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RESEARCH ARTICLE

THE SUDARSHAN CHAKRA MISSION: INDIA'S FUTURISTIC DEFENSE TECHNOLOGY ROADMAP

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Abstract

The military landscape of India has undergone significant transformation under the leadership of the Prime Minister of India Narendra Modi, evident in the various technologies and missions being launched recently. The announcement of the ambitious Sudarshan Chakra Mission in August 2025 is one of them. Through this mission, the research paper assesses the futuristic defense technology path that India adopted. It represents a shift towards military indigenization, modern warfare technologies, and precision action and counter-action systems, having a completion target by 2035. A thorough analysis of official documents, data related to military expenditure, and various initiatives launched, this research studies the mission's capability to establish India as a global leader in defense technology. Although this mission is built upon various successful reforms taken in the past few years, as well as the indigenization push, its implementation faces many challenges, including geopolitical, financial, etc., requiring proactive government attention and global cooperation.

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Introduction:-

In the 21st century, the way the nations perceive and prepare for challenges related to security has changed significantly due to the evolution of warfare. From artificial intelligence-powered combat systems to cyberwarfare and space-based threats, the modern security landscape necessitates creative solutions that go beyond conventional defense paradigms (Ministry of External Affairs, 2024). The announcement of the Sudarshan Chakra Mission by India in August 2025 represents a remarkable moment in the defense modernization journey of the country. Symbolizing precision, protection, and divine intervention, the Sudarshan Chakra is named the weapon of the great Lord Vishnu. It embodies our aspirations to create a strong shield of national security through indigenous technological development. The Prime Minister's announcement of this mission during his Independence Day address altogether reimagined India's outlook towards national security at a time when asymmetric and hybrid warfare is dominant.

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The paper analyses the strategic implications, technological requirements and the challenges that come along in this mission, all within the broader context of the military transformation over the past years. The main motive is to understand how this strategically advanced roadmap will align with the broader strategic objectives. It will help in answering the critical question that will India be successful in becoming a defense technology leader from an importer by 2035. Additionally, the importance extends beyond the academic inquiry. It is very crucial for policymakers, defense analysts, and international partners to understand the path that India will adopt to become a major global power. The mission's success or failure will likely influence India's position in a multipolar world, regional dynamics, and global defense trade patterns.

Literature Review:-

Evolution of Indian Defense Policy:

Many defense scholars and analysts have been documenting about the India's defense transformation since the past decade. Historically, all the efforts towards modernization were dependent on imports from other countries and lack of political will, as argued by Ladwig (2015). However, there is a gradual departure from this import-oriented policy to an export-oriented one under the current leadership. A major shift in our strategic policy thinking has happened with the introduction of Atmanirbhar Bharat or Self-Reliant India concept. This has been studied by various researchers and scholars, like Pant (2021), who studied how the Defense Acquisition Procedure (DAP) 2020 prioritized indigenization, a change from the past frameworks.

Determining Technological Warfare Development:

The main focus has been on how technological progress affects military superiority. Various scholars further examined how Artificial Intelligence (AI), quantum computing, and other technologies are changing the nature of battlefield. Recent works by defense technologists have emphasized the increasing significance of predictive warfare capabilities. Scharre (2018) examined the ways in which machine learning algorithms and big data analytics are allowing military planners to predict enemy actions with unprecedented precision. This literature offers essential context for comprehending the mission's emphasis on predictive technologies vital for forthcoming defense systems.

India's Defense Industrial Base:

More recently, scholars have started studying thoroughly the evolution of India's defense industrial ecosystem. The emergence of Defense Public Sector Undertakings (DPSUs) and the private companies in defense production have been documented by Singh and Kumar (2023). Their study showcases how various initiatives like the Innovation for Defence Excellence (iDEX) have fostered a new generation of defense entrepreneurs and startups.

Background and Context: India's Defense Transformation (2014-2025):

Financial Investment and Capacity Building:

A 169% increase in the defense expenditure over the past decade is clearly visible, rising from ₹2.53 lakh crore in 2013-14 to ₹6.81 lakh crore in 2025-26. This shows the increasing priority that government has accorded to military and national security, according to Press Information Bureau. The increase in the flow of finances enabled more advanced reforms, research and development, and a more push towards indigenization. However, not just being limited to increased expenditure, this transformation extends towards a changing defense production dynamic. A comprehensive investment in indigenization has resulted in domestic defense production reaching a record ₹1.50 lakh crore in 2024-25, more than triple the 2014-15 baseline. This has been accompanied by a wonderful performance in the exports, reaching ₹23,622 crore in 2024-25, a thirty-four-fold over the decade.

