DEFENCE **R&D** DÉFENSE

A Framework of Factors Influencing ANSA Decision Making

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Foreward

The Adversarial Intent Section (AIS)/DRDC Toronto commissioned this Contract Report in support of the Technology Investment Fund (TIF) Project entitled "A Conceptual Framework for Understanding Armed Non-state Actors (ANSAs): Strategic Roles and Operational Dynamics" (Project Code: 10ad08). TIF Projects are forward-looking, high-risk – but potentially high-payoff – research endeavours conducted under the auspices of Defence Research & Development Canada (DRDC), the Science and Technology (S&T) agency of the Department of National Defence (DND), Canada.

The aim of this three-year Project is to advance our understanding of:

- The **strategic roles** of ANSAs in the context of violent intergroup conflict; and,

- The **operational dynamics** – that is, the group structures, functions and processes – of ANSAs, in both their internal and external aspects, that facilitate the performance of these roles.

Broadly speaking, we seek to shed some light upon what ANSAs do, and why and how they do it, situating the motivations, intent and behaviours of these groups in the wider context of chronic social conflict.

This Report is the final deliverable of an eight-month contract in which the Contractor was tasked to systematically identify and critically assess scientific literature of relevance to elaborating a theory of ANSA strategic decision making, as part of the Project's Phase 1 Conceptual Development program of research. This Report will serve to guide our efforts in the next stage – Phase 2 Framework Calibration and Practicum – of the Project's research program.

Avant-propos

La section des intentions antagonistes (SIA) de RDDC Toronto a commandé le présent rapport en appui au projet du Fonds d'investissement technologique (FIT) intitulé « A Conceptual Framework for Understanding Armed Non-state Actors (ANSAs): Strategic Roles and Operational Dynamics » (code de projet : 10ad08). Les projets FIT sont des projets de recherche avant-gardistes, très risqués – mais potentiellement très rentables – dirigés sous les auspices de Recherche et développement pour la défense Canada (RDDC), l'agence de science et de technologie (S et T) du ministère de la Défense nationale (MDN) du Canada.

Ce projet d'une durée de trois années vise à accroître notre connaissance des aspects suivants :

- Les **rôles stratégiques** des acteurs armés non étatiques (AANE) dans le contexte des conflits intergroupes violents;

- La **dynamique opérationnelle** – soit les structures, les fonctions et les processus des groupes – des AANE à la fois dans leurs aspects internes et externes, qui facilitent l'exécution de ces rôles.

En termes généraux, nous cherchons à jeter la lumière sur ce que les AANE font, pourquoi et comment ils le font, en présentant les motivations, les intentions et les comportements de ces groupes dans le contexte plus large des conflits sociaux chroniques.

Le présent rapport est l'ultime produit à livrer d'un contrat de huit mois durant lequel les chercheurs ont systématiquement relevé et évalué des ouvrages scientifiques pertinents dans le but de formuler une théorie sur le processus décisionnel stratégique des AANE, dans le cadre de la phase 1 du projet, Développement conceptuel du programme de recherche. Le présent rapport guidera notre travail au cours de l'étape suivante – Phase 2, Calibrage du cadre conceptuel et exercice pratique – du programme de recherche.

Abstract

As Armed Non-State Actors (ANSAs) become increasingly involved in both perpetuating and resolving persistent social conflict, understanding the strategic decision making of these groups is critical. To address this issue, we conducted an extensive literature review focused on determining what is known regarding judgment and decision making approaches considered in the context of team, small group, and organizational settings. Our review resulted in the development of a guiding framework that draws upon group decision making literature, as well as specific facets of ANSA and terrorist decision making literature to identify the key antecedents to ANSA decision making, as well as the factors that may moderate the processes in which decisions are made. Specifically, such factors were categorized as *group/organizational factors, individual factors*, or *contextual factors* in the context of our framework, and their influence on group sensemaking, and in turn, decision making, were explored. These three broad categories encompass a range of factors that can influence ANSA decision making, providing a streamlined lens through which we can begin to understand it and make valuable predictions. Our framework thus sets the stage for future research as well as the development of training interventions designed to understand and influence ANSA decision making.

