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ta tante e bi faire



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Negotiation as a key enabler in NATO Multi-Domain Operations involving non-military entities

A Scenario-based approach for optimizing strategic partnerships in the context of the supply chain

**Dissertação para obtenção do grau de Mestre em Ciências Militares Navais,
na especialidade de Administração Naval**



Alfeite
2025



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Epigraph

“The future is not something we enter.
The future is something we create.”

Leonard I. Sweet

Dedication

To my mother and my grandmother, my unwavering pillars throughout this journey.

Your strength, love, and constant support have carried me through every challenge
and inspired me to keep going.

This accomplishment would not have been possible without you.

Acknowledgments

I want to express my deepest appreciation to my supervisor, Professor Pedro Borda de Água, for his patience and guidance, as well as for the expertise and intangible support he has provided. A master dissertation is certainly an individual commitment, but with the professor's counselling, I always felt like following the right path.

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To my *Parybeb* group, thank you for all the unforgettable moments, laughter, and true friendship. The memories we have created together were a constant reminder that balance, fun, and connection are just as important as hard work. I'm deeply grateful to have shared this chapter of life with you.

And to Sport Lisboa e Benfica, a lifelong passion that has taught me the value of loyalty, perseverance, and never giving up, even in the most difficult moments.

Supporting this club has been a constant reminder of what it means to believe, to fight, and to belong to something greater than oneself.

Finally, to my mother and grandmother, my *Clarinhas*, for being the heart of everything I am. Your unconditional love, your quiet strength, and the way you have always believed in me have carried me through every step of this journey. You have given me more than support; you have given me the courage to dream and the belief that I could make those dreams real. This is for you, because of you.

Abstract

This dissertation explores how NATO can enhance its negotiation capability when engaging with non-military actors within the context of Multi-Domain Operations. In an era marked by increasing operational complexity and cross-sector interdependence, NATO's effectiveness relies not only on its military capabilities but also on its ability to coordinate, align, and negotiate with civilian partners. The central issue addressed is how NATO can negotiate, reconciling military requirements with the capacities and constraints of non-military suppliers. To investigate this problem, the dissertation applies the NATO Defence College Strategic Foresight methodology. This involves the identification and prioritization of trends and uncertainties, the construction of scenarios based on key drivers, and the application of a backcasting process to derive strategic actions. The findings emphasize that negotiation must be recognized as a core institutional function, necessitating doctrinal clarity, sustained stakeholder engagement, modular negotiation capabilities, and interoperable information systems. The scenario analysis illustrates how NATO's negotiation relevance is shaped by its adaptability to divergent geopolitical and institutional conditions. The backcasting results point to a set of actions that remain valid across future trajectories, including the development of a NATO-wide negotiation doctrine, the integration of civil-military liaison structures, and the institutionalization of early coordination mechanisms.

Keywords: Multi-Domain Operations, NATO, Civi-Military negotiation

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List of acronyms and abbreviations

ACT - Allied Command Transformation

AI - Artificial Intelligence

BATNA - Best Alternative to a Negotiated Agreement

BCI - Basic Contractual Instrument

DANP - DEMATEL based Analytic Network Process

DEMATEL - Decision-Making Trial and Evaluation Laboratory

DM - Decision-Making

DQ - Derived Question

DSC - Defence Supply Chain

DSCM - Defence Supply Chain Management

DST - Dempster-Shafer Theory

EWI - Early Warning Indicator

FSSD - Framework for Strategic Sustainable Development

INRM - Influential Network Relation Map

LARG - Lean Agile Resilient and Green

MADM - Multiple Attribute Decision-Making

MDO - Multi-Domain Operations

NATO - North Atlantic Treaty Organization

NDC - NATO Defense College

NSPA - NATO Support and Procurement Agency

PMESII-PT - Political, Military, Economic, Social, Informational, Infrastructure, physical, and temporal

PS - Problem Statement

RFI - Request for Information

RFP - Request for Proposal

SFA - Strategic Foresight Analysis

SLR - Systematic Literature Review

SoR - Statement of Requirement

SoS - Systems of Systems

SoW - Statement of Work

Introduction

The introduction is structured into four sections: it begins by framing the strategic and institutional relevance of the topic, followed by a clear definition of the problem addressed. It then outlines the research objective and concludes with a description of the dissertation's structure.

Framing

The North Atlantic Treaty Organization (NATO), since its inception in 1949, has served as a cornerstone of transatlantic security. To ensure its deterrence capability, the Alliance approved the Multi-Domain Operations (MDO) concept in May 2023. NATO defined MDO as “the orchestration of military activities, across all domains and environments, synchronized with non-military activities, to enable the Alliance to create a converging effect at the speed of relevance.” There are five domains within NATO's structure: air, land, sea, cyber, and space. This concept will enable NATO to prepare, plan, orchestrate, and execute coordinated activities in collaboration with other stakeholders and actors associated with the Alliance (NATO Allied Command Transformation, 2023). MDO will have to rely on technological systems and organizations arranged within a Systems of Systems (SoS) construct.

The role of external stakeholders within MDO envisions collaboration that extends beyond client-customer interactions, fostering full integration across domains and capabilities (NATO Allied Command Transformation, 2023). Negotiating with non-military stakeholders, especially the private sector, is a vital enabler within this integrated operational ecosystem, essential for securing access to critical civilian resources, technologies, services, and infrastructures. NATO must ensure these resources remain available and aligned with military requirements during both peace and conflict times.

Problem definition

As NATO advances its MDO framework, a need emerges to establish agreement processes with non-military entities effectively. NATO faces the complexities of negotiating terms, reconciling military requirements and civilian standards. While the military emphasizes precision, speed, and high security, these priorities often conflict with the private sector's focus on profitability and market-driven timelines. These discrepancies can lead to misaligned expectations and protracted negotiations, complicating the alignment of military needs with civilian market capabilities.

Additionally, the wide-ranging nature of NATO's operations introduces further complexities, as negotiations must account for diverse cultures, legal frameworks, and international regulations. Divergences in national and corporate cultures impact communication and Decision-Making (DM) processes, hindering the trust-building essential for constructive partnerships. This intricate cultural and regulatory landscape prevents smooth negotiations and poses risks to achieving operationally viable agreements. Addressing these challenges needs a negotiation approach that can manage logistical and operational alignment while bridging cultural gaps.

Goal

This dissertation aims to develop a comprehensive negotiation approach that facilitates complex, multi-stakeholder negotiations between NATO and the private sector suppliers within the context of NATO's Multi-Domain Operations.

The Problem Statement (PS) that will determine the direction of this dissertation is as follows:

How can negotiation be employed to reconcile NATO's MDO requirements with the capabilities and constraints of non-military suppliers?

To address the proposed PS, a number of derived questions (DQ) were formulated:

DQ1: What are the key military demands for NATO's MDO that most frequently clash with the capabilities or operational modes of civilian suppliers?

DQ2: What perceived challenges do defence buyers face in navigating the frictions that may arise when military and non-military organizations must collaborate within a fully realized MDO paradigm?

DQ3: How do cultural, regulatory, and organizational differences between military and civilian entities affect negotiation processes and outcomes in the context of NATO's MDO?

DQ4: What approaches can be developed to continuously assess and maintain the alignment between civilian supplier performance and NATO's MDO requirements?

Addressing these derived research questions will facilitate the verification of whether the main PS has been sufficiently answered.

Structure

The present dissertation structure is as follows:

Chapter 1, Literature Review, establishes the theoretical foundation for subsequent chapters. It examines the concept of MDO, relevant negotiation approaches, NATO's procurement and agreement processes, defence supply chain considerations, and applicable scenario planning methodologies for the methodology chapter.

Chapter 2, Methodology, describes the steps of the methodology to be applied in the next chapter.

Chapter 3, Methodology Application and Results, presents the step-by-step application of the methodology. It includes the formulation of the focal issue and time horizon, the identification of key drivers, the creation of exploratory scenarios, and the derivation of strategic actions through backcasting.

Chapter 4, Discussion, interprets the scenario outcomes and strategic implications derived from backcasting, assesses the study's strengths and limitations, and aligns the findings with existing academic literature.

The final chapter presents the study's main conclusions, highlights its contributions and limitations, and outlines directions for future research.

1. Literature Review

This chapter consists of six sections. The first outlines the literature review methodology. The second explores the MDO concept. The third discusses negotiation within the MDO framework and identifies suitable negotiation approaches. The following addresses NATO's procurement processes and agreement process. The fifth examines defence supply chain management and its relevance to MDO. Lastly, the sixth section evaluates scenario planning approaches applicable to the dissertation's methodology.

1.1. Research Methodology

This study utilizes a Systematic Literature Review (SLR) as the research methodology. This approach is crucial for the initial exploration of the topic, as it guarantees the rigor of the research, strengthening the foundation for addressing the primary problem statement.

The SLR methodology employed in this study, as outlined by Kitchenham (2007), encompasses three central phases: planning, development, and documentation of the research, each of which involves multiple steps. Figure 1 provides a concise depiction of the SLR methodology.

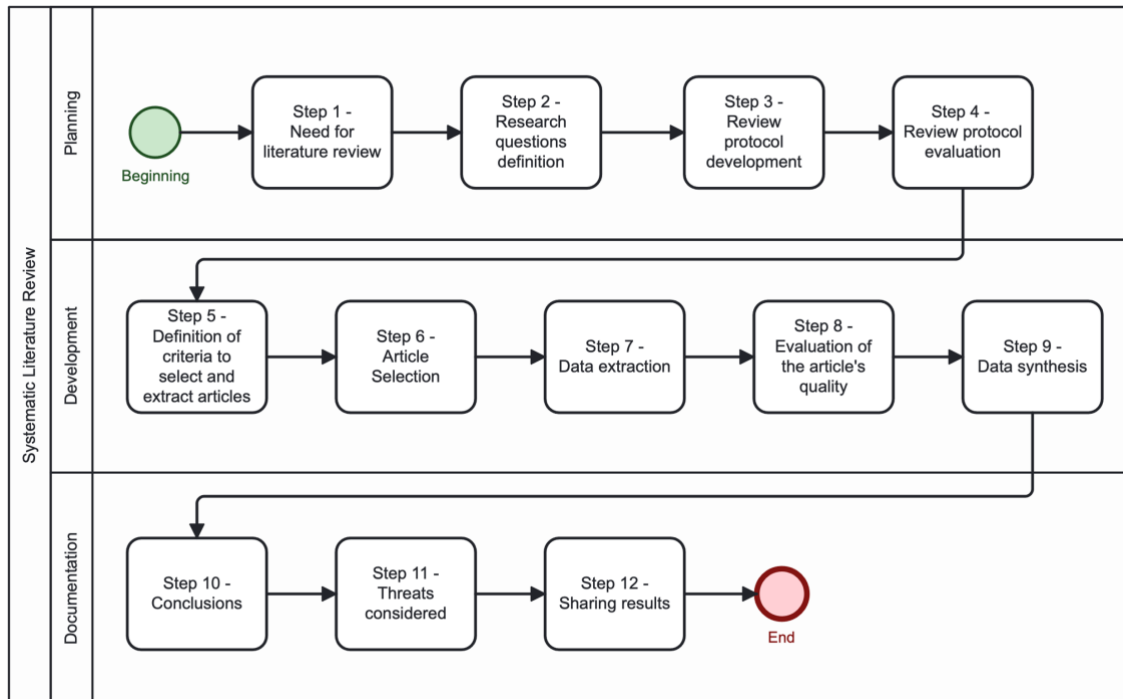


Figure 1 - SLR process

The initial stage of the literature review process is the planning phase. The need for a literature review (step 1) stems from the problem outlined in the introduction. The formulation of the research questions (step 2) is intended to identify relevant articles, studies, methodologies, and other materials that can contribute to addressing the dissertation's central inquiries. Table 1 outlines the guiding questions that directed the extraction of content from the selected literature (step 7). The review protocol was developed and assessed (steps 3 and 4) based on the bibliographic references of the consulted SLR sources.

Table 1- Research questions and objectives

	QUESTION	OBJECTIVE
RESEARCH QUESTION 1	What models or frameworks for cross-cultural and multiparty negotiation could be adapted for military-civilian	Review negotiation models that manage cross-cultural differences, applicable to NATO's military-civilian negotiations.

	negotiations within NATO's MDO context?	
RESEARCH QUESTION 2	What are the scenario-based approaches applicable to NATO and MDO?	Explore scenario-based approaches applicable to NATO.
RESEARCH QUESTION 3	How are logistical challenges addressed in the integration of civilian entities within military alliances?	Explore how logistical challenges are managed during the operational integration of civilian suppliers in NATO's MDO strategies.

