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## **INNOVATION'S STRATEGIC SYMPHONY: PROPELLING COMBAT DRONES FOR DEFENSE ASCENDANCE**

### **SIMFONI STRATEGI INOVASI: MENDORONG DRONE TEMPUR UNTUK PENINGKATAN PERTAHANAN**

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#### ***Abstract***

As the landscape of warfare undergoes a transformative shift towards unmanned systems, combat drones emerge as pivotal instruments at the intersection of innovation, defense policy, and strategic orchestration. This research explores the intricate dynamics shaping combat drone development, emphasizing the harmonious interplay between defense policy and innovation theories. The rise of combat drones signals a paradigm shift in military strategies, necessitating a comprehensive understanding of the policy dynamics steering their innovation. This study aims to unravel the complex interdependencies between defense policies and innovation theories in combat drones' development, deployment, and strategic orchestration. This study uses various qualitative research methods to find its way through the complicated web of policy changes and new ideas in combat drone development. These methods include synthesis of literature reviews, content analysis of policy documents, case study examination, thematic coding of expert interviews, constant comparative analysis, and triangulation. Findings reveal the strategic symphony underlying combat drone evolution, illustrating the nuanced components shaping their trajectory. From policy harmonization to dynamic decision-making, the study illuminates the synergistic forces propelling combat drones for defense ascendancy. In conclusion, the orchestration of defense policy and innovation theories intricately shapes the trajectory of combat drone technology. The synthesis of qualitative findings contributes to a holistic understanding of the strategic landscape, offering insights for policymakers, military strategists, and scholars navigating the complex realm of unmanned systems in defense.

**Keywords:** Combat Drones, Defense Policy, Innovation, Strategic Symphony, Unmanned Systems.

#### **Abstrak**

Ketika lanskap peperangan mengalami pergeseran transformatif menuju sistem tak berawak, drone tempur muncul sebagai instrumen penting di persimpangan antara inovasi, kebijakan pertahanan, dan orkestrasi strategis. Penelitian ini mengeksplorasi dinamika rumit yang membentuk pengembangan drone tempur, menekankan keterkaitan yang harmonis antara kebijakan pertahanan dan teori inovasi. Munculnya drone tempur menandakan perubahan paradigma dalam strategi militer, sehingga memerlukan pemahaman komprehensif tentang dinamika kebijakan yang mendorong inovasi mereka. Studi ini bertujuan untuk mengungkap saling ketergantungan yang kompleks antara kebijakan pertahanan dan teori inovasi dalam pengembangan, penyebaran, dan orkestrasi strategis drone tempur. Studi ini menggunakan berbagai metode penelitian kualitatif untuk menemukan jalan melalui jaringan



rumit perubahan kebijakan dan ide-ide baru dalam pengembangan drone tempur. Metode-metode tersebut meliputi sintesis tinjauan literatur, analisis isi dokumen kebijakan, pemeriksaan studi kasus, pengkodean tematik dari wawancara pakar, analisis komparatif konstan, dan triangulasi. Temuan ini mengungkap simfoni strategis yang mendasari evolusi drone tempur, yang menggambarkan berbagai komponen yang membentuk lintasannya. Mulai dari harmonisasi kebijakan hingga pengambilan keputusan yang dinamis, studi ini menyoroti kekuatan-kekuatan sinergis yang mendorong drone tempur untuk meningkatkan kekuatan pertahanan. Kesimpulannya, orkestrasi kebijakan pertahanan dan teori inovasi secara rumit membentuk lintasan teknologi drone tempur. Sintesis temuan kualitatif berkontribusi pada pemahaman holistik mengenai lanskap strategis, menawarkan wawasan bagi para pembuat kebijakan, ahli strategi militer, dan pakar yang menavigasi bidang kompleks sistem tak berawak dalam bidang pertahanan.