Résumé

Puisque les acteurs armés non étatiques (AANE) sont de plus en plus actifs tant en provoquant des conflits sociaux durables qu'en aidant à les résoudre, il est crucial de comprendre le processus décisionnel stratégique de ces groupes. À cette fin, nous avons effectué une analyse documentaire exhaustive dans le but de déterminer ce qui est connu des modes de jugement et de prises de décision des équipes, des petits groupes et des organisations. Ce travail a débouché sur une structure directrice, inspirée des ouvrages traitant des processus décisionnels collectifs de même que des aspects spécifiques des AANE, et des ouvrages traitant des processus décisionnels des terroristes, laquelle permettra d'identifier les antécédents clés des décisions des AANE, ainsi que les facteurs qui tempèrent les processus décisionnels. Nous avons en particulier catégorisé ces facteurs en *facteurs collectifs et organisationnels, en facteurs individuels et en facteurs contextuels* à l'intérieur de la structure, et nous avons scruté leur influence sur le raisonnement des groupes et, conséquemment, sur leur prise de décisions. Ces trois grandes catégories englobent une foule de facteurs susceptibles d'influer sur les décisions des AANE, lesquels nous fournissent une vision simplifiée qui amorce une compréhension du processus décisionnel et la formulation de prévisions utiles. Notre structure jette les bases pour les recherches futures et pour la conception de modules de formation visant à faire comprendre le processus décisionnel des AANE et à agir sur celui-ci.

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Executive summary

A Framework of Factors Influencing ANSA Decision Making

Eduardo Salas; Marissa L. Shuffler; Rebecca Grossman; DRDC Toronto CR 2010-187; Defence R&D Canada – Toronto.

Introduction: As Armed Non-State Actors (ANSAs) become increasingly involved in both perpetuating and resolving persistent social conflict, understanding the strategic decision making of these groups is critical. DRDC Toronto thus requested the development of a literature review focused on determining what is known regarding judgment and decision making approaches in the context of team, small group, and organizational settings. Further, this review is meant to help drive better preparation for understanding the ANSA decision making process, and determining when and how to intervene to produce more positive outcomes. The authors conducted an extensive review of the state of decision making science, identifying gaps, and providing suggestions regarding future research. A set of key search terms was developed and used both individually and in combination with one another to provide the most comprehensive results. A set of databases and search engines were identified, including PsycInfo, Ebscohost, ProQuest, DTIC, ABI Inform, and Sociological Abstracts. Google Scholar was also used as appropriate to locate additional materials.

Results: Our review resulted in the development of a guiding framework that draws upon both group decision making literature as well as specific facets of ANSA and terrorist decision making literature to identify the key antecedents to ANSA decision making, as well as the factors that may moderate the processes in which decisions are made. Specifically, such factors were categorized as *group/organizational factors, individual factors*, or *contextual factors* in the context of our framework, and their influence on group sensemaking, and in turn, decision making, were explored.

Significance: Our framework incorporates a wealth of factors thought to influence ANSA decision making and breaks them down into three broad categories. We thus provided a streamlined approach to understanding ANSA decision making, facilitating a high-level understanding which is approachable from a practical standpoint. Further, we identified and categorized key antecedents and moderators of ANSA decision making, information that is critical to understanding and influencing such decisions. Our framework provides a mechanism for military personnel to gain an understanding of ANSA decision making, and a foundation for the development of training interventions designed to assist in anticipating and influencing decisions in ANSA groups.

Future plans: Additional research specific to ANSAs is necessary to determine not only the appropriateness of the framework, but also how to successfully intervene during the ANSA decision making process to reduce negative outcomes. Different methods can be utilized, such as historiometric analyses, in which existing sources of data relating to ANSAs (e.g., interview records; newspaper articles) are coded and analyzed, interviews with former ANSAs, and the examination of archival data such as group documents and records. Such information could help verify and refine our framework, facilitating the development of training interventions designed to assist military personnel in understanding and influencing ANSA decision making.

