Ethical and Participatory Decision-Making in Military Contexts: A Delphi Method Approach

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Abstract: Decision-making in military contexts is inherently complex, characterized by high uncertainty, operational pressure, and profound ethical challenges. This article explores the intersection of ethical and participatory decision-making in military environments, emphasizing the potential of the Delphi Method as a structured, iterative approach to enhance moral reasoning and collective input. Drawing on adaptive leadership principles, the Delphi Method provides a framework for mitigating hierarchical and cognitive biases, promoting inclusive participation, and fostering ethical reflection among military experts. By integrating expert insights systematically, the method supports commanders in making morally grounded and operationally effective decisions. Implications for military professional ethics, organizational legitimacy, and operational performance are discussed, alongside considerations for future research and practical implementation. In addition, we clarify the specific contribution of Delphi to the validation and ethical governance of AI-based decision-support systems in defense.

1 Introduction

Decision-making in military contexts is an inherently complex process, influenced by a constellation of interrelated factors. Choices are often constrained by limited information and intense time pressure, demanding a delicate balance to ensure that delays are not perceived as a failure of leadership Klein (1998); Wong and Gerras (2015). Conversely, inadequate decisions can carry significant consequences, potentially undermining mission success and leading to the inefficient allocation of resources Dörner (1997). Moreover, critical decisions rarely present themselves in a straightforward manner, as they typically involve a multitude of variables that are not always under the direct control of the decision-maker. The operational environment of war, often described by the VUCA framework, volatility, uncertainty, complexity, and ambiguity, further intensifies these challenges, amplifying the pressure on commanders and underscoring the need for robust, ethical, evidence-based, and participatory decision-making processes Bartone (2006); Bennett and Lemoine (2014).

However, contemporary complexity, marked by cyber warfare and the proliferation of Artificial Intelligence-based decision-support systems, suggests an evolution of this framework to the BANI model (Brittle, Anxious, Nonlinear, Incomprehensible), which better describes the incomprehensible and nonlinear transformations of the modern environment Simmons-Edler et al. (2025).

Within this intricate landscape, ethics and participation emerge as foundational pillars of sound military decision-making. Ethics occupies a central place in military education across the world, highlighting its relevance and the value attributed to it Amoureux (2015). Armed forces that

consider themselves moral are those that uphold fundamental human and moral values, where military and human virtues are deeply intertwined Cook (2015); Lucas (2019). Within an organizational context, ethical decision-making constitutes a framework of behavioral standards, expressed through norms and principles that delineate what is considered appropriate or inappropriate, grounded in a system of moral values Amoureux (2015).

Participation, although seemingly counterintuitive in a traditionally hierarchical and command-driven environment, is equally crucial. Inclusive decision-making enhances the quality and legitimacy of outcomes and ensures the alignment and support of those involved. Group decision-support methodologies have demonstrated significant efficacy in defense settings, particularly in resource allocation and strategic evaluation, by fostering participation, collective learning, and knowledge sharing Keeney (1992); Louvieris et al. (2010); Saaty (2013). The integration of multiple perspectives not only enriches the decision-making process but also contributes to more resilient and widely accepted decisions.

In this context, the Delphi Method emerges as a particularly valuable tool. Conceived in the 1950s by Olaf Helmer and Norman Dalkey at the RAND Corporation Dalkey and Helmer (1963), the Delphi technique was originally developed to address specific military challenges, including the estimation of bombing requirements Dalkey and Helmer (1963). Its central premise, that the aggregated judgments of a panel of experts are generally more accurate than those of individuals acting alone, endows it with particular relevance for decision-making in complex and uncertain environments Linstone and Turoff (1975, 2002). The method's historical roots in defence-related projects confer intrinsic credibility for contemporary military applications, especially as armed forces increasingly seek approaches that combine operational effectiveness with ethical integrity and inclusive deliberation Turoff and Hiltz (1996). To ensure alignment with the article's stated focus, we explicitly frame Delphi's role in the ethical validation and lifecycle governance of AI-enabled decision-support systems (e.g., defining ethical requirements, eliciting risk criteria, and stress-testing human-in-the-loop protocols) within military organizations.