Structural Reforms and Policy Innovation:

At the apex of procurement decisions, indigenous innovation is now given a prime focus, unlike previous frameworks which gave a preference to foreign supplies. In this light, the most significant policy move in the defense procurement history is the Defense Acquisition Procedure (DAP) 2020, which prioritizes the "Buy Indian-Indigenously Designed, Developed and Manufactured (Indian-IDDM)" category. With "Make in India" initiative, major encouragement has been provided to industry to participate procedure in indigenous design and development activities. The ecosystem of production has now moved beyond traditional public sector units, with 146 projects across Army, Navy, Air Force, and Headquarters Integrated Defence Staff receiving "Approval in Principle" under various Make in India categories. Apart from Indian entities, foreign entities have also been given a push, with the liberalization of Foreign Direct Investment in defense. This has captured enhanced global collaborations and foreign capital investment.

Technology Infrastructure Build-Up:

Artificial Intelligence is the future of the world, including the battlefield. India has acknowledged its role, and this has been exemplified by the establishment of the Defence AI Council and Defence AI Project Agency. Along with that, each defense public sector undertaking is now developing AI road maps, showing the adoption of AI in their traditional plans and the machine learning capabilities that can be utilized across the defense sector. Organizations like the Defence Research and Development Organization (DRDO) provides various frameworks which can provide a foundation for advanced missions like the Sudarshan Chakra Mission. Nine critical thrust areas for research have been identified by the DRDO: Platforms, Weapon Systems, Strategic Systems, Sensors & Communication, Space, Cyber Security, AI & Robotics, Materials & Devices, and Soldier Support Systems. For small enterprises and startups, initiatives like the Innovation for Defence Excellence (iDEX) scheme and the Technology Development Fund (TDF), have created a strong ecosystem, successfully bridging the gap between academic research and operational deployment, allowing advanced commercialization and rapid technology transfer routes for them.

The Sudarshan Chakra Mission: Vision and Components:**Mission Architecture and Objectives:**

The Sudarshan Chakra Mission's aim is to revolutionize India's national security framework. It encompasses three objectives that are interconnected with each other. First, the prime focus of the mission is indigenization, and all the research and development, and production is within India. It extends beyond Make in India initiative and encompasses the entire defense value chain. The second objective is based on anticipatory mechanism, where predictive technologies are developed that can anticipate future warfare scenarios. Modern warfare mainly depends on informative, predictive, and pre-emptive knowledge rather than reactive responses, and this has been exemplified by the armed forces with the integration of AI, machine learning, and quantum technologies in its future planning frameworks. The third objective highlights the lessons learnt from Operation Sindoor in May 2025, that is, precision and targeted action and counter-action systems. India's defense superiority and prowess have been demonstrated to the enemy, with its tactical neutralizing techniques and targeted collateral damage. The mission aims to focus on development of such strategic and tactical capabilities.

Timeline and Implementation Framework:

The 2035 timeline for the mission provides a ten year threshold sufficient for the proper research and development, testing, and production of prototypes, while also allowing time for implementation. This timeline gives a push for India to become a global leader in defense technology and third-largest economy, both supporting each other. This represents an ambitious and pragmatic development for the country. The scope of the mission is comprehensive, by including security and protection of both strategic and civilian assets, transcending traditional military-civilian boundaries. This shows that modern threats are not just limited to military, but also expands to civilian targets, examples including drone and cyber-attacks.

Technological Integration and Convergence:

Several technological streams that have been evolving within India's defense ecosystem over the past ten years have come together to form the Sudarshan Chakra Mission. The mission expands on DRDO's nine thrust areas, private sector innovations promoted by iDEX and related programs, and current AI initiatives within DPSUs. The integration of quantum computing, advanced sensory mechanisms, and space-based surveillance capabilities is important for the development of predictive technologies. India's space programs like Chandrayaan and Mars missions provides a solid foundation for the development of space-based capabilities as a part of national security. Various systems are also under development phase under the mission, like the hypersonic weapons, autonomous platforms, etc. Incorporating these systems with the existing capabilities to address multiple threats will be the focus of the mission.