Sommaire

Structure des facteurs agissant sur le processus décisionnel des acteurs armés non étatiques

**Eduardo Salas; Marissa L. Shuffler; Rebecca Grossman; RDDC Toronto
CR 2010-187; R et D pour la défense Canada – Toronto.**

Introduction : Puisque les acteurs armés non étatiques (AANE) sont de plus en plus actifs tant en provoquant des conflits sociaux durables qu'en aidant à les résoudre, il est crucial de comprendre le processus décisionnel stratégique de ces groupes. RDDC Toronto a commandé une analyse documentaire afin de déterminer ce qui est connu des modes de jugement et de prises de décision des équipes, des petits groupes et des organisations. En outre, ce travail jettera les bases de la compréhension du processus décisionnel des AANE et permettra de déterminer quand et comment intervenir afin d'arriver à des résultats plus positifs. Les auteurs ont fait un examen exhaustif de l'état de la science de la prise de décisions, identifiant ses lacunes et proposant des pistes de recherche. Ils ont conçu une terminologie particulière dont les termes, employés seuls ou en combinaisons, ont permis de faire le tour complet du sujet. Ils ont également trouvé des bases de données et des moteurs de recherche, notamment PsycInfo, Ebscohost, ProQuest, DTIC, ABI Inform et Sociological Abstracts. Enfin, ils ont utilisé Google Scholar pour trouver du matériel supplémentaire.

Résultats : Cet examen nous a permis de concevoir une structure directrice inspirée à la fois des ouvrages traitant des processus décisionnels collectifs, y compris les aspects spécifiques des AANE, et des ouvrages sur les processus décisionnels des terroristes, laquelle permettra d'identifier les antécédents clés des décisions des AANE, ainsi que les facteurs qui tempèrent les processus décisionnels. Ces facteurs ont été catégorisés en *facteurs collectifs et organisationnels, en facteurs individuels et en facteurs contextuels* à l'intérieur de notre structure, et leur influence sur le raisonnement des groupes et, conséquemment, sur leur prise de décisions a été scrutée.

Portée : Notre structure englobe une abondance de facteurs censés influer sur la prise de décisions des EENA et les divise en trois grandes catégories. Il en résulte une démarche simplifiée pour comprendre le processus décisionnel des EENA et faciliter une compréhension plus étendue qui est exploitable. Nous avons aussi déterminé et catégorisé les antécédents clés et les éléments modérateurs de la prise de décision des EENA, une information cruciale pour comprendre les décisions et les influencer. Notre structure fournit au personnel militaire un mécanisme pour comprendre le processus décisionnel des EENA et jette la base pour la conception de modules de formation permettant d'anticiper et d'influencer les décisions des groupes EENA.

Recherches futures : Une recherche supplémentaire sur les EENA est nécessaire non seulement pour déterminer si la structure est appropriée, mais aussi pour intervenir avec succès dans le processus décisionnel des EENA afin d'en réduire les conséquences négatives. Différentes méthodes peuvent être employées, notamment les analyses historiométriques dans lesquelles les sources de données sur les EENA (p. ex., comptes rendus d'entrevue, articles de journaux) sont codées et analysées, les entrevues d'anciens EENA et l'examen de données d'archives comme les documents et les dossiers des groupes. Cette information pourrait nous aider à vérifier notre

structure et à la peaufiner, ce qui faciliterait la conception de modules de formation pour aider le personnel militaire à comprendre le processus décisionnel des AANE et à agir sur celui-ci.

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1   Introduction

1.1   Background

As Armed Non-State Actors (ANSAs) (see Box 1, next page) become increasingly involved in both fuelling and resolving persistent social conflict, understanding the strategic decision making of these groups is critical. Terrorist groups and their decision-making processes have long been topics of interest for policy-makers and researchers spanning multiple fields. Identifying and understanding the factors that influence groups' decisions mark powerful steps toward the development of effective negotiation and defensive strategies.

Various frameworks for understanding terrorist decision-making have been proposed, each emphasizing different components of the overall process. Historically, scholars have viewed terrorism as either a means to an end (i.e., rationalism), or a means of individual expression (i.e., expressionism) (McCormick 2003). Such views have guided theories of terrorist decision-making, and continue to play a role in more recent perspectives.

Furthermore, there are many approaches to understanding general group decision making. Currently, our understanding of decision making in groups is rapidly expanding. The prolonged attention given to decision making has produced an extensive theoretical and empirical literature base, which can generally be understood through one of three paradigms: the formal-empiricist, the rationalist, and the naturalistic (Cohen 1993). As will be further described in this report, each of these areas of decision making has its own rich body of literature. However, to date it does not appear that this literature has been utilized to its fullest capacity in terms of explaining the decision making processes of ANSAs. By combining what is known regarding traditional group decision making and terrorist group decision making, we hope to provide a more comprehensive perspective of decision making that can contribute towards an understanding of decision making by ANSAs.