**Kata Kunci:** Drone Tempur, Kebijakan Pertahanan, Inovasi, Simfoni Strategis, Sistem Tak Berawak.

## INTRODUCTION

In recent years, the use of combat drones has become a significant trend in the defence sector. Unmanned Aerial Vehicles (UAVs) have revolutionised military operations by offering various capabilities, from surveillance and reconnaissance to precision strikes. However, the rapid development and adoption of combat drones also pose many policy challenges and strategic considerations (Sarjito & Lelyana, 2023). This research aims to investigate the complex dynamics of policy-making and innovation in the context of combat drones, seeking to understand how these factors drive technological advancements for defence purposes.

Combat drones have transformed the face of modern warfare in recent years, attracting interest and funding from militaries worldwide. The widespread use of these sophisticated unmanned systems has sparked discussions on morality, legality, and the potential for autonomous decision-making during hostilities. It is crucial to examine the complex interaction between policy-making and innovation in combat drones as governments grapple with the impacts of this technology. Studying the motivations behind their creation and deployment can help us understand how military capabilities will evolve in the future and how they will impact international security (Issacharoff & Pildes, 2013).

Technological advancements have led to an increased prevalence of unmanned aerial vehicles, or combat drones. Moral and legal questions arise when using these systems for targeted attacks, surveillance, and reconnaissance. In their quest for competitive advantage, nations also jeopardise international relations. To address these barriers, decision-makers must establish appropriate rules, promote global collaboration, and foster openness and trust among countries (Kathy Hovis, 2021).

Studying unmanned systems, especially combat drones, is crucial for policymakers and military strategists. This helps in understanding their ethical, legal, and strategic implications, enabling a better grasp of their potential impacts on warfare and international relations. This research also aids in assessing the risks and benefits of delegating life-and-death decisions to machines, guiding the development of responsible military strategies.

The evolution of combat drones is not just a technological advancement but a complex interaction between policy decisions, innovation processes, and strategic considerations. The challenge lies in the need to comprehensively understand how policy dynamics influence the innovation process in the development of combat drones and, in turn, how this innovation shapes the strategic landscape.

This research aims to understand the influence of policy dynamics on innovation in the development of combat drones, focusing on the relationship between defence policy formulation and technological progress. This report conceptualises the Strategic Symphony, a framework integrating defence policy and innovation theory aimed at providing a different understanding of the strategic



landscape. This study also identifies a framework for analysing policy dynamics in drone development, providing a comprehensive tool for evaluating the impact of policy decisions on technology development.

Research questions include:

1. How do policy dynamics influence the innovation process in the development of combat drones, and what are the key mechanisms used in policy decisions to determine innovation outcomes?
2. In conceptualising the Strategic Symphony in the context of combat drones, what are the core elements and interactions between defence policy and innovation theory that form the basis of this conceptual framework?
3. How does the integration of defence policy and innovation theory contribute to a diverse understanding of the strategic landscape in the development of combat drones, particularly regarding technological advancements and policy effectiveness?
4. What components form the framework for analysing policy dynamics in the development of drones, and how do these components interact to influence overall drone technology development?
5. How does the interaction between defence policy and innovation theory impact the decision-making process in developing and deploying combat drones for defence purposes?

By addressing questions related to the effectiveness, benefits, and drawbacks of integrating unmanned systems into military strategies, this research will contribute to informed decision-making.

## **METHODS**

Qualitative research methods using secondary data are beneficial for examining complex phenomena and gaining deep insights. In this study, we will explore the application of these methods, as outlined by Creswell & Creswell (2017), in the context of a research study titled "Strategic Symphony of Innovation: Driving Combat Drones for Defence Enhancement."

Firstly, the use of secondary data allows researchers to analyse existing information collected by other individuals or organisations (Creswell & Creswell, 2017). In this case, the study on combat drones will involve analysing previously published reports, policy documents, and scholarly articles related to the subject matter. Secondary data provides a wealth of information, enabling researchers to investigate various aspects and dimensions of the phenomenon under study.