2 Ethical and Participatory Decision-Making in Military Contexts

Decision-making in military environments is inherently complex, shaped by high stakes, limited information, and time constraints Hogarth (1987); Klein (1998). Untimely decisions may be perceived as leadership failure, whereas ill-informed choices can com-promise mission success and resource allocation Gross and Carrick (2013); Walzer (1977). Military decisions rarely involve a single correct option; they require balancing operation-al objectives, risk management, and ethical considerations under uncertainty Endsley (1995).

A central ethical challenge is the temptation to prioritize outcomes over moral principles. The notion that "the ends justify the means" can lead to decisions that, while operationally effective, conflict with core ethical values Gross and Carrick (2013); Walzer (1977). Such dilemmas are particularly pronounced in environments characterized by volatility, uncertainty, complexity, and ambiguity (VUCA) Bennett and Lemoine (2014), where decisions may involve tension between jus ad bellum (justice in going to war) and jus in bello (justice in conducting war) Walzer (1977). Military professional ethics (MPE) provides normative guidance rooted in universal moral principles, aligning operational effective-ness with moral integrity Dunlap (1999). Ethical frameworks encourage soldiers and commanders to act according to established principles rather than responding solely to situational pressures Cook (2015); Lekea et al. (2023).

Decision-making in military contexts presents highly complex ethical challenges, encompassing both operational effectiveness and moral responsibility, with profound implications for human life and the legitimacy of actions, particularly under the frame-work of international law. The traditional military model is fundamentally hierarchical, in which discipline, obedience, and chain-of-command principles serve as the foundational pillars of organizational functioning. Within such a structure, authority is centralized and decision-making is often top-down,

prioritizing rapid responses and operational efficiency. However, the integration of participatory and deliberative approaches necessitates a reconsideration of the relationships between authority, accountability, and ethics within military organizations.

From an ethical perspective, participatory decision-making can be conceptualized as a mechanism to enhance both legitimacy and transparency by incorporating a plurality of viewpoints into the deliberative process. As highlighted by Nunes (2013), ethical deliberation processes facilitate more inclusive decision-making, recognizing pluralism of values as essential for the legitimacy of collective choices. When military decisions emerge from participatory frameworks, principles such as justice, proportionality, and human dignity gain additional significance. This perspective resonates with the reflections of Cortella (2015), who argues that ethical leadership requires co-responsibility and dialogical engagement, emphasizing that authority entails not only the capacity to impose directives but also the moral imperative to listen, integrate, and consider diverse perspectives.

Despite these potential advantages, participatory approaches in military decision-making raise significant ethical and operational dilemmas. A central tension arises between the need for swift, decisive action in high-stakes environments and the ethical imperative to deliberate inclusively. There are practical limits to the coexistence of broad participation with the operational demand for rapid, effective responses; likewise, the diffusion of responsibility inherent in participatory processes can dilute individual moral accountability. Balancing obedience and deliberation thus emerges as a critical ethical challenge Nunes (2019).

In this context, the Delphi method offers a structured, systematic, and anonymized mechanism for consultation, potentially mitigating some of these dilemmas. By reducing the influence of rigid hierarchies and fostering the inclusion of diverse perspectives, the Delphi method supports more reflective and ethically grounded decision-making processes Nunes (2019). Nevertheless, the ethical efficacy of such deliberative processes is contingent upon the implementation of clear criteria for inclusion, transparency, and ac-countability. Without these safeguards, participatory deliberation risks degenerating into a formalistic exercise devoid of substantive ethical impact Nunes (2019).

