-economic aspects such as healthcare, it does not clearly outline the strategy. Therefore, this policy document needs to be revisited so that the above mentioned loopholes may be resolved and a better approach may be seeked out.

Chapter 6 : Conclusion and Recommendations

It is time Pakistani-policy makers move beyond the policy making initiative and work on strategic plans for those policies. The country's leadership understands what problems exist and what needs to be done, however the problem occurs when the 'how' part gets lost over the years due to change in political power or change in economic preferences. The real question is until when can this paradigm continue. This study alongside many policy authors believe that Artificial Intelligence offers Pakistan a brilliant chance at achieving safety, dignity, prosperity, progress or in a nutshell National Security. It is well comprehended that Artificial Intelligence plays a role of an enabler or rather catalyst when it comes to safeguarding multi-spheres of National Security. Deriving from the traditional approach, Artificial Intelligence influence in the military domain can result in autonomous

weapons systems such as the Lethal Autonomous Weapons System (LAWS). Another AI contribution to the military domain could be improving the defence strategies through predicting self capability. Another vital contribution of Artificial Intelligence in the national security paradigm is the economic sector. AI has been installed in multiple customer-service related companies in order to provide quality services. For instance, chat-bots installed in multiple services based websites. AI does play a crucial role in the National Security paradigm due to the benefits it brings. Effectiveness, efficiency, autonomous, quality etc are features that AI has to offer. This is the reason behind securitizing Artificial Intelligence into a strategy initiative by many countries. The United States and China are great examples that are competing for AI superiority through their strategic focus on it. Both Strategies are led by guiding principles and pillars according to their domestic dynamics. For evidence, the United States focus is more towards constructing a plan based on pillars which is devoted down through multiple government agencies with their own strategic plans. While on the other hand, Chinese leadership believes in strategic patience with specific time-frames meant to achieve certain goals which nevertheless depicts some ambiguity. Despite both powers competing for the leadership position in Artificial Intelligence, their respective strategic-focus documents show that AI plays and will play a significant role in National Security's future trajectory. In this backdrop, Pakistan's recent launch of Draft National Artificial Intelligence Policy showcases objectives, pillars and targets however there are multiple shortcomings.This research has briefly highlighted vague objectives, lack of clarity in guiding pillars and outlined absence of strategy. The absence of a strategy which is a roadmap for implementation is absolutely crucial for any successful policy. Thus this research has provided the initiatives that should be taken to construct a strategy alongside the Draft National AI Policy of Pakistan and recommended time-frame with a spectrum of progress to regulate. These are vital if Pakistan wants to integrate this tech fully into its socio-economic setting. This will not only help Pakistan progress but also safeguard its National Security. Thus, it is important to understand that an AI Strategy is vital to the core of National Security Strategy making as this technology can bring remarkable changes to State’s National Power.

Recommendations

The initiation taken by the Ministry of Information Technology and Telecommunication to draft a National Artificial Intelligence Policy is of great admiration. This comprehensive document states perfectly on what needs to be achieved. However, the 'how' part in this document seems to be missing. Pakistan historically has suffered with policies that shun light on papers. When it comes to observing the reflection of policies in ground realities, they seem to be artificially created that shows absolute demerits. Thus, in order for Pakistan to flex its technological posture, it must equip this Draft Policy with a National Artificial Intelligence Strategy.

6.1 Securitize the scope of Artificial Intelligence

The sole purpose of constructing an Artificial Intelligence Policy by the Government is to integrate this technology into the socio-economic realm of the society. However, the draft National AI Policy does not fully showcase the roadmap for the implementation. Nevertheless, there are key recommendations that the Pakistan Government may take based on the AI Strategies of other countries and this research. First and foremost, Artificial Intelligence scope must be securitized and considered as a priority in the National Security apparatus. This subject will then be prioritised accordingly.

6.2 Realign/Rethink Pillars of the Draft National AI Policy

Since there are loopholes in the Draft National AI Policy, they must be fixed accordingly. Starting with the pillars alignment, the document highlights four pillars which are arranged differently at the executive summary portion and then in the policy drivers section. In the executive summary, Market Enablement is given priority while in the policy driver section enabling AI through awareness and readiness is prioritised as number one. This shows lack of clarity and creates confusion. Thus, the Pillars mentioned in the Draft National AI Policy (2023) must be rearranged according to the country's domestic situation. For instance, the first pillar is Market Enablement which is not sustainable as Pakistan still faces Digital infrastructure incapability. There are areas around the country which are far-flung that face difficulties in terms of internet connectivity. Carrying on with the Technological