In the development phase, a set of criteria was established for selecting and extracting articles (step 5). The selection process involved reviewing each article's title, abstract, and, when necessary, the introduction and conclusion.

The keywords most suitable for the research topic were identified using the articles pre-selected for the dissertation planning and the established research questions. Following the process outlined in Figure 2, an initial set of relevant scientific articles was selected. Notably, it was unnecessary to redefine the keywords, as the articles obtained were found to align with over 90% of the previously studied keywords and citations.

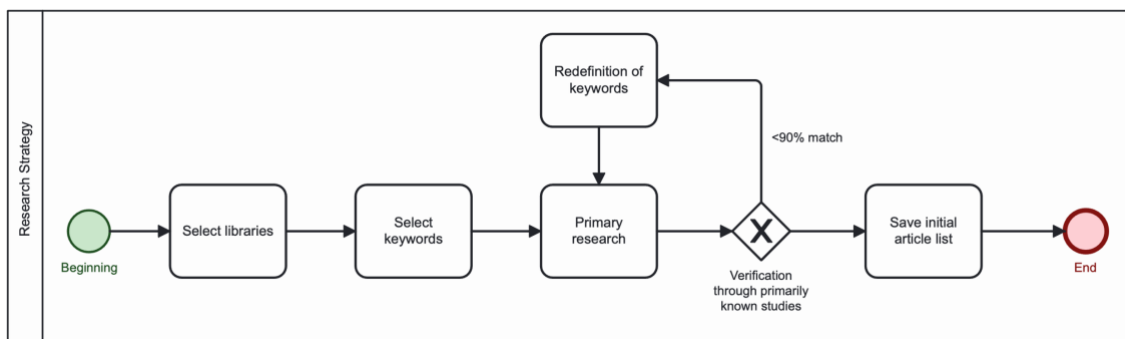


Figure 2 - Research strategy

Searches were conducted in prominent academic databases such as Google Scholar and B-on to investigate previous related research. The keywords employed to identify pertinent papers and articles included: Multi-Domain Operations; defence supply chain management; procurement negotiation; CIMIC; Civil-Military Cooperation; contracting and agreement in NATO; Military and Non-Military negotiations; and scenario planning negotiations.

The selected articles were required to contain at least one of the specified keywords. Both industry-based and academic publications were deemed eligible for inclusion. Articles focusing on military operations or supply chain issues outside the NATO context were excluded unless they provided direct insights applicable to NATO. To maintain academic integrity, non-peer-reviewed articles, news pieces, opinions, editorials, and blog posts were excluded. Presentations, posters, and non-English texts were also excluded. Additionally, any articles for which the full text was inaccessible were eliminated, ensuring that all chosen studies were thoroughly reviewed and assessed.

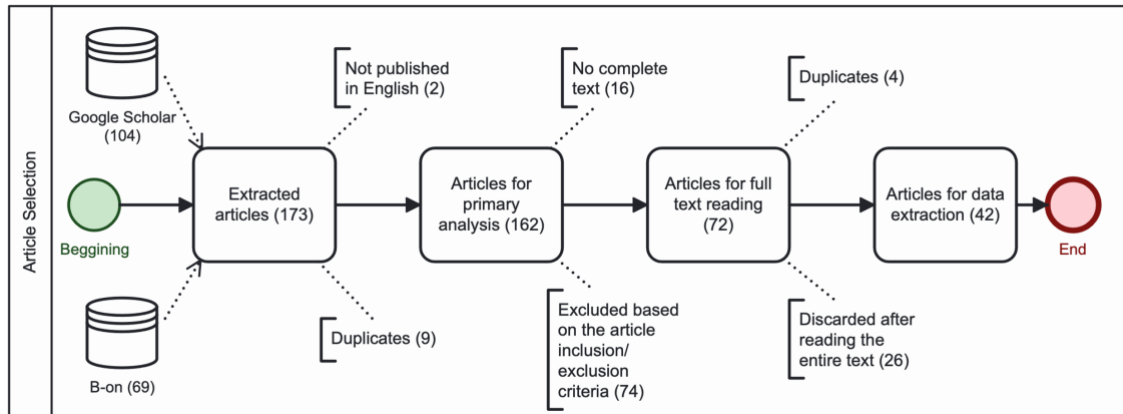


Figure 3 - Article selection process

The steps illustrated in Figure 3 detail the library sources utilized, the corresponding number of articles selected, and the iterative process of article reduction leading to the final set (step 6). Specifically, the initial search yielded 173 articles, from which duplicates and non-English publications were removed. Subsequent application of the inclusion and exclusion criteria further narrowed the list to 72 relevant articles for in-depth review. These selected articles were thoroughly examined, and after eliminating

those considered irrelevant or redundant, a final set of 42 articles was identified for data extraction.

With the final 42 articles, the data was extracted (step 7) based on the research questions and the insights provided by each article. A second thorough review was conducted, during which the extracted data was summarized (step 9), and the conclusions were drawn (step 10). Evaluating the quality of the articles (step 8) can guide the interpretation of the synthesis results and determine the strength of the conclusions drawn (Kitchenham, 2007). However, there is still no defined form of evaluation, and it is difficult to infer the extent to which the authors were able to address the validity threats of their studies. Consequently, the assessment of article quality and consideration of threats (step 11) stems from the interpretation and analysis by the dissertation author. After a comprehensive review, any articles deemed dubious or suspicious due to insufficient validation of sources or methods were excluded. Finally, the following subchapters present the synthesized findings (step 12).

1.2. Multi-Domain Operations

Multi-Domain Operations is a new concept with some roots in the past, expressing real ways of countering or defeating, competitively or conflictedly, a state adversary's forces in the 2025-2050 timeframe (Minculete, 2023). In May 2023, NATO approved the definition of MDO as *"the orchestration of military activities, across all domains and environments, synchronized with non-military activities, to enable the Alliance to deliver converging effects at the speed of relevance."* The concept includes five domains: air, land, sea, cyber, and space. With the concept, NATO recognizes the need to optimize activities towards a collective effect between military and non-military actors (Black, 2023).

According to Minculete (2023), the effectiveness and efficiency of the MDO are given by Equation 1, which includes the relational, integrative, and complementary effects of the specific capabilities of the five domains, thus:

Equation 1- MDO effectiveness and efficiency

$$MDO_E = f_H(LFC + AFC + NC + CC + SC)$$

Where MDO_E is the MDO efficiency and effectiveness, f_H the holistic function given by the interrelation and integration of the domains; LFC means land force-specific capabilities; AFC the air force-specific capabilities; NC the naval-specific capabilities; CC the cyber-specific capabilities; SC means space action force-specific capabilities.

The formula underscores that MDO effectiveness hinges on integrating and coordinating capabilities across forces rather than relying on each force's isolated strengths. Synergy among domains is vital, leveraging each one's strengths to offset vulnerabilities and boost overall efficiency. This understanding can shape resource allocation within military budgets. Moreover, Minculete (2023) highlights that in modern warfare, MDO success depends on advanced technology, skilled personnel, and dynamic strategy to optimize resource allocation and achieve operational objectives.

According to the norm ISO/IEC/IEEE 21839, a system of systems (SoS) is a *“set of systems or system elements that interact to provide a unique capability that none of the constituent systems can accomplish on its own.”* SoS typically involves multiple stakeholders with diverse and potentially conflicting interests, varied operational priorities, and independent resource allocation decisions. In the context of MDO, the SoS concept is exemplified through the integration and coordination of diverse forces, capabilities, and domains, enabling a synergistic effect that exceeds the individual contributions of each component.

In the same standard, SoS is classified into four types: directed, acknowledged, collaborative, and virtual. In a directed SoS, there is a central purpose, and the constituent systems, while able to operate independently, are subordinate to this

overarching goal. An acknowledged SoS recognizes a central management structure and shared objectives, but the individual systems maintain their ownership and objectives, cooperating voluntarily. A collaborative SoS features loosely affiliated systems that collectively decide on the provision or denial of services to meet common goals. Lastly, a virtual SoS lacks a central authority or agreed-upon aim, leading to large-scale behaviours that emerge from largely unseen mechanisms. The MDO concept may be characterized as an acknowledged and collaborative SoS, where the coordination and integration of diverse forces and capabilities converge towards a shared objective, even as the individual components maintain a degree of autonomy.

The characterization of MDO as a SoS implies a system life cycle process associated with MDO. Per the ISO/IEC/IEEE 15288 standard, this life cycle encompasses technical processes, technical management processes, agreement processes, and organizational project-enabling processes. The '*agreement processes*' outlined in the standard include acquisition processes and supply processes. Both are crucial to the MDO concept and need negotiation approaches with non-military entities to ensure an efficient and effective acquisition and supply chain.

The subsequent subchapter will discuss negotiation approaches that might align with MDO.

1.3. Negotiation in MDO context

The MDO concept requires negotiations between military and non-military entities, involving multiple parties and cross-cultural engagement. These discussions focus on how tasks are accomplished, how personnel are incentivized, which collaboration norms apply, and how limited resources like time, space, and funding are allocated (Katz & McNulty, 1995). Although extensive research exists on multi-party, cross-cultural negotiations, there appears to be no literature addressing them in the MDO context. The following subchapters discuss negotiation approaches that may fit NATO's needs.

1.3.1 Position-Based vs. Interest-based

Katz and McNulty (1995) identify two main negotiation paradigms: position-based and interest-based. In the position-based approach, parties regard each other as adversaries, focus on a single issue, and push predetermined solutions. While it may bring short-term gains, this adversarial stance fosters resentment, undermining cooperation in longer-term collaborations where a win-lose result damages future relationships, and such may be of the essence within an MDO paradigm.

In contrast, the interest-based approach fosters positive relationships through shared objectives, focusing on objective, mutually agreed-upon criteria rather than personal conflict. It seeks mutually beneficial solutions that build trust and credibility, resolving immediate issues while strengthening long-term collaboration. This negotiation approach is crucial for NATO's MDO, ensuring alliance unity and operational success. Focusing on shared objectives rather than fixed positions reduces internal conflicts and fosters trust, enhancing the flexibility and adaptability needed for immediate and long-term collective defence.

The interest-based negotiation approach, as described by Katz and McNulty (1995), follows a structured process. Negotiators begin with thorough preparation, identifying positions and interests for shared goals. They develop a problem statement reflecting mutual interests, then generate solutions evaluated against those interests and the problem statement. The process concludes with a mutually beneficial agreement, guided by open dialogue, fairness, and legitimacy, while effectively managing any conflicts to preserve collaborative outcomes. Moreover, Lax and Sebenius (2003) propose that before the preparation phase in negotiation, a preliminary "set-up" phase should be conducted, involving strategically selecting participants, defining the scope, sequence, the negotiation process, and setting favourable conditions that will enhance the likelihood of achieving a successful agreement.

1.3.2. Multi-party negotiations

In a multi-domain operations context, the existence of numerous stakeholders increases complexity. Multi-party negotiations bring new challenges, including coalition formation, process management, and shifting the Best Alternative to a Negotiated Agreement (BATNA) (Shonk & Susskind, 2019). Raiffa (2002) highlights group dynamics issues like coordination, communication overload, conflict, and disengagement, but notes groups can benefit from increased resources, engagement, and shared ownership.

The same author recommends using a framework to mitigate coordination loss and conceptual challenges when negotiating with multi-parties. According to Raiffa (2002), effective frameworks should be straightforward and user-friendly, as this frees up cognitive resources for the core task at hand. Furthermore, these frameworks ought not to constrain the group's thinking but instead promote more efficient disagreement and debate. Raiffa (2002) advises a framework known as the “PrOACT” approach. It starts by defining the Problem (Pr), clarifying Objectives (O), generating Alternatives (A) (including identifying the BATNA), examining Consequences (C), and making Trade-offs (T). Additionally, the framework encourages going through feedback loops at each stage, enabling the negotiators to revisit earlier steps as their understanding of the context and events deepens.

Raiffa (2002) proposes adjusting meeting styles and participant numbers to reduce productivity losses while recognizing that a representative group is vital for legitimacy. Nonetheless, the author emphasizes appointing a facilitator to oversee and guide the negotiation process.

1.3.3. Coalitions

Coalitions may be formed and shape negotiation dynamics by combining resources, leveraging strengths, and increasing bargaining power. Suppliers may align themselves to present a unified pricing or resource allocation stance, while NATO members can also form coalitions to streamline requirements and maintain consistent objectives. Such

alliances require coordination to manage potential conflicts while preserving strategic cohesion.