Secondary data in qualitative research reveals long-term trends in the development, adoption, and defence implications of combat drones, involving policymakers, defence analysts, military personnel, and industry experts, identifying gaps and areas for further investigation.

## **RESULTS AND DISCUSSION**

### **Results**

The integration of combat drones into military operations has revolutionised warfare, highlighting the complex relationship between policy dynamics and innovation. Policy dynamics involve changes in the nature of government decisions and ongoing feedback between policymakers and stakeholders, which are crucial in shaping the direction of innovation in combat drone development. The Strategic Symphony framework, inspired by Howlett and del Rio, integrates defence policy and innovation theory to create a dynamic interaction between policy decisions and innovative practices, resulting in significant advances in combat drone technology.

The dynamic relationship between defence policy and innovation theory allows for a deeper understanding of the strategic landscape and the effectiveness of defence policies. Strategic alignment



with innovation theory fosters a symbiotic relationship between policy objectives and technological advancements, ensuring flexible and adaptable defence policies. Policy goals centred on innovation align with the development of combat drone technology, thereby enhancing its effectiveness.

The policy-dynamic framework for drone development includes regulatory frameworks, budget allocations, and research and development incentives. Adequate funding is crucial to driving the growth and maturation of drone technology, while flexible regulatory frameworks are essential for policymakers to address emerging security risks without hindering innovation. Collaboration among government agencies, industry stakeholders, and researchers is crucial to achieving effective policies.

The integration of defence policy and innovation theory has significantly influenced the development and deployment of combat drones, fostering adaptive decision-making processes and balancing ethical and strategic considerations.

## **Discussion**

### **Exploring the Sky of Innovation: Uncovering Policy Dynamics in Combat Drone Development**

The integration of combat drones into military operations has transformed the landscape of modern warfare. Behind the evolution of these unmanned systems lies a complex interaction between policy dynamics and the innovation process. This discussion delves into the intricate relationship, examining how policy decisions influence innovation outcomes in combat drone development.

#### **Policy Dynamics and Innovation**

According to Jenkins-Smith & Sabatier (1999), policy dynamics encompass changes in the nature of government decisions influenced by external factors and ongoing feedback loops between policymakers and stakeholders. In the development of combat drones, these policy dynamics serve as a driving force behind innovation. Understanding the adaptive nature of policy provides insights into the conditions that either promote or hinder innovation in military technology.

In recent years, combat drones have emerged as revolutionary tools in modern warfare, offering significant advantages in surveillance, reconnaissance, and targeted strikes. As governments strive to lead in this rapidly evolving field, policy decisions play a crucial role in determining the direction of innovation. By further exploring the interplay between policy dynamics and innovation outcomes in combat drone development, we can better understand the complex factors and identify strategies to drive technological advancements in military technology (Braun et al., 2019).

The mechanisms used in policy decision-making to determine innovation outcomes encompass various aspects. One crucial mechanism is resource allocation guided by policy priorities. Mintrom & Norman (2009) explain that policy decisions dictate budget allocations and institutional support, directly influencing the phases of research, development, and implementation of combat drone innovation.

The regulatory environment that defines policy decisions is also crucial. According to Rogers et al. (2014), legal frameworks and regulations established by governments serve as both barriers and enablers of innovation. Achieving the right balance ensures compliance with ethical standards and international law while creating a conducive environment for technological advancements.

Furthermore, the decision-making processes within government bodies contribute to shaping innovation outcomes. Harris (2001) suggests that the dynamics of collaboration among agencies illustrate how various institutions and departments with diverse priorities navigate policy landscapes, thus impacting the trajectory of combat drone innovation.



## **Harmonising Defence Policy and Innovation: Unveiling the Symphony in Combat Drone Development**

As combat drones become integral components of modern military arsenals, orchestrating defence policy and innovation theory becomes crucial to navigating the complexity of their development. This essay explores the conceptualization of the Strategic Symphony, explaining its core elements and the interactions between defence policy and innovation theory underlying this transformative conceptual framework.