1.2   Objective

To address the issue of ANSA decision making, DRDC Toronto requested the development of a literature review focused on determining what is known regarding judgment and decision making approaches considered in the context of team, small group, and organizational settings. This review is also designed to address the quality of what is known, what should be known, and what the next steps are for research. It is expected that this review will help drive better preparation for understanding the ANSA decision making process in general, as well as determining when and how to intervene during the ANSA decision making process to produce more positive outcomes.

In order to accomplish this effort, we have conducted an extensive review of the state of decision making science, examining extant scientific literature, identifying gaps, and providing suggestions regarding future research endeavours that may best develop our understanding of ASNA strategic decision making. Based on our review of the literature,

we have developed a guiding framework that draws upon both group decision making literature as well as specific facets of ANSA and terrorist decision making literature to identify the key antecedents to ANSA decision making, as well as the factors that may moderate the processes in which decisions are made.

1.3 Organization of this Document

This report first provides a brief introduction to what is known in general regarding individual and group decision making, in order to provide a basic understanding of the source for the selected search terms and subsequent framework of ANSA decision making. We next present the literature review methodology and the resulting initial guiding framework for understanding ANSA decision making. In-depth descriptions regarding each of the components in the framework as they pertain to the process of ANSA decision making follow. Finally, we provide limitations of the current knowledge regarding ANSA decision making, and provide a discussion of future research needs and approaches that may help to address these limitations and advance our understanding of ANSA decision making.

2 Background

2.1 Decision Making Processes

Currently, our understanding of decision making in groups is rapidly expanding. Group decision making involves the selection of a response by a collective, given a particular context (Kerr & Tindale 2004). Group decisions can be thought of as being made either by the contribution of group member input to a larger collective decision (Arrow 1963; Black 1958), or through the input of a select set of group members (e.g., a leader and a small set of advisors) through a "judge-advisor" system (Budescu & Rantilla 2000). Groups can either leverage the input of all members, or simply select those that are most likely to effectively contribute to the decision making process.

The prolonged attention given to decision making has produced an extensive theoretical and empirical literature base regarding not only who contributes to group decision making, but also how these decisions are reached. Decision making is not always a clear cut process for groups. Although decision making should be based upon rational, logical decisions that weigh events appropriately, as humans we often tend to let outside factors contribute to our decision making, allowing non-rational decisions to be made. The following provides a comparison of the different models of decision making (see Table 1 for a summary of major decision theories). This discussion will examine why individuals depart from rational decision making and what factors can influence this departure, including risk taking, reference points, framing, and affect. Furthermore, this will provide the groundwork for understanding the subsequent literature review specific to the ANSA decision making context.

Table 1 Theories of decision making

Theory	Description	References
Prospect Theory	Losses are more aversive than gains are pleasurable. A riskless prospect is preferred to a risky prospect, even if the risky one is greater (e.g., a person will take less money, if it is for sure).	Tversky & Kahneman 1978
Multi-Attribute Utility Theory	A prescriptive theory of decision making, used to choose between multiple alternatives. **3 steps:** • Identify alternatives. • Identify the relative importance of things and weight them. • Identify how each alternative falls on each important factor identified in Step 2.	Hastie 2001
Attribution Theory	Explains the way we define people differently, depending on the meaning we attribute to them. We determine if behavior is internal versus external. **Based on:** • Distinctiveness – is the behavior unusual? • Consensus –do other people respond the same	Schwenk 1984

Theory	Description	References
	way? • Consistency – does the person respond the same way every time?	
Brunswick Lens Model	Theory that suggests that decision making is a product of our ability to combine multiple imperfect cues about some object.	Tversky & Kahneman 1981; Hastie 2001
Subjective Expected Utility Theory	Theory that suggests people make decisions based on the expected utility of an option. Expected utility is the combination of the value and the likelihood of that option. **4 basic axioms:** • Connectivity: You should be able to choose which outcome you prefer. • Transitivity: If you prefer outcome A to B and B to C, then you should prefer A to C. • Summation: If for every possible event, Act 1 produces at least as desirable an outcome as Act 2, and if 1 is better than 2 in one event, then you should prefer Act 1 to Act 2. • Sure-thing principle: Outcomes not related to your choice shouldn't influence you.	Blum & Naylor 1968
Rational Decision Model	This model assumes that decision makers have complete information on their alternatives. Thus, they will consider all possible alternatives and will not go with the most obvious one. **6 steps:** • Define the problem. • Identify the decision criteria. • Allocate weights to the criteria. • Develop the alternatives. • Evaluate the alternatives. • Select the best alternative.	Hogarth 1987
Bounded Rationality	People go with the first acceptable one rather than the best alternative.	Simon 1945; Doyle 1999
Intuitive Decision Making	Gut decision making. Not based on conscious thought. Hogarth (2001) has proposed a framework for developing intuition consisting of **3 central components**: • Building awareness. • Acquiring specific learning skills (i.e., observation, speculation, testing, and generalization). • Practice.	Hogarth 2001
Naturalistic Decision	The process of decision making in real world environments.	Orasanu & Connolly 1993; Salas, Rosen,