Negotiators can establish two main coalition types: winning coalitions to strengthen their position in seeking favourable outcomes and blocking coalitions to prevent or counter deals seen as detrimental (Shonk & Susskind, 2019). The same authors emphasize selecting partners who share at least one common objective, thereby maintaining a cohesive and effective negotiation stance.

A key decision is whether to join or abstain from a coalition. Negotiators should bolster their leverage without alienating others by bridging partisan divides and maintaining open communication (Shonk & Susskind, 2019). Coalition-building gains importance with more parties and greater complexity, whereas smaller groups often benefit more from direct collaboration toward common goals.

1.3.4. Cross-Cultural Negotiation

Cross-cultural negotiations add complexity as cultural lenses shape perceptions and responses. Two main paradigms emerge: distributive, which divides fixed resources, and integrative, which seeks win-win outcomes by enlarging the pie. The integrative approach is particularly advantageous in cross-cultural settings because it fosters relationship-building and mutual understanding, essential for overcoming cultural barriers (Água et al., 2022).

Effective communication is vital for successful negotiation, yet cross-cultural interactions introduce significant challenges. Variations in language, context, and non-verbal cues can lead to misinterpretations; even common expressions may carry different meanings across cultures (Água et al., 2022). These differences demand heightened awareness and adaptive communication strategies to prevent miscommunication and maintain trust.

Effective cross-cultural negotiation requires thorough cultural preparation. Negotiators must understand the cultural traits, communication styles, and historical

contexts that shape interactions (Água et al., 2022). They should adapt their language, pacing, and non-verbal cues to build rapport and reduce misinterpretations while flexibly blending competitive and cooperative tactics to achieve mutually beneficial outcomes. Although some models such as Hofstede's dimensions and Brett's prototypes provide guidance, they must be applied with care to accommodate cultural variability. Continuous learning and systematic post-negotiation feedback further enhance overall effectiveness.

The subsequent subchapter will discuss the procurement and agreement approaches in NATO.

1.4. Procurement and agreement approaches in NATO

Military operations often rely on contracted logistics solutions to strengthen their capabilities while minimizing the need to deploy large internal support elements. This approach is particularly critical in peacekeeping missions, where budgets and resource constraints demand cost-effective measures (Gulyás & Pohl, 2020). Within NATO, the NATO Support and Procurement Agency (NSPA) serves as the central coordinating body for such contracted services, overseeing and synchronizing supply across Alliance operations. As Gulyás and Pohl (2020) explain, the NSPA's key objective is to secure materials and services at the most cost-effective prices. In practice, the agency typically selects the least expensive proposal that meets technical and contractual requirements, sourcing its suppliers through open, international competitive bidding.

The NSPA is vital in meeting NATO's operational needs by setting up commercially contracted capabilities. Typically, this takes six months, from the moment it receives operational requests from NATO members to finalizing the contract, matching the international competitive bidding procedures through which the NSPA secures qualified service providers from its database (Gulyás & Pohl, 2020). NSPA's contracting mechanisms are vital for ensuring logistical support and resilient supply chains within

the MDO context. These arrangements enable agile procurement, efficient resource management, and flexible response to changing operational needs, enhancing NATO's capacity to sustain operations.

1.4.1. Procurement negotiation

The procurement negotiation process is inherently complex, balancing cost, quality, scope, and schedules. To prevent suboptimal outcomes, Yu et al. (2021) propose a structured process integrating a hybrid Multiple Attribute Decision-Making (MADM) model. This approach systematically identifies, evaluates, and refines agreements using advanced DM techniques, aligning negotiated outcomes with organizational goals.

Yu et al. (2021) propose four main phases to enhance decision accuracy and reduce inefficiencies in procurement negotiations. First, an expert team systematically identifies key improvement factors, aligning procurement decisions with strategic goals. Next, the Decision-Making Trial and Evaluation Laboratory (DEMATEL) method evaluates how these factors interrelate, revealing cause-and-effect dynamics and guiding priority improvements. In the third stage, the DEMATEL-based Analytic Network Process (DANP) assigns weights to each negotiation factor, accounting for variable interconnections and prioritizing the most critical aspects. Finally, the modified VIKOR method measures performance gaps between current and desired procurement outcomes, identifying discrepancies and guiding targeted improvements to continuously refine agreements.

Integrating these methods into the procurement negotiation framework offers significant advantages. A structured, visual approach—via the Influential Network Relation Map (INRM)—enables a thorough assessment of negotiation dynamics and systematic prioritization of improvements. Moreover, a continuous feedback loop refines suboptimal agreements, enhancing negotiation success and supply chain resilience (Yu et al., 2021). However, the approach requires substantial quantitative expertise, and relying on expert judgment may introduce subjectivity, potentially affecting the consistency of recommendations.

Merkaš and Ćurko (2020), propose a structured procurement negotiation framework for environments with high uncertainty. Their method uses the Dempster-Shafer Theory (DST) to combine data from various sources and gauge its plausibility, reducing uncertainty and promoting more informed, collaborative decisions. Additionally, using DST assigns belief and plausibility to varied information sources, providing a structured way to interpret negotiation scenarios under uncertainty.

Merkaš and Ćurko (2020) outline four stages for using DST in procurement negotiations. First, negotiators define interests via a value-oriented approach, expressing uncertainty through evidence theory to gauge the counterparty's position. Next, they model uncertainty mathematically with DST to distinguish belief, ignorance, and disbelief, consolidating input from multiple sources. Third, structured data guide the negotiation toward mutually beneficial outcomes by aligning both parties' interests. Finally, a post-negotiation review uses DST insights to refine procurement strategies and institutionalize best practices.

Using DST in procurement negotiations systematically evaluates diverse information sources, thereby reducing uncertainty and yielding more predictable outcomes. It also bolsters conflict resolution by offering deeper insights into counterparts' DM processes, facilitating rational resource allocation aligned with organizational goals. However, reliance on subjective expert judgment can introduce bias, limiting its use in organizations lacking decision theory expertise.

Bichler and Werthner (2000) propose an alternative approach by highlighting the limits of traditional, price-centric auctions. Their multi-attribute auction model assesses both qualitative and quantitative factors, mirroring the growing complexity of corporate and governmental procurement. The authors propose multi-attribute auctions, evaluating bids via a scoring rule that accounts for both price and qualitative factors. Unlike traditional fixed-attribute models, this approach enables negotiation across multiple dimensions, allowing suppliers to present differentiated value propositions.

The study introduces a classification framework, categorizing auction types by three factors: the divisibility of demanded quantity, variability of demand, and divisibility of bids. By distinguishing various negotiation structures, this framework guides the selection of the most appropriate auction mechanism for a given procurement scenario.

Moreover, Bichler and Werthner (2000) also explore utility functions in procurement, where buyers use scoring functions to weigh different attributes, fostering better alignment between buyer needs and supplier capabilities. This leads to higher utility scores compared to single-attribute auctions. However, some formats require complex modelling and substantial computational resources, limiting real-world adoption without advanced decision-support tools.

Additionally, Água et al. (2022) present a structured procurement negotiation framework tailored for high-technology contexts. The process begins with issuing a Request for Information (RFI) to identify potential suppliers, followed by analysis and creation of a comprehensive supplier list. Subsequently, a Request for Proposal (RFP) is issued to obtain detailed proposals, leading to a refined shortlist after analysis. Negotiations are then strategically prepared before entering active discussions in the 'At the table' phase. Upon successful negotiation, contracts are finalized and signed, followed by contract closeout and monitoring activities. Additionally, conflict resolution mechanisms are incorporated as needed throughout the process.

Each negotiation framework offers distinct and complementary advantages. MADM is valuable for post-negotiation optimization to ensure alignment with strategic objectives. DST excels in environments marked by ambiguity and uncertainty, offering negotiators greater confidence. Meanwhile, multi-attribute auctions are well-suited to competitive procurement scenarios, enabling structured bidding across multiple criteria for optimal contract selection. As procurement environments grow more complex, organizations that use structured negotiation frameworks will be better positioned to optimize sourcing, manage risk, and secure long-term supply chain value.

The following section will discuss the importance of effective and efficient defence supply chain management and its importance to the MDO concept.

1.5. Defence supply chain management

The MDO concept underscores the need for coordination across multiple domains, making a resilient and adaptable supply chain essential. The complexity of modern defence logistics requires military organizations to collaborate with civilian suppliers, ensuring resilience, strategic agility, and a seamless blend of military and commercial capabilities. While extensive research on Defence Supply Chain (DSC) management exists, it has not addressed links to MDO, revealing a gap for further study.

DSCs differ from commercial supply chains in different ways. They are governed by strict regulations, heavy security requirements, and extended production timelines for specialized military technologies. A monophonic defence market, where governments act as the main buyers, complicates procurement strategies by limiting supplier options, increasing the need for robust supply chain strategies to mitigate potential disruptions (Lucas et al., 2024).

Collaboration with the civilian sector is vital for DSC resilience, as private suppliers provide essential resources like raw materials, advanced tech, and logistics. Employing commercial best practices can enhance disruption response. Nonetheless, integrating these methods requires attention to security, intellectual property, and regulatory compliance to align with national security goals (Lucas et al., 2024).

Managing DSCs grows more challenging under the MDO framework, where cross-domain interoperability demands an adaptive, flexible logistics network. Disruptions in one domain can affect others, necessitating synchronized procurement and resource allocation. Multinational alliances further complicate matters, calling for standardized

procedures and robust coordination to sustain logistics for successful defence operations (Lucas et al., 2024).

Jadid et al. (2024) introduce a structured model combining Lean, Agile, Resilient, and Green (LARG) logistics to strengthen DSC management. This framework tackles military logistics complexities by focusing on efficiency, adaptability, resilience, and sustainability. Lean cuts waste and optimizes resources, agile boosts responsiveness, resilient logistics guards against disruptions, and green strategies uphold environmental responsibility.

Using a qualitative research methodology, the study examined expert interviews and existing literature, identifying 223 pivotal factors shaping the performance of defence logistics. The findings underscore the criticality of managerial coordination, human capital, technological capabilities, and process optimization in cultivating an effective and responsive supply chain (Javashi Jadid et al., 2024). Applying a qualitative approach, the researchers identified 223 key factors influencing defence logistics performance. They highlight the importance of managerial coordination, human resources, technology, and process optimization in maintaining an effective, responsive supply chain (Jadid et al., 2024).

This framework delivers improved efficiency, responsiveness to operational demands, and environmental sustainability. Still, it requires cross-functional teamwork, strategic planning, and adaptability. Despite these hurdles, integrating LARG principles enhances resilience, enabling a flexible, sustainable DSC suited to modern strategic needs.

Loska et al. (2024) investigated collaboration in DSCs, identifying both enablers and barriers. The authors identified seven key factors that foster DSC collaboration—mutuality, incentive alignment, bounded rationality, leadership commitment, resource access, funding, and adaptability—integrated into a conceptual model within an enterprise framework to enhance supply chain resilience. The study stresses that effective collaboration requires robust governance, trust, and strategic alignment, yet bureaucratic barriers, misaligned incentives, and poor information-sharing often hinder

it. To overcome these challenges, the authors advocate for strengthened public-private partnerships, digital transformation, and improved coordination.

Zarchi et al. (2020) propose a comprehensive framework to enhance resilience in DSC management. Their research underscores that resilience is critical for sustaining operational continuity amid unforeseen disruptions, ensuring military readiness and strategic effectiveness. The study employed Structural-Interpretative Modelling to rank nine key enablers of resilience in defence supply chains. Learning and collaboration emerged as the most critical, while risk management culture and contingency planning also significantly contribute to adaptability. These resilience factors enable military logistics to anticipate, endure, and recover from disruptions, ensuring continuous supply during crises.

The Interpretive Structural Modelling framework provides a structured approach to understanding hierarchical interdependencies among resilience factors, offering defence organizations a roadmap to enhance supply chain robustness. However, its successful implementation demands strong organizational commitment, cross-sector collaboration, and advanced data-driven DM. Despite these challenges, integrating this strategy can significantly boost the sustainability and responsiveness of military supply chains.

The literature on DSC management highlights a range of strategies, underscoring that there is no one-size-fits-all approach. Instead, supply chain strategies must be tailored to specific operational, geopolitical, and technological contexts. Continuous refinement is needed to ensure efficiency, responsiveness, and resilience across all domains in MDO.

The next subchapter will discuss different scenario-planning approaches and how NATO can use them in negotiations inside the MDO context.