### **Core Elements of the Strategic Symphony Strategic**

The core of the Strategic Symphony involves integrating principles of strategic management into policy processes. Research by Berry & Berry (2019) lays the foundation for this integration, emphasising the need for strategic alignment between defence policy and innovation trajectories. The Strategic Symphony framework aims to align policy decisions with strategic objectives, creating a harmonious symphony for combat drone development. This requires a deep understanding of strategic management principles and defence policy processes.

Howlett & del Rio's work (2015) inspired the conceptualization of the Strategic Symphony, which goes beyond closed approaches. This integration envisions holistic orchestration, capturing synergies between defence policy and innovation theory. This conceptual framework strives to foster dynamic interactions where policy decisions and innovative practices seamlessly intertwine to enhance the effectiveness and efficiency of combat drone development. Integrating policy and innovation into combat drone development is crucial to enhancing its effectiveness and efficiency. Howlett & del Rio's (2015) work on holistic integration has inspired the conception of the Strategic Symphony. This approach goes beyond traditional isolated approaches and aims to capture synergies between defence policy and innovation theory. By seamlessly integrating policy decisions and innovative practices, this framework aims to foster dynamic interactions that can lead to significant advancements in combat drone technology.

### **Interaction between Defence Policy and Innovation Theory Dynamic Decision-Making in Defence Policy**

The conceptualization of the Strategic Symphony aligns with dynamic decision-making in defence policy. Harris (2001) argues that defence policy, especially in responding to new technologies like combat drones, requires a dynamic and adaptive approach. The Strategic Symphony emphasises dynamic defence policies that adapt to new technologies, helping decision-makers navigate complex innovation landscapes, assess potential threats, and allocate resources effectively, ensuring the welfare and interests of a nation are protected. (Kuo, 2022).

An essential element of the Strategic Symphony is aligning innovation trajectories with broader strategic goals. This concept draws inspiration from strategic management literature, particularly David (2011). This framework emphasises the importance of aligning innovative practices in combat drone development with strategic goals to achieve broader objectives, emphasising the need for strategic management principles in technology development. Drawing inspiration from David's work, this framework emphasises the need for alignment between innovative practices and the overall strategic goals of the organization. This aims to create a cohesive and synchronised symphony where each element works harmoniously towards common goals (Mariani & Liu, 2020).



## **Regulating Progress: Integrating Defence Policy and Innovation Theory in the Strategic Landscape of Combat Drone Development**

In the continuously evolving field of military technology, combat drone development is evidence of the dynamic interaction between defence policy and innovation theory. This essay explores how the integration of these two crucial dimensions contributes to a diverse understanding of the strategic landscape, particularly in the context of technological advancements and the effectiveness of defence policies that regulate combat drone development.

### **Technological Advancements**

Integrating defence policy and innovation theory facilitates strategic alignment that fosters technological advancements. According to Mintrom & Norman (2009), this alignment ensures that policy decisions are based on cutting-edge principles, fostering a symbiotic relationship between defence policy objectives and technological advancement requirements in combat drone development. Strategic alignment between defence policy and innovation theory enables policymakers to prioritise technological advancements in combat drone technology, ensuring flexibility and adaptability to emerging technologies and evolving threats, thus driving continuous improvement in drone development (Schwandt, 2022).

Holistic integration contributes to the creation of an innovation ecosystem in defence policy, considering various dimensions of innovation. Based on the work of Howlett & del Rio (2015), this approach allows for a comprehensive evaluation of technological advancements, encompassing not only hardware and software development but also procedural and organisational innovations in combat drone development. This holistic innovation ecosystem recognises the interconnectedness of various factors contributing to policy changes in defence policy. A more comprehensive evaluation of technological advancements can be achieved by considering various dimensions of innovation, such as hardware, software, procedures, and organisational advancements. This is highly relevant in combat drone development, where progress in all these areas is crucial for effective and efficient operations (Rabelo & Bernus, 2015).