Theory	Description	References
Making	**8 boundary conditions:** • Ill-structured problems. • Uncertain, dynamic environments. • Shifting, ill-defined, or competing goals. • Multiple event-feedback loops. • Time constraints. • High stakes. • Multiple players. • Organizational norms and goals that must be balanced against the decision maker's personal choice.	& DiazGranados, in press; Lipshitz, Klein & Carroll 2006

In order to examine models of decision making, it is important to first understand what decision making involves. The decision making literature can generally be understood through one of three paradigms: the formal-empiricist, the rationalist, and the naturalistic (Cohen 1993). The formal-empiricist paradigm is typified by the classical decision making (CDM) approach, and the rational paradigm by the judgment and decision making (JDM) and behavioral decision theory (BDT) threads of research. The CDM approach, rooted in Bernoulli's (1738) work, is described as the formal-empiricist paradigm because it involved building mathematical models and testing them against actual behavioral data. Researchers in this paradigm used formal normative models of choice between concurrently available options.

Lipshitz and colleagues (2001) further describe this paradigm in terms of the need for comprehensive information search on the part of the decision maker, and development of formal, abstract, and context-free models on the part of the researcher. Researchers tested their formal models against behavioral data and attempted to refine their models to account for the behavior of people in contrived tasks, which were not representative of any real world performance. Based on this classical perspective of decision making, individuals utilize these mathematical formulas to derive solutions (Blum & Naylor 1968). These models explain decision making as being a function of the utility of an event with the probability of that event occurring. Individuals collect information about the utility of an event and the probability of that event occurring, and then mathematically calculate the best solution based on this information. This paradigm reached its peak with the work of Savage (1954) who proposed the concept of subjective-expected utility. That is, decision makers have a preference structure, which can be expressed by a utility function. Decision makers try to maximize this expected utility by analyzing each possible option and choosing the one with the highest benefit to them.

Recognizing that decision making is inherently flawed due to human error, the Judgment and Decision Making (JDM) research tradition belongs to the rationalist paradigm (e.g., Kahneman, Slovic & Tversky 1982). This perspective focuses on the concept of errors due to bias in unaided decision making (Ross, Shafer & Klein 2006). Similar to the formal-empirical tradition, the rationalist approach involves developing formal models of choice between concurrently available options. However, contrary to the formal empiricist paradigm, which modified the model when discrepancies were found, the rationalist paradigm views these errors as fundamental flaws in the decision maker and

not that of the model. This approach led to cataloging a vast array of decision making biases, those systematic ways in which people deviated from supposed optimal decisions based upon statistical models. The validity of these biases has come to be criticized, most notably from Gigerenzer (1996) who illustrated how these biases where tied to assumptions about the optimal statistical model chosen (i.e., there is no one optimal model), and presentation of information to research participants.

One example of the rationalist paradigm is the work by Tversky and Kahneman (1981). Tversky and Kahneman (1981) examine the prospect theory of decision making in which reference points, risk taking, and frames impact how a person views a problem. Reference points are defined as the points upon which individuals choose to compare their view of a problem. Depending on the reference point selected, individuals may then frame a problem in a particular way. Framing typically involves viewing outcomes to a problem either from a loss frame or from a gain frame (Thaler 1980). When a person has a loss frame, he or she tends to believe that the outcome of the problem will involve a loss of some type, such as losing money from a bet. When a person has a gain frame, he or she feels that the problem will involve some type of gain, such as winning money from a bet.