1.6. Scenario Planning

Scenario planning is a critical instrument for strategic DM, yet its application in the context of MDO remains unexamined. Various methodologies offer unique strengths and limitations. For instance, in the Intuitive-Logics School, Pierre Wack advocated for using intuition and creative dialogue to challenge assumptions and broaden strategic possibilities. The approach combines iterative narrative development with quantitative modelling, allowing decision-makers to refine uncertainties and generate plausible future scenarios that drive strategic conversation (Wack, 1985).

Complementing this view, Peter Schwartz champions scenario planning for long-term strategic foresight by systematically identifying key drivers of change and constructing contrasting future narratives. By blending qualitative storytelling with quantitative trend analysis, his framework enables organizations to envision transformative futures and prepare for radical shifts (Schwartz, 2004).

Paul Schoemaker emphasizes that effective scenario planning requires continuous learning through iterative feedback loops that update assumptions as new information emerges. His framework, which integrates both competitive and collaborative tactics, helps organizations avoid static forecasts and remain agile amid evolving market and geopolitical conditions (Schoemaker, 2002).

Similarly, Kees van der Heijden underscores that scenarios are dynamic tools for strategic dialogue rather than static end products; the model employs iterative cycles of reframing to explore alternative futures, integrating diverse stakeholder perspectives to adapt strategies in turbulent environments (van der Heijden, 2005). Michael Porter further complements these approaches by integrating scenario planning with competitive analysis, focusing on industry structure and market dynamics to identify strategic inflection points and leverage competitive advantage. By linking long-term forecasts with actionable insights, Porter's method helps align operational plans with evolving market conditions (Porter, 1980).

Moreover, the *Oxford Scenario Planning Approach* emphasizes iterative learning through a reframing-reperception cycle. This approach blends qualitative narrative techniques with quantitative models to generate multiple plausible future scenarios, enabling organizations to adapt to complex conditions through strategic dialogue and continuous feedback. Its strength lies in recalibrating strategies through repeated cycles of critical reflection and innovative dialogue, ultimately fostering enhanced organizational resilience in the face of uncertainty (Ramírez & Wilkinson, 2016).

Finally, the NATO Defense College (NDC) provides a structured scenario planning method designed to support strategic DM in uncertain environments. This approach explores multiple plausible and preferred future scenarios, systematically challenging existing assumptions to enhance adaptability (Peco-Yeste, 2024). It involves clearly defining the focal issue, analysing key drivers through established frameworks, and generating diverse scenarios using horizon scanning and future wheels. By employing backcasting, preferred future scenarios are linked directly to current policy actions. The method emphasizes continuous feedback and adaptation, strengthening organizational resilience (Peco-Yeste, 2024). This framework is based on the Oxford Scenario Planning Approach, adapted to NATO and its unique reality. Table 2 presents the pros and cons of each scenario-planning methodology.

Table 2- Scenario-planning methodologies pros and cons

METHODOLOGY	PROS	CONS
PIERRE WACK	Encourages strategic thinking; challenges assumptions; integrates qualitative and quantitative insights.	Highly dependent on expert facilitation; lacks formal structure; limited direct policy linkage
PETER SCHWARTZ	Systematic identification of drivers; strong narrative development; effective for long-term foresight.	Can oversimplify complexity; limited emphasis on adaptability or feedback loops.

PAUL SCHOEMAKER	Supports iterative learning and adaptability; balances competitive and collaborative approaches.	Resource-intensive.
KEES VAN DER HEIJDEN	Promotes stakeholder dialogue; suitable for dynamic environments.	May be too abstract or open-ended;
MICHAEL PORTER	Ties to competitive strategy; effective in supply and procurement.	Less relevant in geopolitical or defence contexts.
RAMÍREZ AND WILKINSON	Combines narrative and data; allows reframing under uncertainty.	Time-consuming; difficult to implement in hierarchical settings.
PECO-YESTE	Structured and NATO-specific; links scenarios to policy;	Less flexible outside NATO; may constrain innovation.

The scenario planning methodologies examined provide valuable frameworks for addressing strategic complexity and uncertainty. All these methodologies are potentially suitable for inclusion in the methodology section of this dissertation, the NATO Strategic Foresight method (Peco-Yeste, 2024) will be selected. This decision reflects the method's alignment with NATO's operational context, its widespread institutional recognition, and its direct applicability to the strategic challenges inherent in MDO. Adopting NATO's foresight approach ensures methodological rigor and institutional relevance.

The subsequent chapter, Methodology, will provide an in-depth description of the selected scenario-planning approach and show its application within the context of the present dissertation.

2. Methodology

This chapter is organized into six sections, detailing the stages of the scenario-planning methodology adopted. Together, they explain the sequential steps of the NDC foresight framework, integrating insights from the Oxford Scenario Planning Approach.

The scenario-planning methodology applied in this dissertation builds on the strategic foresight framework developed by the NDC (Peco-Yeste, 2024), designed to support DM in complex environments. A central feature of this approach is the scenario domain, which refers to the space between factors that the organization can influence and those that lie entirely beyond its influence. The organization's vision domain lies between the controllable factors and the ones subject to influence by the organization. The framework steps to be applied are detailed in Figure 4.

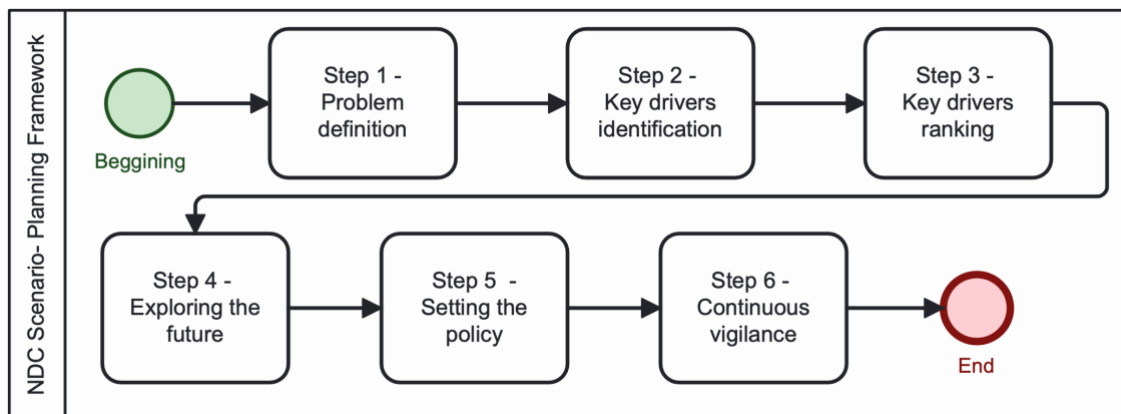


Figure 4 - NDC Scenario-planning steps

The following subchapters discuss each step in detail in Figure 4 and how each should be conducted.

2.1. Step 1: Problem definition

The initial phase of the foresight process involves defining a clear and strategically relevant focal issue that reflects a critical uncertainty or decision point for the

organization's future. This includes establishing a time horizon—typically five to fifteen years—that balances the emergence of uncertainty with strategic relevance (Peco-Yeste, 2024). This step provides the analytical foundation for the process. Drawing from the Oxford Scenario Planning Approach, it also requires reframing the strategic challenge, prompting a re-examination of assumptions and clarification of core issues (Ramírez & Wilkinson, 2016), ensuring the analysis is both focused and contextually aligned.

2.2. Step 2: Key drivers identification

The second phase of the foresight process involves identifying key drivers—critical factors with the potential to shape the future environment concerning the defined focal issue. These drivers provide the analytical foundation for scenario construction, capturing the dynamics that influence strategic developments over the selected time horizon. To ensure a structured and comprehensive approach, the PMESII-PT framework is applied, organizing drivers across Political, Military, Economic, Social, Informational, Infrastructure, Physical Environment, and Temporal dimensions (Peco-Yeste, 2024). Each dimension represents a distinct area of influence that contributes to the complexity of the operating environment. This step facilitates the recognition of emerging trends, weak signals, and contextual variables that may not be visible through traditional analysis, thus grounding the scenario-building process in a multifaceted and well-informed understanding of the strategic landscape.

2.3. Steps 3: Key drivers ranking

The third phase of the process focuses on analysing and categorizing the key drivers identified in the previous step. This classification is essential for structuring future scenarios by distinguishing between relatively predictable trends and highly uncertain

variables. Trends refer to observable developments expected to continue, while uncertainties involve drivers whose future trajectories are less predictable due to volatility, data limitations, or complex interactions (Peco-Yeste, 2024). This differentiation allows planners to determine which elements can serve as baseline assumptions and which should define the axes of scenario divergence, ensuring that future narratives are both coherent and strategically meaningful.

Later, these drivers are ranked based on their influence and degree of uncertainty, helping to prioritize those most critical for scenario development. Drivers with high impact and low uncertainty are often incorporated as fixed elements, while those with both high impact and high uncertainty are used to frame alternative futures (Peco-Yeste, 2024). Ultimately, ranking the drivers focuses the scenario-building process on the forces most likely to shape the strategic environment, enhancing the relevance and robustness of the resulting insights.

2.4. Step 4: Exploring the future

The fourth phase of the foresight process involves constructing scenarios by exploring how prioritized drivers may interact over time. Building on the analytical groundwork of earlier steps, this stage transforms insights into distinct and coherent narratives that illustrate alternative strategic futures. Scenario development typically relies on high-impact, high-uncertainty drivers as the primary axes of divergence and combines qualitative tools, such as storytelling, futures wheels, and morphological analysis, with analytical methods like cross-impact matrices to ensure internal consistency and strategic relevance.

Scenarios are often grouped into four categories: possible (conceivable outcomes), plausible (realistic trajectories), probable (most likely developments), and preferred (desired strategic end states) (Peco-Yeste, 2024). These narratives aim to be both imaginative and analytically grounded, allowing organizations to simulate and test their

strategies under diverse future conditions. This process enhances strategic agility, resilience, and preparedness for a wide range of potential developments.

2.5. Step 5: Setting the policy

The fifth phase translates the insights from scenario development into concrete strategies through backcasting—a method that begins with the definition of a preferred future and works backward to identify the steps required to achieve it. Unlike forecasting, which projects trends forward, backcasting aligns long-term strategic goals with present-day planning by highlighting necessary decisions, investments, and interventions (Peco-Yeste, 2024).

This process helps identify key policy levers, capability gaps, and decision points while allowing for the mapping of multiple paths toward the preferred future. These trajectories are often stress-tested against other scenarios to ensure resilience under varying conditions. Drawing on the Oxford Scenario Planning Approach, this phase reinforces the cycle of reframing by ensuring strategies are informed by diverse future perspectives rather than constrained by current assumptions (Ramírez & Wilkinson, 2016).

2.6. Step 6: Continuous vigilance

The final phase of the foresight process establishes continuous vigilance, ensuring scenario planning remains adaptive and iterative rather than a one-off exercise. Given the dynamic nature of the strategic environment, this step calls for regular review and refinement of both scenarios and associated strategies.

Continuous vigilance involves systematic horizon scanning to detect key indicators, weak signals, and emerging trends that may affirm or challenge existing assumptions.

This process enhances early warning capabilities and supports timely adaptation to shifting conditions. It also includes periodic reassessment of scenario relevance to maintain alignment with evolving contexts (Peco-Yeste, 2024). This phase promotes iterative learning, encouraging structured feedback and re-evaluating strategic assumptions as new insights emerge (Ramírez & Wilkinson, 2016).

The following chapter, Applying the methodology and results, consists of applying the methodology described in the present chapter and sharing its results.

3. Applying the methodology and results

This chapter is organized into six sections, applying the stages of the scenario-planning methodology described in Chapter 2.

3.1. Problem definition

The following sections define the focal issue and establish the time horizon to guide the scenario-planning process, providing a clear strategic lens through which future developments will be analysed.

3.1.1. Focal issue

As NATO's operational environment grows increasingly complex and interconnected, the organization must coordinate actions across domains while engaging various stakeholders. A key strategic imperative in this context is effective collaboration with non-military actors. Negotiation plays a pivotal role in aligning interests, capabilities, and objectives across military and civilian participants. Far from being a tactical activity, negotiation serves as a strategic enabler that fosters interoperability, adaptability, and coalition cohesion. Given this multidimensional landscape, the negotiation process must be managed as an agreement mechanism to help shape a SoS, where autonomous yet interdependent actors contribute to a shared strategic outcome. This approach should be guided by internationally recognized governance and life-cycle standards, such as ISO/IEC/IEEE 21839 and ISO/IEC/IEEE 15288, emphasizing structured DM, stakeholder alignment, and coherent system interaction throughout the operational life cycle.