### **Policy Effectiveness**

Integrating defence policy and innovation theory allows for dynamic responses to emerging technological challenges. Harris (2001) highlights the importance of adaptive capabilities in defence policy, especially when faced with military technological advancements such as combat drones. This dynamic approach ensures that policies effectively address emerging threats and opportunities. Furthermore, Howlett & del Rio (2015) argue that policy changes require learning, feedback, and design. By incorporating these elements, policymakers can continuously assess the effectiveness of their policies and make necessary adjustments. This is particularly important in defence policy, as rapid technological advancements demand continuous adaptation. As Harris (2001) argues, combat drones present new challenges that require flexible and innovative policy responses. Defence policies may become outdated and ineffective in addressing emerging threats without a dynamic approach (CRS, 2023).





Figure 1. Armed Predator Drone (CRS, 2023)

Integrating innovation theory into defence policy formulation enables the establishment of innovation-centred goals. Berry & Berry's research (2019) on innovation and strategic management emphasises the need for policy goals aligned with innovation pathways. The effectiveness of combat drone development policies can be enhanced by aligning goals with innovation theory. As highlighted by Berry and Berry (2019), this approach recognises that traditional goals may not suffice to address new warfare challenges and promotes innovation-centred objectives.

### **Navigating Policy Dynamics: Components Shaping Drone Technology Trajectory**

The rapid evolution of drone technology necessitates a profound understanding of the policy dynamics governing its development. This discussion explores the components shaping the framework for analysing policy dynamics in drone development and examines how these interact to influence the overall direction of this transformative technology.

### **Components of the Policy Dynamics Framework**

The core of this framework lies in the regulatory components that define the legal parameters of drone development. According to Rogers et al. (2014), the regulatory framework is crucial in determining the scope, permissions, and limitations of drone technology development. The effectiveness of these regulations is paramount to ensuring responsible and safe advancements. Additionally, the regulatory framework plays a significant role in addressing safety issues and mitigating potential risks associated with drone use. They provide guidelines for operators, manufacturers, and users, promoting accountability and compliance with established standards. Without a robust regulatory framework, rapid advancements and widespread adoption of drone technology may lead to unforeseen consequences and potential misuse. Therefore, continuous assessment and updating of these regulations are crucial to balancing technological advancements and addressing emerging challenges (Raghunatha et al., 2023).

Financial considerations are a critical component influencing the policy dynamics of drone development. Mintrom & Norman (2009) underline the impact of budget allocation on the phases of research, development, and implementation of technological innovations. Adequate funding is essential to driving the growth and maturation of drone technology. Without sufficient financial resources, the progress of drone development can be hindered, thereby slowing advancements and limiting capabilities. To fully harness the potential of drones, governments and organisations must allocate adequate budgets for research, testing, and implementation. This will support the technical aspects of drone technology and facilitate the development of regulations and safety measures to ensure



responsible and ethical use. Moreover, budget allocation can contribute to expanding the drone industry, creating new jobs, and fostering economic growth (Levine, 2023).

### **Interaction among Components**

The regulatory framework dynamically interacts with budget considerations, balancing security interests and the need for innovation. This interaction is crucial in ensuring that policies promote technological advancements while managing the security risks associated with drone technology. Harris (2001) emphasises the complex relationship between security concerns and the imperative for innovation. They argue that achieving the right balance between security and innovation requires a flexible regulatory framework that can adapt to evolving technological advancements. This flexibility allows policymakers to address emerging security risks without stifling the potential for innovation in the drone industry.