Strategic Implications and Geopolitical Context:**Regional Security Implications:**

This mission is taking shape at a time when India needs to deal with a '3.5-front security challenge', as highlighted by the analysts. This challenge is mainly the security threats from Pakistan and China, as well as internal and cyber and space threats. It is possible that future threats will likely involve simultaneous threats from these multiple domains rather than single front challenge, as seen in the past. The goal of the mission is to respond to all these challenges, protecting the national security. Pakistan's continued support for terrorism and cross-border terrorist activities has called for more such responses like Operation Sindoor from India, which maintains escalation control

and impose a heavy cost on terror sponsors. The mission emphasizes consistent surgical accuracy, with India's policy of using full force to combat terrorism, averting more extensive military conflict.

Global Technology Competition:

The United States, China, Russia, and European countries now dominate most of the world's defense technology markets. The Sudarshan Chakra Mission puts India in competition with these countries. India's achievement in building up its own defense capabilities could affect the way countries trade in defense goods if they want to be more independent and don't want to rely on old suppliers. The emphasis on complete indigenization is contrary to the traditional models, where advanced technologies are available in just few countries globally. India, if successful, can become a global supplier of advanced defense technologies, joining the group of the selective advanced countries. This would completely change how South-South technology cooperation works. It is also equally important for India to balance its own ambitions with its international cooperation and diplomatic relations, as this mission can create tensions with the country's defense partners. They may view this mission as a threat to their export markets not just in India, but all over the world. Proper engagements and diplomatic roadmaps are required to take this mission ahead.

Economic and Industrial Implications:

If the mission is successful, millions of high-skilled manufacturing and research jobs could be created, positioning India's defense industry as a significant driver of economic growth. Following the trends seen in other nations, where defense innovation has pushed technological growth, the growth of the defense industrial base may have positive spillover effects into civilian technology sectors. Another significant economic dimension is the export capabilities. India could capture a huge share of global defense market if the mission is successfully undertaken and advanced technologies are developed. It is projected to exceed \$2.4 trillion by 2030, according to research analysts.

Challenges and Implementation Considerations:**Technological Complexity and Innovation Gaps:**

Although there is considerable progress in indigenization of defense industry, there are still a number of critical gaps, becoming hurdles in the road to success of Sudarshan Chakra Mission. The capabilities that advanced nations possess like quantum computing, AI, and precision manufacturing are areas where India currently lacks the required depth. The mission's concentration on predictive technology means that data processing and machine learning algorithms need to get better, which may be beyond what India can do right now. DRDO and private sector groups have made progress in these areas, but it will need steady financing for research and maybe even cooperation between countries to get to the degree of sophistication needed for national security systems that cover everything. Currently, India is dependent on foreign supplies or the already maintained stocks for the advanced technologies like hypersonic technologies and autonomous systems, which are required for precision counter-action systems. It is not possible without international support for the full indigenization development within the 2035 timeline.

Financial and Resource Requirements:

Since the scope of the mission is very extensive, it requires increased financial requirements that can put a pressure on the defense budget. This kind of development will require a sustained investment for a long term, from strategic systems to civilian asset protection. High research and development investment may also be required, as these costs for such state-of-the-art technologies requires roughly 10-15% of total defense spending in advanced nations. This will hinder the existing resources for immediate operational requirements and capability maintenance. Another significant challenge is the extensive labour costs, as this mission requires highly skilled human capital, mainly expert scientists, engineers, and technicians. Substantial investment and expansion in the existing education system is the need of the hour, to create a talent pool for such missions, through which they can acquire expertise in technical knowledge required to carry forward this mission and make India move ahead.

Organizational and Coordination Challenges:

One of the most critical considerations is the requirement of security protocols, quality control standards and testing procedures. The mission necessitates strict security standards, undermining open collaboration required for technological advancement. Additionally, reliable testing and quality control measures exceeding international standards is also important, especially for such systems that may cause a catastrophe if any kind of failure happens, risking not just defense ecosystem, but also civilian assets. Apart from that, historically, the defense system has been highly fragmented and disorganized. While it is improving now, it may struggle with the integration of multiple

agencies like DRDO, DPSUs, etc., to achieve the objectives of the mission, as this mission will require comprehensive coordination across defense agencies.