This scenario-planning approach examines the future significance of negotiation within the context of NATO's MDO, as captured in the following focal issue:

“The future role of negotiation between NATO actors and non-military entities in MDO.”

Additionally, the following supporting questions were formulated to address the topic from various perspectives:

- How might different negotiation approaches affect interoperability and strategic coordination in MDO contexts?
- What influence might cultural, organizational, and legal disparities have on the outcomes of negotiations between military and non-military stakeholders?
- In what ways could digital transformation and technological innovation reshape negotiation approaches within NATO operations?
- How might future defence procurement and logistics developments impact the nature of NATO's negotiations with civilian partners?
- What disruptions or emerging challenges could require NATO to adapt its negotiation frameworks to ensure mission success in multi-domain environments?

3.1.2. Time horizon

The selection of the year 2035 as the time horizon is supported by several considerations. Firstly, 2035 is increasingly recognized within NATO's long-term planning frameworks as a strategic milestone and as a reference point for projecting operational, technological, and geopolitical developments. This alignment is evident in documents such as the NATO Warfighting Capstone Concept, which sets a 20-year vision for evolving Alliance capabilities and emphasizes the need for adaptive, multi-domain, and cross-sector strategies by 2035 (NATO ACT, 2021). Similarly, the Strategic Foresight Analysis (SFA) 2023 developed by NATO's Allied Command Transformation (ACT) outlines key global trends and strategic shocks expected over the next two decades, positioning the upcoming years as a period of significant transformation in security cooperation, technological innovation, and civilian-military integration (NATO ACT, 2023).

This timeframe offers a suitable scope to assess how negotiation practices between NATO and non-military entities may evolve in response to complex operational

demands. Moreover, it also provides a realistic horizon for strategic planning and capability development.

3.2. Key drivers identification

To gain deeper insights into the dynamics shaping the future of negotiation between NATO actors and non-military entities in MDO, the factors identified were organized into three overarching patterns of change. These patterns reflect broader strategic transformations occurring in NATO's operational environment and include observable trends and uncertainties that will influence negotiation approaches, institutional alignment encompassing the considerable diversity of allies, and partnership strategies. All identified trends and uncertainties were categorized using the PMESII-PT framework. While each pattern described below draws on multiple drivers, Appendix 1 provides a full list of trends and uncertainties.

3.2.1. Pattern of change #1: Evolving structures of Civil-Military cooperation

The first pattern reflects the growing strategic reliance on non-military actors. Among the most relevant trends are the ever-increasing operational significance of civilian actors (Tardy, 2020), the shift toward more flexible civil-military governance structures (NATO, 2018), and the adoption of pre-crisis stakeholder engagement practices. This pattern is also influenced by the rising complexity of multi-actor planning environments and the growing relevance of dual-use technologies and coordination tools.

Despite this momentum, several uncertainties persist. These include whether legal and institutional harmonization will materialize across NATO member states (NATO, 2018) if NATO will decentralize its negotiation authority, and how political friction or doctrinal inconsistencies might impact collaboration frameworks (Appendix 1).

3.2.2. Pattern of change #2: Technological and operational innovation

The second pattern highlights the transformative impact of emerging technologies on negotiation processes. A central trend in this domain is the integration of Artificial Intelligence (AI), secure digital platforms, and planning tools into negotiation and coordination processes (NATO, 2024; NATO, 2024a). Cybersecurity, too, has emerged as a critical enabler of trust in digital engagement with external actors (Stevens & Burton, 2023; NATO, 2023a). In addition, disruptive technologies are increasingly reshaping operational environments, requiring structured frameworks to assess their potential impact on strategic planning and negotiation (Bartolomeu & Água, 2023). Additional trends include growing dependence on private-sector technological innovation, increased reliance on digital diplomacy and engagement platforms, and the need for interoperability across digitally enabled actors.

However, the rapid pace of technological change introduces several uncertainties. These include the degree of technological alignment across NATO and civilian partners (Ricart, 2023), the evolving threat landscape related to cyber and information integrity (Stevens & Burton, 2023; NATO, 2024a), the uneven pace of digital adoption, and questions around obsolescence or technical compatibility in joint operations (Appendix 1).

3.2.3. Pattern of change #3: Societal and environmental pressures

The last pattern underscores the changing expectations placed on NATO by both the public and its operational partners. A prominent trend in this area is the increasing demand for transparency, ethical conduct, and inclusive negotiation processes. As highlighted in the AJP-3.19 Allied Joint Doctrine for Civil-Military Cooperation, effective civil-military interaction requires understanding and integrating the perspectives of various stakeholders, including local populations and organizations (NATO, 2018). Climate change and environmental instability represent equally prominent trends, as they increasingly threaten the resilience of civilian infrastructure and elevate the need for anticipatory coordination (NATO, 2023). Yet, this domain is also shaped by

uncertainties. Public trust in NATO varies across regions and may influence the willingness of stakeholders to collaborate during operations. Likewise, the scale and frequency of future climate disruptions remain unpredictable, which could overwhelm current civil-military planning frameworks. Other uncertainties include the accessibility of dual-use infrastructure during crises, the willingness of private actors to share operational risk, and alignment across fragmented stakeholder agendas (Appendix 1).

3.3. Key drivers ranking

This section ranks the previously identified drivers based on their impact on the focal issue and their degree of uncertainty regarding future evolution. As highlighted by the NDC, uncertainty refers to the difficulty in estimating a driver's future trajectory, not its likelihood of occurrence (Peco-Yeste, 2024). The goal is to identify a manageable number of high-impact trends and key uncertainties to structure the subsequent scenario-building process.

3.3.1. Trends ranking

To assess the relevance of the identified trends, a structured evaluation was conducted. Each trend was assessed based on two criteria: its potential impact on the focal issue and the degree of uncertainty surrounding its future trajectory. The findings of this evaluation are depicted in Figure 5, a two-dimensional matrix that categorizes the trends according to their assessed impact and degree of uncertainty. This analytical exercise aims to differentiate between trends that represent relatively stable structural drivers of change and those that are more volatile or context-dependent. Moving forward, trends will be referenced by their respective labels as shown in the matrix.

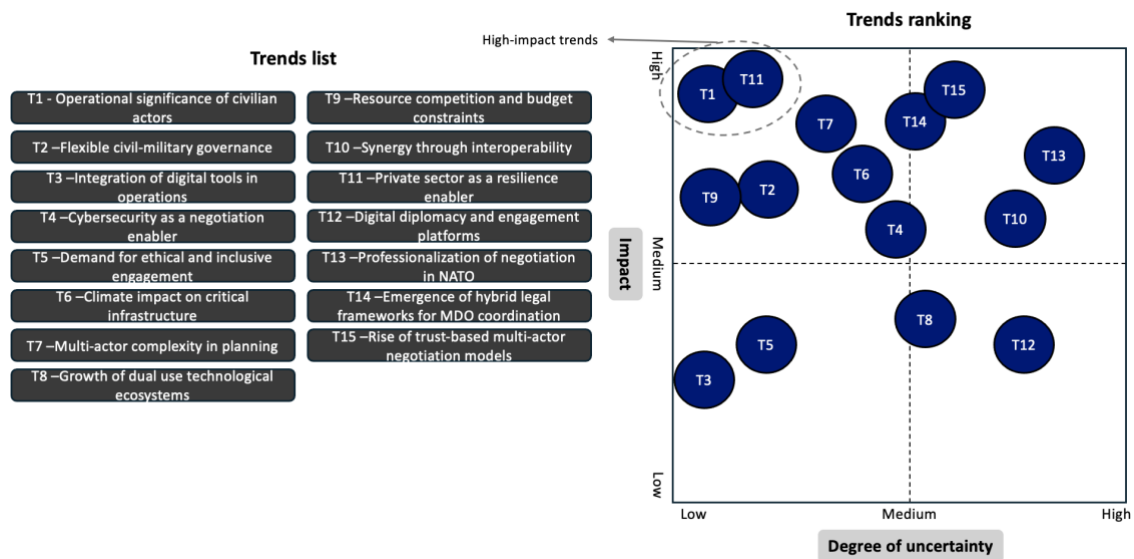


Figure 5 - Trends list & ranking

Consistent with the NDC foresight approach, the most significant trends are those situated in the upper-left quadrant of the matrix, characterized by both high impact and low uncertainty. These trends are viewed as the most strategically impactful, as they are both transformative and predictable, thereby establishing the foundational conditions for all scenarios. In this case, the trends identified as strategic certainties encompass T1 and T11.

These trends point to a growing and persistent dependence on non-military stakeholders. The role of external partners is anticipated to evolve from providing auxiliary support to becoming fully integrated, with the private sector assuming a crucial part in maintaining capabilities across logistics, infrastructure, and innovation domains. These transformations are highly consequential and are unlikely to be reversed, establishing them as fundamental drivers shaping NATO's future negotiation landscape.

A second cluster of trends reside in the central and upper-middle regions of the matrix. These encompass T6, T7, T14, and T15. These trends denote significant structural and regulatory transformations that are shaping NATO's operational landscape. While there is moderate uncertainty surrounding their trajectories, their relevance remains considerable.

Additional trends represented in the matrix, such as T3, T5, and T12, are classified as having lower impact or higher uncertainty. These trends are not prioritized in the scenario design process. Instead, they are considered as contextual factors or early indicators that may impact specific areas without substantially reshaping NATO's negotiation approaches.

3.3.2. Uncertainties ranking

A structured analysis was conducted to assess the relevance of the identified uncertainties based on two key dimensions: their anticipated impact on the central issue and the degree of uncertainty surrounding their future trajectories. The findings of this assessment are depicted in Figure 6, a two-dimensional matrix that categorizes the uncertainties according to these two criteria. Moving forward, the uncertainties will be referenced by their respective labels as shown in the matrix.

This analytical exercise differentiates between uncertainties with strategic disruptive potential and those that are more contextual or structurally constrained. In contrast to trends, which function as foundational conditions across scenarios, uncertainties operate as dynamic drivers shaping the trajectory and divergence of potential futures. The implications of each uncertainty are detailed in Appendix 2.

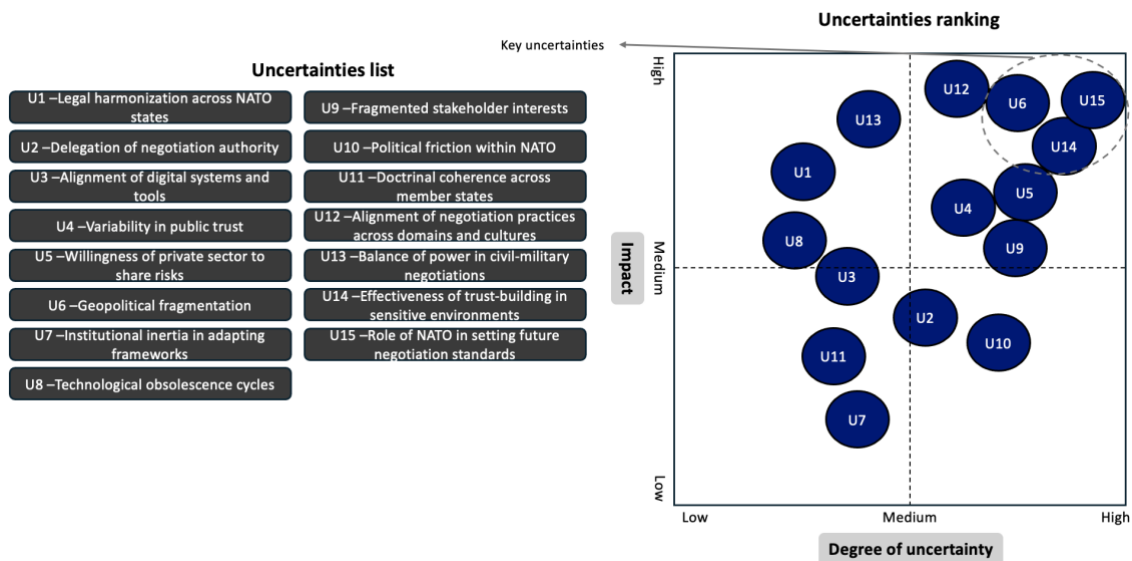


Figure 6 - Uncertainties list & ranking

The most impactful and uncertain factors are situated in the upper-right quadrant of the matrix. These high-impact, high-uncertainty elements are prioritized for scenario development due to their capacity to significantly and unpredictably reshape NATO's negotiation landscape. The analysis identified three key uncertainties: U6, U14, and U15. Together, these uncertainties represent pivotal and unresolved challenges. U6 relates to the geopolitical context, specifically the potential for increased fragmentation. Meanwhile, U14 and U15 pertain to NATO's internal negotiation credibility: U14 focuses on the alliance's ability to build trust with non-military stakeholders, while U15 concerns its capacity to provide doctrinal leadership and standardization across negotiation practices.