The interaction between budget allocation and the regulatory framework incentivizes research and development in drone technology. As emphasised by Howlett & del Rio (2015), effective policies encourage innovation by providing financial support and creating an environment where researchers and developers are motivated to explore new ideas and technologies. Budgetary resources and regulatory frameworks are crucial in driving the research and development of drone technology. Governments and organisations can incentivize researchers by providing financial support and infrastructure. The regulatory framework creates an environment for experimentation and exploration, offering guidelines and safety incentives. This framework simplifies innovation and promotes collaboration among stakeholders, accelerating progress and technological advancements in drone technology (Ayamga et al., 2021).

### **Influence on the Overall Trajectory**

The framework's adaptability to emerging technologies, as shaped by regulatory components, influences the overall development of drone technology. According to Jenkins-Smith & Sabatier (1999), this adaptability ensures that policies remain relevant and effective in addressing the rapid technological advancements in the drone industry. Furthermore, the framework's adaptability to new technologies also plays a crucial role in shaping the development and regulation of drone technology. According to Howlett & del Rio (2015), the regulatory elements incorporated into the framework enable policymakers to respond to rapid advancements in the drone industry. This adaptability ensures that policies remain relevant and effective in addressing the evolving landscape of drone technology, thereby enabling the integration of drones into various sectors such as transportation, agriculture, and surveillance to become more efficient and sustainable.

The interaction within the policy dynamics framework also determines policy responsiveness to public interests. According to McCormick (2017), public opinion can shape policy choices, influencing the direction of drone technology development based on societal values and expectations. Public opinion plays a crucial role in determining policy choices and influencing the direction of drone technology development. McCormick (2017) argues that societal values and expectations can significantly impact how policies respond to public concerns. This indicates that stakeholder groups, interest groups, and the general public influence advocacy coalition frameworks. As a result, the interaction among these various actors shapes policy dynamics, leading to more responsive approaches to addressing public concerns regarding drone technology.





## **Coordinator Strength: The Impact of Defence Policy and Innovation Theory on Decision Making in Combat Drone Development and Deployment**

The integration of defence policy and innovation theory has transformed the landscape of decision-making processes in developing and deploying combat drones. This essay explores the intricate interaction between defence policy and innovation theories, examining their collective impact on decision-making processes that govern the evolution and utilisation of combat drones for defence purposes.

### **Influence on Decision-Making Processes**

The interaction between defence policy and innovation theories introduces strategic management principles into decision-making processes. Based on Berry & Berry's research (2019) on innovation and strategic management, this integration ensures that decisions align with broader strategic objectives, creating a cohesive and goal-oriented approach to combat drone development and deployment (Harris, 2001).

The merging of defence policy and innovation theories encourages adaptive decision-making processes. Harris (2001) asserts that adaptive decision-making is crucial for rapidly evolving technologies such as combat drones. This interaction ensures that policies remain responsive to emerging innovations, shaping decisions that anticipate and adapt to technological advancements. Integrating innovation theory into public sector strategic management and defence policies enables a proactive approach to technological advancements. This approach fosters continuous learning and improvement, cultivating a culture of adaptability and agility among military personnel. The blend of defence policy and innovation theory creates a dynamic environment, allowing the defence sector to maintain superiority in addressing emerging threats and retaining competitive advantage in an unpredictable global security landscape (NDSTSR-TF, 2023).

### **Impact on Development Decisions**

The interaction between defence policy and innovation theory shapes decision goals in combat drone development. Berry and Berry's framework (2019) emphasises the need for innovation-centred policy goals. This ensures that decisions prioritise technological advancement, fostering a culture of sustainable innovation in the defence sector. Harris (2001) underscores the importance of innovation-centred policy goals in drone development decisions. They argue that prioritising technological advancement will cultivate a sustainable culture of innovation, critical for modern competitiveness. Berry and Berry (2019) also highlight the integration of innovation into defence strategies, creating agile and adaptable combat drones that enhance military effectiveness and strategic superiority in a rapidly changing security landscape.