Advancement in an uneven topography will create a 'Digital Gap'. Therefore, the first pillar should be focused on 'AI Research and Development'. This pillar should house the idea of awareness, readiness and adopting measures in the all socio-economic setting. It should lay a strong foundation to build digital infrastructure and create avenues to invest. However, to be able to execute this, Pakistan lacks financial resources and a diverse space of experts which leads the country to a dilemma as Pakistan is already in a debt cycle both internal and external (Wahid,2023). Nevertheless, the strategy to overcome this is not difficult. Pakistan can use its geoeconomic pivot to increase her foreign direct investment. For example, China-Pakistan Economic Corridor (CPEC) is a flagship project to lead Pakistan as a connectivity hub. Leveraging that, Pakistan can work with China to acquire knowledge and financial means to import knowledge and resources to establish digital infrastructures. Similarly, other platforms such as the Special Invest Facilitation Council (SIFC) can be utilised in seeking resources to help build a strong digital foundation. By digital foundation, this study means establishing internet connectivity towers across the country where there are connectivity issues, building Artificial Intelligence Centers, providing tools to Schools and Universities, building AI-oriented curriculum, etc.

6.3 The need for AI Strategy Documents

For every policy there must be a logical mechanism. For AI to integrate deep into society setting, there must be an implementation roadmap or in other word 'Strategy'. Despite Pakistan's Draft National AI Policy indicating development agenda through mentioning steps such as creating a National Artificial Intelligence Fund, it does not fully detail how the country can achieve this target with explicit details. There should be a separate Artificial Intelligence Strategy Document that complements the National AI Policy. The effort for outlining the implementation strategy starting from section 5 titled ' Policy Implementation & Review' in the Draft AI Policy must be given separate strategic importance through creating a complementary Strategy Document. This should be followed

by creation of each strategic initiative roadmap based on four pillars. For instance, the Pillar that details as Market Enablement, the working group designated for this pillar as mentioned in the National AI Policy must create a strategic document that entails how a market enablement pillar can be achieved through explicit details. The United States Artificial Intelligence Strategy follows a similar roadmap where one of there strategic pillars known as AI Research and Development have created a strategic document that shows implementation roadmap. This method can help Pakistan with the integration as it will reflect on the challenges and opportunities in ground reality.