Only two primary axes can be used to maintain the coherence and manageability of a 2x2 scenario matrix as required by the methodology. Consequently, the uncertainties U14 and U15 have been consolidated into a new uncertainty labelled U16 – NATO's institutional legitimacy in negotiation. This new uncertainty encapsulates the alliance's capacity to function as a credible and coherent negotiation actor by harmonizing its trust-building effectiveness with internal normative leadership and doctrinal standardization (U16 implications are presented in Appendix 2). As a result, the two final scenario axes will be constructed using U6 and U16. With the key uncertainties

identified, the scenario design process can proceed. The subsequent section will introduce the exploratory futures.

3.4. Exploring the future

The NDC Strategic Foresight methodology employs scenarios not as predictions, but as structured explorations of plausible futures arising from the interaction of key uncertainties. As detailed in subsection 3.3.2, the scenario matrix is constructed using the uncertainties U6 and U16. The interplay of these uncertainties yields a 2x2 matrix, which generates four exploratory scenarios - each depicting a distinct strategic environment for NATO's civil-military negotiation posture. The scenario matrix is presented in Appendix 3.

3.4.1. Scenario #1: The forgotten ally

In this scenario, NATO operates within a geopolitically stable but less institutionally legitimate negotiation landscape. Although the international *milieu* is characterized by cooperation and multilateralism, NATO struggles to position itself as a central negotiation actor. Civil-military dialogue increasingly gravitates toward alternative platforms perceived as more inclusive, as NATO's negotiation structures are viewed as outdated or rigid. While the Alliance retains operational capabilities, its political relevance in multi-stakeholder coordination diminishes. Civilian and private partners exhibit waning interest in engaging through NATO channels. The key challenges encompass strategic irrelevance and the erosion of institutional credibility, although limited opportunities exist for NATO to provide technical or logistical support in the background.

3.4.2. Scenario #2: Anchor of consensus

In this scenario, geopolitical fragmentation is low, and NATO's institutional legitimacy in negotiation is high. Within an environment characterized by strategic cohesion and

cooperation, NATO assumes a central role as the coordinator of civil-military negotiations. Its negotiation frameworks are standardized, widely accepted, and trusted by civilian, governmental, and private stakeholders. Legal harmonization across member states and a consistent negotiation doctrine enable rapid and inclusive coordination across domains. NATO's position as a normative leader is broadly recognized, and it actively shapes negotiation practices throughout the Alliance. While heightened expectations challenge its capacity and innovation, NATO benefits from the opportunity to reinforce its leadership position and deepen strategic partnerships in a relatively stable geopolitical context.

3.4.3. Scenario #3: Island of stability

In this scenario, the global context is marked by high geopolitical fragmentation, yet NATO maintains a strong institutional legitimacy. Despite external volatility, crises, and the weakening of multilateral structures, the Alliance is recognized as a trusted and adaptable negotiation actor. Civilian and non-military entities continue to turn to NATO as a stable partner capable of bridging diverse interests and sustaining coordination across domains. The Alliance's internal cohesion and investment in trust-building allow it to navigate field-level negotiations even under significant pressure. While key challenges include managing operational strain and localized complexity, NATO's position as a predictable and resilient convener enables it to remain effective in enabling multi-domain operations amid systemic disorder.

3.4.4. Scenario #4: Adrift in disorder

This scenario depicts a turbulent geopolitical landscape characterized by high fragmentation, in which NATO struggles to maintain its legitimacy and leadership in civil-military negotiations. Amidst the volatility, NATO lacks the necessary trust, authority, and responsiveness to effectively coordinate multi-stakeholder processes. The negotiation landscape becomes increasingly fragmented, with ad hoc or regional platforms emerging as alternatives to NATO's structures, which are perceived as outdated or rigid. Civilian stakeholders disengage, leading to inconsistent, slow, and

ineffective negotiation processes. NATO faces internal disunity, diminished strategic influence, and a growing disconnect from external actors. The Alliance is increasingly viewed as irrelevant in shaping future partnerships in this deteriorating context. Opportunities for NATO are limited, and the scenario underscores the urgent need for the Alliance to rebuild its institutional credibility through reform and renewed engagement with external stakeholders.

The next step focuses on identifying strategic implications by backcasting from these futures.

3.5. Setting the policy

Having outlined the four scenarios, this phase employs a backcasting methodology to determine the strategic actions NATO should take to shape desirable futures. Each scenario embodies a distinct typology: "Anchor of Consensus" represents the desired future, aligning with NATO's strategic objectives; "Island of Stability" is considered a plausible scenario, arising under conditions of external volatility coupled with high institutional resilience; "The Forgotten Ally" is regarded as a probable baseline if legitimacy is not actively reinforced; and "Adrift in Disorder" illustrates a possible, albeit highly adverse, outcome. This stage concentrates on Scenarios 2 and 3 to extract policy-relevant insights and identify strategies that fortify NATO's negotiation approaches across diverse conditions.

3.5.1. Choosing a backcasting approach

Backcasting is a planning technique that begins with a defined, desirable future and iteratively identifies the necessary actions and capabilities to achieve that state. Various methodologies exist to structure this process. One of the most established is the Framework for Strategic Sustainable Development (FSSD), which organizes backcasting into five levels: system, success, strategy, actions, and tools (Broman & Robèrt, 2017).

While its logic has shown effectiveness in sustainability and organizational planning, it may be less appropriate for complex, high-uncertainty environments.

A more adaptable strategy involves normative backcasting, as proposed by Robinson (1982; 1990), which prioritizes collaborative visioning and iterative analysis. This approach facilitates extensive stakeholder involvement and is frequently employed in policy and transition planning, although it may lack a rigid procedural framework.

The NDC Foresight methodology refrains from endorsing a particular backcasting model. Instead, it employs a scenario-based approach to backcasting, wherein preferred or plausible future states are developed by considering various uncertainties. Policy actions are then derived retrospectively from these constructed narratives (Peco-Yeste, 2024). This qualitative, narrative-driven approach is well-suited to institutional strategy and situations characterized by deep uncertainty.

In line with the flexibility of the NDC methodology, a tailored, qualitative backcasting approach is applied. The analysis focuses on Anchor of Consensus as the preferred scenario, while also considering Island of Stability as a plausible and resilient alternative. Backcasting from these futures identifies strategic actions NATO should take to strengthen its negotiation posture. Five strategic areas structure this process and reflect NATO's key enablers in multi-domain negotiation contexts. Those areas include governance and doctrine, stakeholder engagement, trust-building, operational capability, and digital and logistical infrastructure.

3.5.2. Backcasting

This section presents the backcasting analysis derived from the two focal scenarios: Scenario 2 – Anchor of Consensus and Scenario 3 – Island of Stability. Using these scenarios as normative and strategic reference points, Table 3 below identifies actions NATO should undertake to progress toward each of these futures. The actions are organized into five strategic areas that reflect NATO's core negotiation capabilities within the context of MDO.

Table 3- Backcasting actions

STRATEGIC AREA	SCENARIO #2: ANCHOR OF CONSENSUS	SCENARIO #3: ISLAND OF STABILITY
GOVERNANCE AND DOCTRINE	Develop and institutionalize a NATO-wide negotiation doctrine that integrates civil-military dimensions and is adaptable across domains. Harmonize negotiation protocols across member states to support doctrinal coherence.	Adapt governance structures to function in fragmented environments. Empower decentralized negotiation cells for field coordination. Support field autonomy through flexible mandates and adaptive command structures.
STAKEHOLDER ENGAGEMENT	Establish formal, recurring consultation mechanisms with civilian stakeholders. Create joint civil-military negotiation forums and regular policy review platforms.	Leverage crisis-driven engagement by building tactical alliances with local and regional civilian actors during instability. Utilize rapid stakeholder mapping tools and deploy multi-actor field liaison units.
TRUST-BUILDING	Implement long-term trust-building programs including liaison officers, inclusive planning, and consistent strategic communication. Promote cultural awareness training and secondment programs with civilian agencies.	Invest in agile trust-building frameworks that operate under stress, including embedded civilian-military. Apply conflict sensitive negotiation practices and establish pre-crisis relationship-building protocols.

OPERATIONAL CAPABILITY	Integrate negotiation training into MDO exercises and build rapid deployment teams with cross-sector negotiation expertise.	Create modular negotiation teams capable of functioning in contested or degraded environments with limited support.
	Establish a NATO Centre of Excellence on Negotiation and Civil-Military Coordination.	Equip teams with communication and translation capabilities and include civilian advisors.
DIGITAL AND LOGISTICAL INFRASTRUCTURE	Ensure full interoperability of negotiation support systems and logistics platforms across NATO and key civilian partners.	Enhance resilience of digital platforms. Secure field-level communication and data-sharing infrastructure with redundancy.
	Expand shared digital platforms for planning and situational awareness accessible to vetted non-military actors.	Develop offline negotiation toolkits and encrypted local servers to support degraded environments.

3.5.3. Strategic implications and recommendations

The backcasting of Scenarios 2 and 3 reveals several strategic actions with divergent geopolitical contexts. Despite variations in their respective conditions, both scenarios emphasize the importance of negotiation capability, institutional credibility, and adaptive coordination mechanisms. This analysis facilitates the identification of cross-scenario implications and robust strategies.

The scenarios underscore three core imperatives for NATO's negotiation posture. First, both futures highlight the need for a formalized and adaptable negotiation

doctrine capable of guiding engagement in both stable and fragmented environments. Second, sustained engagement with non-military actors is essential and must be cultivated proactively. Third, the ability to deploy modular, cross-sector negotiation teams supported by interoperable infrastructure is key to operational resilience.

Based on these findings, NATO should prioritize the immediate development of a unified negotiation doctrine and integrate negotiation training into multi-domain exercises. Medium-term efforts should focus on routine civilian engagement and field-level coordination mechanisms, while long-term priorities include secure digital infrastructure and doctrinal harmonization.

Additionally, NATO should establish early warning indicators, such as shifts in stakeholder trust or legal fragmentation, to monitor strategic developments and adjust accordingly. These actions will strengthen NATO's credibility and adaptability across multiple future negotiation environments.

To conclude the foresight process, the next step outlines a set of early warning indicators and monitoring mechanisms to support continuous vigilance and strategic adaptability.

3.6. Continuous vigilance

The final step of the foresight methodology emphasizes the importance of monitoring the strategic environment over time to assess which scenario trajectory is beginning to materialize. While the NDC methodology does not prescribe a formal framework for early warning indicators (EWIs), it stresses the need to observe key drivers, trends, and uncertainties to support adaptive decision-making and institutional agility.

EWIs are defined as observable signals that can alert decision-makers to emerging changes, particularly shifts linked to critical uncertainties (Van der Heijden, 2005). EWIs

support scenario monitoring by helping institutions detect the early onset of disruptive dynamics and adjust policies before critical thresholds are crossed.

To effectively monitor the evolving strategic landscape, four key domains have been identified as priorities: geopolitical fragmentation, the perceived legitimacy of NATO as a negotiating entity, the private sector's propensity for risk-sharing, and fluctuations in public trust. Measurable indicators may encompass the degree of unity or discord among NATO member states, the regularity and calibre of civilian involvement in NATO-sponsored negotiation forums, the existence of formalized coordination frameworks between public and private sectors, and an assessment of public opinion derived from stakeholder input, media content analysis, or attitudinal surveys. These indicators should be systematically tracked via NATO's strategic communication channels, liaison networks, foresight analyses, and established civil-military coordination structures

Integrating these indicators into NATO's organizational foresight processes will strengthen its ability to predict changes, confirm scenario hypotheses, and adjust negotiation strategies accordingly. By taking these steps, the Alliance will enhance its relevance and adaptability in an increasingly intricate and unpredictable operational context.

The following chapter discusses the results of the applied foresight methodology.

4. Discussion

This chapter discusses the results of the foresight methodology applied in the study, structured in four sections. The first section interprets the scenario outcomes to NATO's negotiation posture. The second extracts strategic insights from the backcasting process, while the third reflects on the potential implications of these findings for NATO. The last section compares the findings with existing and relevant literature.