The interplay between defence policy and innovation theory influences decisions by balancing ethical considerations with strategic imperatives. This is particularly evident in the work of Rogers et al. (2014), which highlights the need for policies to address ethical dilemmas associated with combat drone use while strategically leveraging its technological capabilities. To ensure the ethical use of combat drones, policymakers must carefully balance moral interests with strategic goals. Clear guidelines and protocols must be developed to regulate engagement rules and minimise civilian casualties. Policymakers must prioritise transparency, accountability, and ethical evaluation to reduce misuse and moral erosion. Evaluating long-term impacts, international relations, and ethical implications is crucial. Research should align drone deployment with humanitarian laws and human rights standards, upholding principles of just warfare (Barracks & Igoe Walsh). Marcus Schulzke, 2015).



### **Impact on Deployment Decision**

The interaction between defence policy and innovation theory impacts deployment decisions by prioritising risk mitigation and responsiveness. According to Mintrom and Norman (2009), policies incorporating innovation theory naturally emphasise strategies that reduce the risks associated with cutting-edge technologies like combat drones. This ensures a measured and responsive implementation process. Defence policies influenced by innovation theory ensure a measured and responsive implementation process by prioritising risk mitigation and responsiveness. Mintrom and Norman (2009) argue that policies integrating innovation theory naturally emphasise strategies that reduce risks associated with cutting-edge technologies like combat drones. This approach not only protects military personnel but also allows for more calculated and controlled deployment processes.

The blend of defence policy and innovation theory allows decision-makers to strategically adapt to emerging threats. Harris (2001) underscores the importance of adaptive strategies in responding to geopolitical challenges. This interaction ensures that deployment decisions align with the dynamic nature of the contemporary security landscape. The integration of defence policy and innovation theories emphasises the importance of continuous monitoring and assessment of emerging threats. Policy entrepreneurship and strategic adaptation are crucial in navigating complex security environments. This approach allows for more controlled deployment processes, reducing the risks associated with outdated policies. Proactive identification and handling of potential threats result in more efficient security measures (Dew & Lewis, 2022).

## **CONCLUSION**

### **Conclusion**

Strategic Symphony is a framework that integrates strategic management principles with defence policy and innovation theory to guide the development of combat drones. This approach aims to create a dynamic environment where defence policies evolve dynamically in response to the imperative of innovation. The framework reflects a balance between the importance of security, innovation incentives, and societal concerns. By balancing ethical considerations with new threats and setting goals, policymakers can make strategic and flexible decisions that promote the responsible growth of combat drone technology in the defence sector. This comprehensive guidance is crucial for policymakers, military strategists, and researchers navigating the complex landscape of combat drone development.

### **Recommendation**

The Strategic Symphony framework is a valuable tool for guiding the development of combat drones in the defence sector. It integrates strategic management principles, defence policy, and innovation theory, enabling responsive and strategic decision-making. This framework balances security, innovation incentives, and societal concerns, ensuring responsible growth. It also emphasises ethical considerations, ensuring that the growth of combat drone technology aligns with social values. Strategic Symphony serves as a roadmap for navigating the intersection of defence policy and innovation, making it a transformative tool for policy formulation, military strategy, and research.

## **REFERENCES**

Ayamga, M., Tekinerdogan, B., Kassahun, A., & Rambaldi, G. (2021). Developing a policy framework for adoption and management of drones for agriculture in Africa. *Technology Analysis & Strategic Management*, 33(8), 970–987.