It is crucial to note that the boundary between individual and collective responsibility in military settings is inherently fluid. Participatory decision-making should not function as a moral shield that absolves participants of accountability. Instead, it must be accompanied by clearly defined mechanisms for the attribution of responsibility, encompassing both commanders and subordinates, thereby ensuring that ethical obligations are neither dispersed nor neglected within the collective Nunes (2013, 2017).

Participation need not undermine command authority; informed input from expert panels or staff teams can guide the commander's final decision while maintaining ac-countability and inclusion Hooijberg and Petrock (1993); Louvieris et al. (2010).

Adaptive leadership further complements ethical and participatory decision-making by promoting flexibility, creativity, and responsiveness in dynamic operational environments Heifetz and Linsky (2002). Leaders who encourage consensus-building, iterative dialogue, and organizational learning create conditions in which ethical reflection and in-formed participation can thrive, even within hierarchical structures Yukl and Mahsud (2010), consistent with evidence on leadership agility in VUCA contexts Syamsir et al. (2025). Such adaptive approaches naturally align with iterative, expert-driven methodologies, preparing the groundwork for structured techniques—such as the Delphi Meth-od—to support robust, ethically informed, and participatory decisions in military contexts Linstone and Turoff (1975, 2002).

3 The Delphi Method: Principles, Methodology, and Military Applications

The Delphi Method is a structured, iterative communication technique designed to gather and synthesize expert opinions on complex problems Dalkey and Helmer (1963). Initially devel-

oped in the 1950s at the RAND Corporation for military applications, including strategic forecasting and resource planning, it relies on the premise that the collective judgment of a panel of experts is generally more accurate than that of isolated individuals Dalkey and Helmer (1963); Linstone and Turoff (1975, 2002).

Key principles of the Delphi Method include anonymity, iteration with controlled feedback, pursuit of consensus, and expert panel diversity. Anonymity reduces bias and the influence of hierarchical pressure, particularly relevant in military contexts Okoli and Pawlowski (2004). Iteration and controlled feedback allow experts to reconsider their judgments based on aggregated group responses, improving reflection and reasoning Rowe and Wright (1999). Consensus is sought to identify common ground while still al-lowing exploration of divergences, which is particularly valuable in ethical deliberations Skulmoski et al. (2007). Finally, selecting a diverse panel ensures representation of multiple perspectives, reinforcing the credibility and applicability of results Hasson et al. (2000).

The Delphi process typically involves multiple rounds. Initially, the problem is de-fined, experts are selected, and a preliminary questionnaire is created. Subsequent rounds involve collection, aggregation, and feedback of responses, allowing participants to adjust positions based on the group's input Dalkey and Helmer (1963). Variants such as Policy Delphi and Ethical Delphi Turoff and Hiltz (1996) extend its use to normative questions and ethical dilemmas, emphasizing deliberation and moral reasoning rather than solely operational forecasting.

In military contexts, the Delphi Method facilitates ethical reflection by structuring discussions where experts can justify positions and examine moral implications Skulmoski et al. (2007). It supports participatory decision-making by integrating geographically dispersed experts without hierarchical or logistical constraints Okoli and Pawlowski (2004). Applications include defining military moral values, strategic planning, operation-al decision-making, and establishing criteria for training and professional development Hasson et al. (2000). Challenges include time constraints, expert selection, and potential dropout, which must be managed to ensure reliability Rowe and Wright (1999).

Delphi for AI governance in defense In AI-enabled decision-support lifecycles, Delphi can (i) elicit consensus on ethical and operational requirements (e.g., reliability, transparency, human oversight), (ii) prioritize risk scenarios and safeguards for human-in-the-loop protocols, and (iii) define audit criteria for deployment and post-deployment monitoring. This targeted use clarifies the article's stated contribution.