4.1. Interpretation of scenario results

The methodology facilitated a structured and prospective analysis of NATO's negotiation stance across diverse geopolitical and institutional contexts. By exploring four divergent scenarios, the methodology enabled a systematic exploration of the conditions that could either bolster or undermine NATO's negotiation capabilities. This scenario-based approach shows effectiveness in exposing both the external dependencies and internal drivers that influence negotiation outcomes in intricate, multi-stakeholder settings.

The methodology's key strength lies in its capability to uncover underlying assumptions and evaluate institutional preparedness in a non-deterministic manner. Rather than forecasting the future, the scenarios functioned as analytical instruments to explore potential developments. This approach is valuable in illuminating the recurrent determinants of negotiation effectiveness across diverse futures, including institutional legitimacy, doctrinal coherence, and sustained stakeholder engagement.

While the methodology's reliance on qualitative assessment and narrative construction offers valuable insights, it also introduces certain limitations. The interpretive nature of selecting and framing trends, uncertainties, and scenario logics may impact the reproducibility and analytical objectivity of the approach. Additionally, although the methodology excels at revealing strategic vulnerabilities and evaluating

long-term preparedness, it lacks mechanisms for quantifying risk or assessing the resource viability of recommended actions.

Notwithstanding these constraints, the foresight approach proved itself to be a valuable analytical tool for comprehending the dynamic and interconnected nature of negotiation within the context of MDO. Its core strength resides in its ability to incorporate uncertainty, institutional intricacy, and forward-looking perspectives into a cohesive framework for strategic deliberation.

4.2. Insights from backcasting

The backcasting analysis offered a structured approach to converting long-term scenarios into immediate actions. By tracing backward from the preferred and plausible futures, the methodology illuminated the institutional capabilities that underpin NATO's capacity to negotiate more effectively in intricate settings. One of the most prominent insights is the recurring significance of a codified negotiation doctrine. Across the two scenarios, doctrinal clarity proved to be a fundamental prerequisite for ensuring coherence, legitimacy, and strategic alignment among diverse stakeholders.

A second critical insight is the importance of sustainable stakeholder engagement. The backcasting analysis suggests that ad hoc partnerships are inadequate; rather, NATO must institutionalize engagement mechanisms that foster trust and ensure continuity with non-military actors across operational domains. This is particularly critical in fragmented or unstable geopolitical contexts, where legitimacy and responsiveness are contingent on pre-established relationships.

The analysis highlighted the importance of assembling flexible, deployable negotiation teams with diverse expertise. These interdisciplinary units are vital to ensuring that NATO's negotiation approach can be scaled and adapted to local contexts. Additionally, the study revealed that digital and logistical infrastructure constitute

strategic assets that enable real-time, transparent coordination with external stakeholders.

The backcasting method is effective in connecting scenario narratives to actionable recommendations, yet it also exhibited certain limitations. The outcomes of this approach are inherently reliant on the quality and internal coherence of the underlying scenarios. Furthermore, while the method facilitates qualitative reflection and strategic alignment, it does not assess the feasibility, institutional constraints, or prioritization of the identified actions. Consequently, its primary utility lies in informing long-term strategic direction, rather than providing a comprehensive operational blueprint.

Despite these caveats, the backcasting process succeeded in identifying a core set of strategic levers (doctrine, engagement, capability, and infrastructure) that should inform NATO's negotiation strategy regardless of how the future unfolds.

4.3. Potential implications for NATO's policy

The findings have significant implications for how NATO integrates negotiation as a strategic capability within MDO. The foresight analysis suggests that NATO should no longer view negotiation as a peripheral or reactive function, but rather as a core institutional competency that is embedded across its planning, doctrine, and operational frameworks.

First, it is suggested NATO should prioritize the development and codification of a comprehensive negotiation doctrine. This formal framework should articulate the underlying principles, standardized procedures, and delineated roles for engaging with non-military stakeholders. The scenarios consistently highlighted the absence of such a doctrine as a recurring institutional vulnerability. Establishing this doctrinal clarity would enhance consistency in approach across NATO member states, improve interoperability, and provide a foundational basis for accountability and legitimacy in civil-military collaborations.

As a second suggestion, NATO should establish permanent and multifaceted institutional mechanisms to engage with stakeholders. Civilian, private, and non-governmental entities are not peripheral to Multi-Domain Operations but rather crucial enablers. NATO should invest in liaison structures, recurrent consultation platforms, and integration mechanisms that facilitate early coordination and foster long-term trust-building with these diverse actors.

As a third suggestion, NATO should operationalize its negotiation capacity through the establishment of flexible, deployable teams possessing diverse expertise. These interdisciplinary units should be trained in areas such as cross-cultural communication, interest-based negotiation, legal interoperability, and risk-sharing models. Integrating these teams into joint exercises would serve to reinforce institutional readiness and signal a commitment to inclusive and adaptive negotiation practices.

NATO should understand that effective negotiation relies increasingly on its capacity to coordinate transparently and efficiently in real-time. This necessitates not only a secure and interoperable digital infrastructure but also the procedural openness and collaborative architecture anticipated by civilian partners. Investments in dual-use platforms, information-sharing protocols, and situational awareness tools should be perceived as more than just technical enhancements, but as enablers of strategic legitimacy.

Furthermore, it is suggested that NATO should more deeply integrate strategic foresight processes into its planning cycles. Employing techniques such as scenario development, backcasting, and continuous monitoring can bolster the organization's capacity to formulate resilient and adaptive strategies suited to environments characterized by uncertainty and contested legitimacy. Integrating these analytical tools would equip NATO to better anticipate changes in stakeholder expectations, geopolitical dynamics, and institutional preparedness.

4.4. Alignment with existing literature

The findings echo and, in certain ways, build upon the existing body of knowledge on negotiation, civil-military collaboration, and strategic planning in the face of uncertainty. A recurrent theme in the scenarios and backcasting process is the significance of institutional legitimacy, procedural transparency, and sustained engagement with diverse stakeholders. These elements align with the work of Bryson et al. (2015), who emphasize cross-sector collaboration as a prerequisite for strategic effectiveness in complex settings, particularly when power, legitimacy, and capacity are dispersed across multiple actors.

Research on team dynamics and coordination under uncertainty points toward the importance of trust-building. Greer et al. (2018) found that features such as modularity, role clarity, and interpersonal trust are crucial for enhancing performance in high-stakes, multi-party settings, lending empirical support to the recommendation for deploying interdisciplinary negotiation teams.

NATO's doctrinal publication AJP-3.19 emphasizes the need for coordination frameworks that are both flexible and standardized. The foresight analysis expands upon this perspective by positioning negotiation as a fundamental institutional competency, rather than a secondary function within planning or engagement processes.

The findings are consistent with Raiffa's (2002) research on negotiation design, which emphasizes the need for rational analysis and robust institutional frameworks to facilitate effective negotiation in multi-stakeholder contexts. Furthermore, this dissertation contributes to the literature by incorporating a foresight-oriented approach that integrates the dimension of future uncertainty into negotiation strategy, an aspect that has often been overlooked.

These findings provide the foundation for the following and final chapter, which concludes this master dissertation.

Conclusion

The conclusion comprises three sections: a summary and reflection on the research findings, a discussion of the study's contributions and limitations, and a set of recommendations for future research.

Summary and final reflections

This dissertation relies on research about how NATO can bolster its negotiation capabilities when engaging with non-military stakeholders in the context of MDO- a strategic landscape defined by operational intricacy, civilian-military interdependence, and growing uncertainty. The central issue addressed was the lack of a structured, forward-looking negotiation strategy that could reconcile NATO's military requirements with the capacities, expectations, and constraints of non-military actors. To explore this challenge, the study posed the problem statement: How can negotiation be employed to reconcile NATO's MDO requirements with the capabilities and constraints of non-military suppliers? Additionally, a set of derived questions was articulated in the introduction to guide the investigation of this theme.

The research methodology employed a foresight approach developed by the NDC, which entailed three key phases: identifying and prioritizing trends and uncertainties; constructing scenarios based on critical uncertainties; and applying a backcasting process to derive strategic actions from the scenarios. The scenario development was shaped by a focal issue aligned with the PS, enabling the integration of institutional, doctrinal, and operational considerations into a forward-looking analytical process.

The research findings suggest that NATO's negotiation effectiveness relies not merely on strategic influence or technical interoperability, but rather on institutional readiness, continuous civil-military collaboration, and procedural legitimacy. The scenario analysis reveals how varying levels of external fragmentation and internal credibility impact

NATO's negotiation relevance, while the backcasting process emphasizes the significance of doctrinal evolution, modular negotiation capacities, stakeholder engagement platforms, and digital coordination infrastructure.

This dissertation suggests that negotiation is not merely an operational instrument, but a strategic competency that must be incorporated into NATO's long-term institutional framework. By integrating foresight into planning processes and cultivating negotiation as a purposeful, capability-driven practice, NATO can better position itself to navigate future operational environments characterized by uncertainty and multi-stakeholder dynamics.

Contributions and limitations

This dissertation contributes to the academia and institutional practice in the domains of negotiation, strategic foresight, and civil-military coordination. At the theoretical level, it introduces a foresight-oriented perspective to the examination of negotiation strategy within complex, multi-stakeholder defence contexts, an area traditionally dominated by case studies or reactive policy analysis. By applying scenario planning and backcasting techniques to the negotiation domain, the thesis presents an alternative analytical framework that elucidates the interplay between uncertainty, institutional adaptability, and strategic engagement.

This research offers NATO a structured framework for anticipating negotiation challenges in MDO. It showcases how scenario-based analysis can be leveraged to stress-test existing assumptions, explore alternative futures, and determine strategic actions. The backcasting process yields clear institutional recommendations, such as developing a NATO-wide negotiation doctrine, operationalizing modular negotiation teams, institutionalizing civilian engagement platforms, and reinforcing digital infrastructures to enable real-time coordination. These findings are particularly timely as negotiation becomes increasingly central to NATO's operational credibility and legitimacy.

While the study's methodology offers valuable context-specific insights, its reliance on qualitative judgment in selecting trends, uncertainties, and scenario logics introduces an element of subjectivity that may limit the reproducibility and empirical validation of the findings. Additionally, the research does not systematically assess the feasibility, resource implications, or political constraints associated with the recommended actions, which should therefore be interpreted as strategic guidance rather than a prescriptive blueprint. Finally, the study focuses on the strategic and institutional levels, and further research would be needed to explore how the recommendations could be translated into operational doctrine, training design, or field-level practices.

Future research directions

Building upon this study's findings, several avenues for future research emerge. One valuable direction would be to apply the foresight-oriented analytical framework developed in this dissertation to investigate how negotiation strategies may vary across distinct NATO institutions or mission areas. This approach would facilitate a more nuanced understanding of the institutional constraints and enablers shaping negotiation processes, ultimately enabling the development of context-specific negotiation doctrines and practices.

Empirical investigations of the proposed strategies would also be valuable in evaluating their practical feasibility. Such studies could examine the performance of modular negotiation teams in real-world or simulated settings, or assess the efficacy of diverse engagement platforms under varying conditions of institutional legitimacy and geopolitical fragmentation.

Another research direction would be the refinement and operationalization of the EWIs outlined in section 3.6. Future studies could focus on quantifying those indicators, evaluating their responsiveness, and integrating them into NATO's strategic monitoring

systems. This would augment the organization's capacity for real-time scenario tracking and adaptive planning.

Additionally, further theoretical exploration could investigate the intersections between negotiation as a capability and other institutional functions, such as doctrine development, partner engagement, and interoperability. This would contribute to a more holistic understanding of negotiation, not merely as a tactical ability, but as a fundamental component of strategic resilience and alliance credibility.