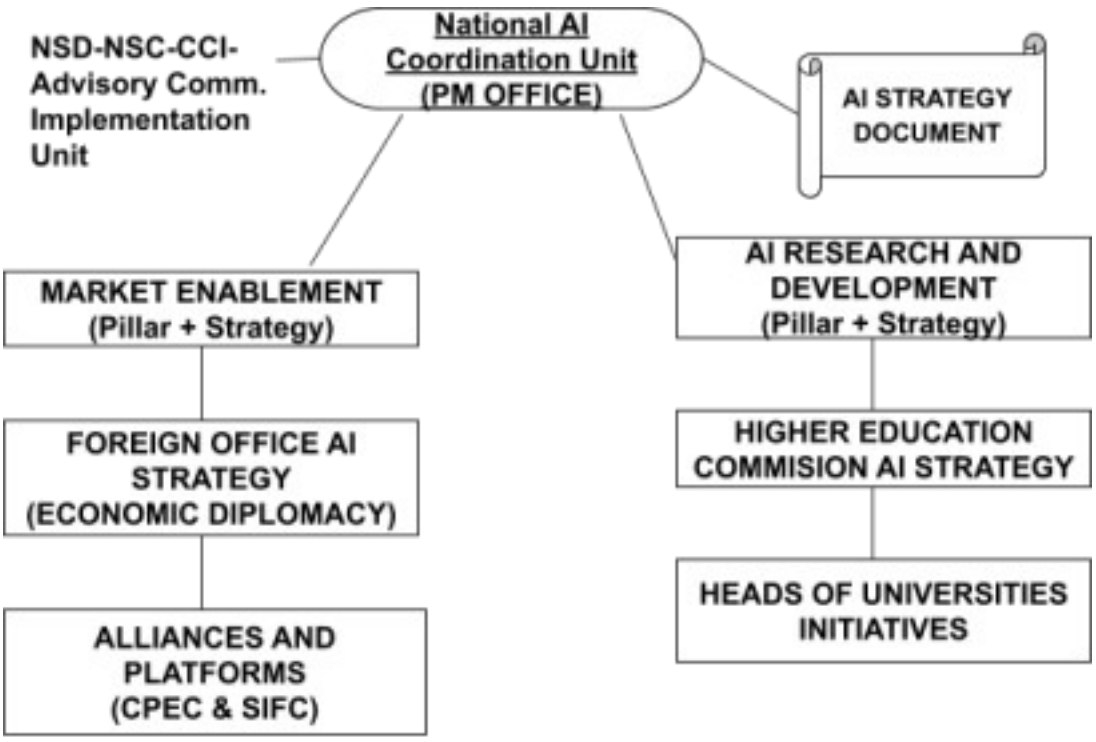
Strategic focus on AI implementation

6.4 Establishing a Coordination Unit under the Prime Minister's Leadership

To further solidify the process of implementation strategy for Artificial Intelligence, there should be a unit that acts as a management committee as stated in the Draft National AI Policy. However, since this study argues that Artificial Intelligence is a matter of National Security, this unit should be under the Prime Minister Leadership. This way the matter may be looked upon as a priority basis. This committee will be composed of representatives from the National Security Division, National Security Committee, AI Experts, Academians, Public Administrators, civil-society and relevant stakeholders from each of the pillars. This unit will be incharge of instructing in-line ministries to create AI Strategy for their setting in order to achieve fully AI Adoption. For instance, if resources are being pooled into education institutions, then the Higher Education Commission alongside University Heads must be consulted for an additional Strategy layout to place to achieve desired results. But for that, Higher Education Commission must construct their own version of AI

Strategy in which engagement, development and communication with the schools and universities will be taking place. Moreover, within the unit will be a compromise of an Advisory Committee in which experts of AI will advise the Prime Minister on genuine feedback. This will touch base grass-roots level. Such implementation progress must then be reported to the committee under the PM.

Another example of implementation devolution may be through the Ministry Of Foreign Affairs. The Foreign Office must consider AI technology integration in the Attestation department since many people come from far flung areas to get their certificates attested. Creation of an AI-led System can cut on costs and provide satisfactory services. Artificial Intelligence Technology can save man-power and provide services to the public hassle-free. Similarly, other Government Agencies such as the Ministry of Climate Change which can use AI-Tech for identifying climate prones areas and mitigate damages through it. They must come out with their own AI Strategy explicitly showcasing methods of integrating Artificial Intelligence into their day-to-day duties. For this to be successful, a strategic plan from the top must be initiated, preferably from the unit mentioned above.



CONCEPTUAL MODEL : PAKISTAN AI STRATEGY LAYOUT

6.5 Time-Frame Based Objectives

The first initiative after publishing an AI Strategy Document followed by initiatives by all government agencies should be demonstration of a time-frame progress trajectory which will outline pillars meant to be attained in a specific deadline. In the Draft National AI Policy, targets within each pillar are estimated to be achieved within a certain year. For example, in the document it states that target one (public awareness of AI) of pillar: enabling AI through awareness & readiness should be achieved by 2026. Spending less than two percent of the GDP on education (Economic Survey of Pakistan, 2022-2023) and expecting that the public will be aware of AI by 2026 is not a realistic goal. Therefore, keeping the domestic realities in check is vital for the country to achieve a realistic goal. This study suggests that the time-frame should be according to the stages of pillars.The first time-frame should run from 2024-2026 which will lead under the banner of AI Research and Development where building the fundamentals such as reliable and quality data services, skilling the workforce and digital/physical infrastructure will be a priority. This can be achieved through public-private partnerships and international alliances.Second stage which would occur from 2026-2028 should be about working on AI theory and application. This is where the resources accumulated would be used in setting up the National AI Centres across the country. On top of that, social participation can be promoted through utilising school and university curriculum where youth around the country can participate in innovation programs. The Ministry of Higher Education Commission can lead that project alongside with the private partnerships.This phase should be able to reflect on few breakthroughs towards societal change. They include ongoing training of a skilled workforce, student-exchange programs, intelligent communication systems integration into the government offices and market-oriented AI application. The last phase should occur between 2028-2030 which will be as stated in the Draft Policy as Transformation and Evolution stage. During this tenure, AI applications should be in mature use across the pivotal sectors of society for instance Education and Healthcare. Ethical usage of AI framework should be established by the IT Ministries. This phase should also be analysed if there is any room for improvements left in integrating Artificial Intelligence.

The recommendation above can not bear fruit with the long-term economic crises, thus for Pakistan to have a competitive posture in the Global AI trend, it must fix its house in order. All channels must be utilised from domestic to diplomatic ones, a whole-of-all government approach is necessary. The political and military leadership must have a uniform attitude towards Artificial Intelligence integration into the National Security paradigm.

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