Technological Transfer and Global Collaborations:

International partnerships cannot be ignored along with indigenization. To achieve the objectives within the stipulated time, these global relations come to the rescue here. The need of the hour is a diplomatic and comprehensive policy roadmaps, which will help in maintaining the balance between strategic autonomy and self-dependency, allowing to enhance indigenous technologies while enabling cooperation. Many countries are imposing export control regimes like United States, which may affect India's critical exports required for this mission. It is important to find alternatives, internally or externally in cooperative countries, through strategic diplomatic initiatives and agreements, which will help in taking forward the mission.

Future Prospects and Policy Recommendations:**Strengthening Research and Development Infrastructure:**

The Sudarshan Chakra Mission is a critical mission that will result in the extensive development of India's defense environment. The success of the mission demands a fundamental transformation, mainly by establishing Centres of Excellence in critical areas that are modelled on successful initiatives in countries like South Korea, Israel, etc. This could accelerate indigenization and rapid technological development. The idea is to foster collaborative innovation by integrating public and private institutions for the success of the mission. It is required to increase the research and development spending, at least 15% of the defense budget, to provide necessary resources to make the mission successful. This investment should mainly focus on advanced and emerging technologies, where India can gradually attain a leadership apart from creating a level playing field with global defense leaders. Giving a substantial push to defense startups and entrepreneurs could develop the innovation ecosystem further. Successful programs like iDEX indicates the potential small startups have, and their ability to contribute innovative technologies to support indigenization, if provided with proper support, funds, and market access.

Developing Human Capital:

Since this mission requires enhanced human skills, whether immediate or long term capabilities, it is important to establish specialized technical institutes, indigenous as well as internationally collaborated, which can contribute by creating the required innovative talent pool. For the existing defense scientists and engineers, programs specifically designed to cater to their advanced knowledge development, around emerging technologies and skills, should be introduced. Global collaborations and international exchange programs can also help to upskill knowledge, while giving a push to indigenization.

Fostering International Partnerships:

While indigenization is the main priority of the mission, it is equally important to focus on selective international cooperation, which have the capability to accelerate development without compromising on strategic autonomy. For this, it is important to identify partner nations that can contribute with technological strengths and shared strategic interests, which could enable mutually beneficial cooperation arrangements. To create win-win situations for partners, it is important to develop diplomatic sharing agreements, providing critical defense capabilities to India, and the growing defense market access to partner countries. Provisions for local production and incentives for supporting indigenous potential development should be included in such arrangements. India's growing dominance in regional organizations, and partnerships with countries like South Korea, Japan, etc., on the basis of shared interests can help in tackling common challenges. Collaborating with countries facing similar kind of threats can also help in taking ahead the mission's objectives.

Way Forward:

The Sudarshan Chakra Mission is India's one of the most ambitious defense development initiatives. It shows how we are willing to achieve strategic independence through indigenous innovation. The three stage approach, from complete indigenization, anticipatory warfare mechanism, and precision and targeted systems, highlights the security problems today, and the technological solutions needed to resolve them. The mission builds on the strong foundation of defense reforms and capability development that the Modi government has made over the past ten years. The mission will be successful because of big increases in defense spending, successful efforts to make things in the country, and the growth of a lively defense innovation ecosystem. However, the mission has a lot of problems that will put India's commitment, to modernizing its defense and being strategically independent, to test. Innovative ideas and political will are required to deal with the challenges regarding technology, finance, and collaborations.

Nevertheless, the mission is more than just a defense technology program, it showcases how India has changed from a country that was an import dependent country to a global power that is now exporting its technology and has its own indigenous defense production line. The end results will ultimately have a huge impact on India's path to becoming an independent global power that can determine the nature of security challenges. As India progresses ahead in this journey, the mission's success will depend not only on how efficiently we are equipped with required technology, but also on the political will, financial support, and international cooperation needed to make the vision of mission a reality. The next ten years are important, as it will show if the Sudarshan Chakra Mission is successful and gives India an impenetrable technological shield.

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