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Appendix

Appendix 1: Identified drivers of change

Trends list

Trend	Description	PMESII-PT domain
Operational significance of civilian actors	Civilian actors are expected to become increasingly indispensable to NATO. Their strategic role will expand from auxiliary contributors to fully integrated partners in planning and execution (Tardy, 2020).	Military Infrastructure
Flexible civil-military governance	NATO is expected to adopt increasingly flexible governance models to manage growing collaboration with non-military actors. Future operations will require adaptable command structures and shared DM mechanisms that span institutional and sectoral boundaries (NATO, 2018).	Political Military
Integration of digital tools in operations	Digital platforms, AI, and automated planning tools are expected to become fully embedded in NATO's operational and negotiation processes. These technologies will enable faster coordination, data-driven DM, and real-time collaboration with civilian and commercial partners (NATO, 2024).	Informational Infrastructure
Cybersecurity as a negotiation enabler	Cybersecurity is expected to become a foundational enabler of negotiation and coordination. Secure and resilient digital infrastructure will be critical for sustaining trust and information sharing (Stevens & Burton,	Informational Infrastructure

	2023). Deep-tech and cybersecurity capabilities will shape the willingness and effectiveness of defense cooperation across sectors (Ricart, 2023).	
Demand for ethical and inclusive engagement	NATO is anticipated to face increasing expectation to integrate ethical and inclusive practices. This included commitments to diversity, equity, and inclusive DM processes (NATO, 2023a)	Social Political
Climate impact on critical infrastructure	Climate-related disruptions are projected to increasingly affect civilian infrastructure that NATO operations depend on, such as energy grids, transportation networks, and communication systems (NATO ACT, 2023). These vulnerabilities will make early negotiation with infrastructure providers essential to ensure operational continuity and resilience (UNDRR, 2022).	Physical Infrastructure
Multi-actor complexity in planning	Operations are expected to involve an expanding range of actors. The need to coordinate across institutions with differing mandates, timelines, and risk tolerances will increase the complexity of strategic and operational planning (NATO ACT, 2023).	Political Social
Growth of dual-use technological ecosystems	NATO is expected to rely increasingly on dual-use technologies developed in the civilian sector (Ricart, 2023). The convergence of defense and commercial innovation ecosystems will intensify NATO's dependence on private actors for access to critical capabilities.	Economic Informational

Resource competition and budget constraints	As strategic demands grow and defense budgets remain under pressure, NATO is expected to face increasing competition for financial, technological, and human resources.	Economical Political
Synergy through interoperability	Operations will increasingly depend on the ability to integrate and synchronize capabilities across allied forces and civilian partners. Interoperability will go beyond technical standards to encompass doctrinal, procedural, and organizational alignment.	Military Informational
Private sector as a resilience enabler	The private sector is expected to play an increasingly vital role in enabling NATO's resilience in contested or disrupted environments (CIMIC-COE, 2012). Civilian suppliers and service providers will be central to sustaining logistics, communications, energy, and infrastructure.	Infrastructure Economic
Digital diplomacy and engagement platforms	NATO is expected to increasingly rely on digital tools to facilitate negotiation, coordination, and engagement with non-military actors. Virtual platforms and secure communication systems will enable real-time dialogue and decision-making across organizational and geographical boundaries.	Informational Social
Professionalization of negotiation in NATO	NATO is expected to institutionalize negotiation as a strategic capability. This includes integrating negotiation training, doctrine, and planning tools into operational frameworks to enhance coordination with non-military actors (NATO, 2018).	Political Military

Emergence of hybrid legal frameworks for MDO coordination	As NATO's cooperation with non-military actors deepens, new hybrid legal frameworks are expected to emerge to facilitate cross-sector negotiation and coordination (CIMIC-COE, 2012). These frameworks will bridge the legal distinctions between military, governmental, and private-sector actors.	Political
Rise of trust-based multi-actor negotiation models	Future NATO operations will increasingly rely on negotiation models that prioritize long-term trust and shared accountability. These models will support more inclusive planning by fostering transparency, legitimacy, and mutual understanding across sectors (NATO ACT, 2023).	Social Political

Uncertainties list

Uncertainty	Description	PMESII-PT domain
Legal harmonization across NATO states	It remains uncertain whether NATO member states will achieve legal harmonization in the governance of civil-military cooperation. Existing discrepancies in national legislation and rules of engagement create friction in negotiation processes and complicate the standardization of joint frameworks (NATO, 2018).	Political Legal
Delegation of negotiation authority	It remains unclear whether NATO will decentralize negotiation authority. Centralized control may limit flexibility and responsiveness in dynamic environments	Informational Infrastructure

	involving non-military stakeholders (NATO, 2018).	
Alignment of digital systems and tools	There is uncertainty regarding the extent to which NATO and private-sector partners will achieve alignment in their digital systems and platforms. Disparities in cybersecurity protocols, data governance standards, and technological infrastructure could undermine interoperability (Ricart, 2023).	Informational Infrastructure
Variability in public trust	Public trust in NATO varies significantly across regions, cultures, and political contexts. This variability introduces uncertainty into negotiations (NATO ACT, 2023). Without consistent public confidence, NATO may face resistance, reduced legitimacy, or limited cooperation from non-military stakeholders.	Social Political
Willingness of private sector to share risk	It remains uncertain to what extent private-sector actors will be willing to share operational risks with NATO. While their involvement is increasingly essential, many commercial partners may hesitate to engage in settings where reputational, legal, or physical risks are elevated (Ricart, 2023).	Economic Infrastructure
Geopolitical fragmentation	The future geopolitical landscape is marked by increasing polarization and strategic rivalry, creating uncertainty around NATO's ability to sustain unified civilian partnerships across regions. As global fault lines deepen, alliances may shift and cooperation with key	Political Social

	non-military actors could be constrained by national interests, ideological divides, or external influence (Tardy, 2020).	
Institutional inertia in adapting frameworks	It is uncertain whether NATO's institutional structures will adapt quickly enough to meet the evolving demands of negotiation in MDO. Existing doctrines, processes, and bureaucratic norms may slow the integration of new negotiation models and civil-military coordination mechanisms.	Political Military
Technological obsolescence cycles	The rapid pace of civilian technological innovation may outstrip NATO's capacity to adopt and integrate new tools, creating a persistent risk of obsolescence. This gap could affect NATO's ability to engage effectively with cutting-edge private-sector actors in areas such as AI, cyber, and space (Ricart, 2023). It remains uncertain whether NATO's procurement and adaptation cycles can keep pace with these shifts.	Informational Economic
Fragmented stakeholder interests	As NATO engages with an expanding array of civilian partners, divergent agendas and institutional priorities may create barriers to consensus. These fragmented interests can slow negotiation processes, dilute strategic coherence, and complicate implementation of joint agreements (NATO, 2018).	Political Social
Political friction within NATO	Diverging political priorities among NATO member states may lead to internal disagreements that delay or constrain	Political

	collective DM. This friction could reduce NATO's ability to present a unified stance during negotiations with non-military actors or limit the scope of civil-military collaboration (Tardy, 2020). The extent to which the Alliance can maintain political cohesion in the face of emerging global challenges remains uncertain.	
Doctrinal coherence across member states	While MDO is formally embraced, differences in how member states interpret and implement the concept may lead to inconsistent negotiation approaches. Divergent doctrines can create friction and complicate the development of shared frameworks. It remains uncertain whether NATO will be able to standardize doctrine sufficiently to ensure coherence.	Military Political
Alignment of negotiation practices across domains and cultures	As NATO negotiates across military, civilian, private, and multinational boundaries, differences in negotiation styles, expectations, and DM cultures may impede coherence. Variations in institutional norms, authority structures, and cultural sensitivities could challenge mutual understanding and delay consensus (NATO, 2018). It remains uncertain whether a shared negotiation culture can be developed to support effective engagement in complex, cross-domain environments.	Social Political

Balance of power in civil-military negotiations	The balance of influence between NATO and its non-military partners in negotiation contexts remains variable. Factors such as technological dependency, control over infrastructure, or political leverage may shift power toward civilian actors in certain domains (Ricart, 2023). It is uncertain whether NATO will retain sufficient authority in these negotiations to align external contributions with strategic objectives.	Political Economic
Effectiveness of trust-building in sensitive environments	In politically sensitive or contested environments, it is uncertain whether NATO will be able to build and sustain the trust required for meaningful civil-military cooperation. Factors such as historical grievances, local power dynamics, or competing narratives may limit the impact of inclusive and ethical engagement strategies (NATO ACT, 2023).	Social Political
Role of NATO in setting future negotiation standards	It is uncertain whether NATO will take a leading role in shaping the legal and procedural norms that govern future civil-military negotiations. While the Alliance has doctrinal influence, the increasing involvement of private actors could decentralize authority over negotiation standards.	Political Legal

Appendix 2: Uncertainties and implications

Implication 1	Uncertainty	Implication 2
Eroded coordination: Fragmented legal frameworks reduce interoperability and slow cross-national agreement-making during MDO operations (NATO Legal Gazette, 2020).	U1: Legal harmonization across NATO states	Streamlined cooperation: Harmonized legal structures accelerate negotiations and improve multinational operational alignment (NATO ACT, 2023)
Negotiation rigidity: Centralized authority limits flexibility and slows negotiation response time in dynamic scenarios (NATO ACT, 2021).	U2: Delegation of negotiation authority	Tactical adaptability: Decentralized negotiation mandates improve adaptability and responsiveness in complex environments.
Disrupted interoperability: Misaligned digital tools hinder data-sharing and reduce situational awareness during negotiation.	U3: Alignment of digital systems and tools	Real-time synchronization: Digital interoperability enables synchronized negotiation across stakeholders and domains.
Declining legitimacy: Low public trust erodes legitimacy and weakens civilian compliance with negotiated measures.	U4: Variability in public trust	Strengthened social mandate: High trust enhances acceptance of decisions and reduces resistance to rapid operational shifts.
Supply chain fragility: Private-sector reluctance undermines mission-critical supply chain coordination and crisis logistics.	U5: Willingness of private sector to share risk	Resilient partnerships: Private sector engagement strengthens resilience and facilitates innovative procurement models.

Strategic incoherence: Internal fragmentation limits NATO's credibility in external negotiations and joint mission design.	U6: Geopolitical fragmentation	Reinforced unity under pressure: Heightened external fragmentation reinforces NATO unity and strengthens negotiation posture.
Delayed adaptation: Inertia prevents timely adaptation to emerging operational needs, delaying policy responsiveness.	U7: Institutional inertia in adapting frameworks	Proactive negotiation strategy: Agile adaptation of frameworks enables proactive negotiation strategy and better stakeholder alignment.
Capability stagnation: NATO fails to keep pace with rapid cycles of technological obsolescence, negotiation and operational relevance decline. Outdated platforms and systems constrain bargaining power, reduce credibility with tech-forward partners, and heighten dependency on a limited set of suppliers.	U8: Technological obsolescence cycles	Adaptive advantage: Anticipating and managing technological obsolescence enables NATO to remain an attractive negotiation partner, foster innovation-driven partnerships, and sustain mission-critical interoperability (NATO ACT, 2023).
Ineffective bargaining: Low stakeholder alignment leads to competing priorities, undermining mission design and slowing execution.	U9: Fragmented stakeholder interests	Joint mission efficiency: Aligned stakeholder objectives enhance unity of effort and increase efficiency in planning.
Paralysis in action: Political friction within NATO disrupts internal coherence, damaging negotiation credibility and delaying decisions.	U10: Political friction within NATO	Mandate strength: Strong political alignment enhances negotiation legitimacy and accelerates multi-actor coordination (NATO, 2022).

Vulnerability to interference: Lack of doctrinal clarity invites interpretive divergence, increasing risk of miscommunication in high stakes negotiations.	U11: Doctrinal coherence across member states	Strategic predictability: Clear doctrinal foundations ensure consistent negotiation practices and reduce uncertainty across operations.
Negotiation misalignment: Diverging negotiation norms and practices across domains and cultures leads to miscommunication, perceived disrespect, and slow DM.	U12: Alignment of negotiation practices across domains and cultures	Negotiation convergence: Harmonized negotiation frameworks improve mutual understanding, reduce cultural frictions, and foster faster and more equitable multi-actor agreements.
Power imbalance: Military dominance in negotiations discourages civilian input, risking loss of local legitimacy.	U13: Balance of power in civil-military negotiations	Inclusive legitimacy: Balanced negotiation structures foster trust, legitimacy, and more implementable agreements.
Fragile collaboration: In sensitive or contested environments, the absence of intentional trust-building increases resistance from civilian partners, elevates security risks, and prolongs negotiation cycles.	U14: Effectiveness of trust-building in sensitive environments	Deepened engagement: Strategic trust-building- through liaison officers, continuity of engagement, and local anchoring-enhances legitimacy and resilience of negotiated agreements.
Delayed convergence: Without strong standard-setting negotiation procedures across actors remain inconsistent, slowing integration.	U15: Role of NATO in setting future negotiation standards	Doctrinal coherence: NATO leadership in negotiation doctrine improves coordination, strengthens legitimacy, and reduces friction.
Fragile negotiation posture: NATO struggles to build trust with non-military actors and fails to	U16: NATO's institutional	Trusted strategic convener: NATO effectively combines trust-building in sensitive environments

assert doctrinal leadership, eroding its negotiation legitimacy. This leads to fragmented engagements, reduced buy-in from civilian stakeholders, and incoherent cross-domain coordination.	legitimacy in negotiation	with normative leadership in negotiation practices, strengthening legitimacy and enhancing coordination across domains.
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Appendix 3: Scenario matrix

Scenario Matrix