4 Integrating the Delphi Method into Military Ethical and Participatory Decision-Making

The Delphi Method can be strategically applied to enhance both ethical and participatory decision-making in military contexts, aligning closely with adaptive leadership principles Heifetz and Linsky (2002); Yukl and Mahsud (2010). Its structured, iterative approach allows military experts to express opinions freely while revising positions based on peer feedback, mitigating hierarchical and social pressures common in military environments Okoli and Pawlowski (2004). By fostering reflection on the justifications for decisions and encouraging the consideration of divergent perspectives, the method counter-acts the tendency to prioritize operational outcomes over moral principles, strengthening critical ethical reasoning Gross and Carrick (2013); Skulmoski et al. (2007); Walzer (1977).

The method also promotes participation without undermining the command structure. Geographically dispersed experts can contribute simultaneously, and input from panels or staff teams informs commanders' decisions while maintaining accountability Rowe and Wright (1999). Iterative feedback allows collective intelligence to be leveraged, improving the robustness, legitimacy, and alignment of decisions with organizational values Linstone and Turoff (1975, 2002).

Practical applications of Delphi in military settings include defining moral values, guiding

strategic planning, and establishing operational criteria Hasson et al. (2000); McKenna (1994). Adaptations such as accelerated rounds, interview-based Delphi, and targeted expert selection Turoff and Hiltz (1996) preserve feasibility under operational tempo while retaining methodological rigor. By integrating structured ethical reflection with participatory processes, the Delphi Method provides commanders with a systematic framework for informed, morally grounded, and inclusive decision-making under uncertainty Linstone and Turoff (1975, 2002); Skulmoski et al. (2007).

5 Conclusion

Decision-making in military contexts is inherently complex, shaped by uncertainty, volatility, and time constraints, often under life-or-death conditions. In such environments, the pressure to achieve operational outcomes can overshadow ethical considerations, creating a persistent risk that decisions may prioritize results over morally appropriate means Walzer (1977). Addressing these challenges requires not only technical competence but also ethical vigilance and the integration of diverse perspectives in the decision-making process.

Participation emerges as a key mechanism to enhance decision quality, legitimacy, and acceptance among personnel. Although hierarchical structures and strict discipline can limit the extent of involvement, adaptive leadership principles—emphasizing collaboration, feedback, and organizational learning—provide a doctrinal foundation for more inclusive approaches without compromising command authority Heifetz and Linsky (2002); Yukl and Mahsud (2010). By carefully framing participation, military organizations can benefit from collective insights while maintaining the necessary decisional accountability of commanders.

The Delphi Method, with its origins in military applications, offers a structured and systematic tool to integrate ethical reflection and participatory decision-making. Its fundamental principles of anonymity, iteration, and controlled feedback enable experts to contribute unbiased perspectives, reconsider positions based on peer input, and engage in in-depth moral deliberation Okoli and Pawlowski (2004); Skulmoski et al. (2007). Through iterative consultation, Delphi not only fosters consensus where possible but also illuminates ethical divergences, providing commanders with a nuanced understanding of moral dilemmas.

Integrating Delphi into AI-governed decision-support: To align with the scope announced in the abstract, we underline Delphi's utility in specifying ethical guardrails and evaluation criteria for AI-based systems throughout development, testing, deployment, and monitoring, ensuring mission efficacy without compromising human dignity and accountability.

Beyond immediate decision-making, Delphi can contribute to the ongoing development of Military Professional Ethics by supporting the codification and internalization of moral principles across the force. By enabling structured discussion and consensus around core ethical values, the method promotes morally resilient units capable of acting consistently with universal and institutional norms, thereby enhancing trust within the organization and with the broader public.

Future research could apply the Delphi method in simulated and real military scenarios to evaluate its effects on decision quality, ethical awareness, cohesion, and trust. Such approaches may foster both immediate operational improvements and a long-term culture of participatory decision-making. Ethics, rather than being an obstacle, should serve as a foundation for legitimacy, requiring balance between mission efficacy and universal principles. By grounding decisions in justice, accountability, and human dignity, military operations can achieve greater effectiveness, legitimacy, and moral coherence.

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