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- Barracks, C., & Igoe Walsh Marcus Schulzke, J. (2015). THE ETHICS OF DRONE STRIKES: UNITED STATES ARMY WAR COLLEGE PRESS DOES REDUCING THE COST OF CONFLICT ENCOURAGE WAR?
- Berry, W. D., & Berry, M. J. (2019). Innovation and Strategic Management in the Public Sector. *Journal of Policy Analysis and Management*, 38(3), 702–726.
- Braun, J., Gertz, S. D., Furer, A., Bader, T., Frenkel, H., Chen, J., Glassberg, E., & Nachman, D. (2019). The promising future of drones in prehospital medical care and its application to battlefield medicine. *Journal of Trauma and Acute Care Surgery*, 87(1S), S28–S34.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- CRS. (2023). *Armed Drones: Evolution as a Counterterrorism Tool*. <https://crsreports.congress.gov>
- David, F. R. (2011). *Strategic management concepts and cases*. Pearson.
- Dew, N., & Lewis, I. (2022). System-on-System Competition in Defense Innovation. *Expeditions with MCUP*, 2022(1), 1–71.
- Harris, P. (2001). American Foreign Policy: The Dynamics of Choice in the 21st Century by Bruce W. Jentleson. *DEMOCRATIZATION-ILFORD-*, 8(1), 303–304.
- Howlett, M., & del Rio, P. (2015). The Parameters of Policy Change: Learning, Feedback, and Design. *Journal of Public Policy*, 35(1), 35–62.
- Issacharoff, S., & Pildes, R. H. (2013). Drones and the dilemma of modern warfare.
- Jenkins-Smith, H. C., & Sabatier, P. A. (1999). The advocacy coalition framework: An assessment. *Theories of the Policy Process*, 118, 117–166.
- Kathy Hovis. (2021). Examining the impact of drone warfare on global world order. *A&S Communications*. <https://government.cornell.edu/news/examining-impact-drone-warfare-global-world-order>
- Kuo, K. (2022). Dangerous Changes: When Military Innovation Harms Combat Effectiveness. *International Security*, 47(2), 48–87. [https://doi.org/10.1162/isec\\_a\\_00446](https://doi.org/10.1162/isec_a_00446)
- Levine, J. (2023, May 31). The National Drone and Advanced Air Mobility Initiative Act . *Insight*. <https://www.americanactionforum.org/insight/the-national-drone-and-advanced-air-mobility-initiative-act/>
- Mariani, J., & Liu, P. (2020, September). Advancing Drone Technology Innovation in Government. *FedTech*. <https://fedtechmagazine.com/article/2020/09/advancing-drone-technology-innovation-government>
- McCormick, J. (2017). *Carrots, Sticks and Sermons: Policy Instruments and Their Evaluation*. Routledge.
- Mintrom, M., & Norman, P. (2009). Policy entrepreneurship and policy change. *Policy Studies Journal*, 37(4), 649–667.
- NDSTSR-TF. (2023). An Innovation Strategy for the Decisive Decade. <https://docs.house.gov/meetings/AP/AP00/20230622/116151/HMKP-118-AP00-20230622-SD002.pdf>
- Rabelo, R. J., & Bernus, P. (2015). A Holistic Model of Building Innovation Ecosystems. *IFAC-PapersOnLine*, 48(3), 2250–2257. <https://doi.org/10.1016/J.IFACOL.2015.06.423>
- Raghunatha, A., Thollander, P., & Barthel, S. (2023). Addressing the emergence of drones – A policy development framework for regional drone transportation systems. *Transportation Research Interdisciplinary Perspectives*, 18, 100795. <https://doi.org/10.1016/J.TRIP.2023.100795>
- Rogers, E. M., Singhal, A., & Quinlan, M. M. (2014). Diffusion of innovations. In *An integrated approach to communication theory and research* (pp. 432–448). Routledge.



- Sarjito, A., & Lelyana, N. (2023). Analisis Dampak Persepsi Ancaman Drone Terhadap Pembuatan Kebijakan Pertahanan Dan Proses Alokasi Sumber Daya. *Jurnal of Management and Social Sciences*, 1(4), 14–32.
- Schwandt, J. (2022, March 22). Improve Drone Technology for Future Battlefields. AUSA. <https://www.ausa.org/articles/improve-drone-technology-future-battlefields>



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