The way in which a problem is framed can make a dramatic difference in how a person makes a decision. For example, if a person is told that their decision could cause the loss of a small number of lives but the saving of a guaranteed large number of lives, he or she will most likely decide to make the decision to save the lives. However, if the same number of lives will be lost and there is no guarantee in the saving of the large number of lives, he or she may be less likely to decide to save the lives. This issue of framing is strongly related to individual risk taking in decision making. Individuals who have a loss frame are more likely to be risk taking, while individuals who have a gain frame are more likely to be risk aversive. This is true even when the odds of gaining or losing are exactly the same (Tversky & Kahneman 1981).

In terms of this approach to understanding decision making, there are additional factors that can influence decision making as well, including affect and cognitive simplifications. Forgas and George (2001) propose an affect infusion model (AIM) in which affect and mood are considered to be a part of the decision making process. When making complex, difficult decisions, emotions are more likely to impact decision making, while in simpler decisions, emotions will be relied upon less. This is an important aspect of descriptive models, as it shows how personal characteristics can impact decision making. Another consideration in JDM models of decision making is cognitive simplifications. Schwenk (1984) proposes that when faced with strategic decision making that involves complex problems, individuals tend to refer to heuristics that aid in simplifying the problem. While at times beneficial, these cognitive simplifications can lead individuals to not examine all possible alternatives, to use inappropriate analogies when understanding the problem, or to apply similar approaches that have worked before, even if they are not appropriate for the current situation.

The NDM and Organizational Decision Making (ODM) traditions belong to the naturalistic paradigm (Lipshitz, Klein & Carroll 2006). This approach does not begin with prescriptive models as do the two preceding approaches. Instead, it begins with description of the processes real decision makers use. It forgoes artificial decision making

tasks where people are often presented with multiple options and rather focuses on how people develop options for themselves. Additionally, NDM emphasizes the expertise of the decision maker and not general or domain independent decision making tasks (Lipshitz et al. 2001b). Comprehensive search and choice between concurrently available options is replaced by the development of rules matching situations to actions; the input-output focus of research is replaced with a process orientation; and, the domain-independent formal model is replaced by context-bound informal modeling (Lipshitz et al. 2001a, 2001b).

Overall, each of these areas of decision making have their own rich body of literature, and therefore can contribute greatly towards an understanding of decision making by ANSAs. As we expand each of these areas, we will specifically focus on the aspects relevant to group decision making, particularly examining how group decisions may be structured given what is known about each approach to decision making.

2.2 Literature Review Method

2.2.1 Assumptions

In order to guide our literature review, we have several operating assumptions. First, there appears to be an abundance of literature that explores terrorism and issues related to terrorist decision making. This literature spans many disciplines, including political science, psychology, sociology, military science, and others. Given that a review of the entire domain of terrorist decision making across all disciplines is beyond the scope of the current review, we have focused our search on understanding what is available from a psychology perspective, in the context of the psychology of group decision making. However, where appropriate/necessary, we have leveraged critical findings/theories from other domains to inform our review.

Next, there are many angles from which this literature review of decision making relevant to ANSAs could be approached. For example, one approach could be to explore how these groups structure themselves to encourage individuals to decide to join. Another approach could be to explore the decision making process itself that leads up to an ANSA's course of action in a given situation. However, given what is known regarding group decision making from a psychological perspective, there are two basic group decision-making approaches: naturalistic decision making (NDM) and classic decision making (CDM).

There is already an abundant literature to explain the processes within each of these types of decision making. Therefore, we believe the major contribution of the current review will be to not simply define what is already known regarding these processes, but to explore the antecedents and moderators/mediators that may affect: 1) which decision making process is utilized by ANSAs (NDM vs. CDM) in a given situation; and 2) the quality and outcomes of the decision making process. For example, we have reviewed literature relevant to ANSAs and group decision making that defines the situational characteristics (e.g., time pressure, situational complexity) that may cause ANSAs to utilize NDM as opposed to CDM.

Third, given that empirical literature is difficult to find specifically in terms of ANSA and terrorist decision making, our review will incorporate theoretical literature as well as empirical group decision making literature for other relevant groups (e.g., military groups). Finally, to ensure that the review provides the most up-to-date literature, we will only include literature for the past 20 years (1990-2010).

2.2.2 Approach

In order to conduct our initial literature review, we first developed a set of key search terms (see Table 2), based on our understanding of the topics of interest as well as current decision making literature terminology. These terms were used both individually and in combination with one another (e.g., group decision making; group and NDM; group and CDM; ANSA and NDM) to provide the most comprehensive search method. We next identified a set of databases and search engines that were felt to provide the most comprehensive set of relevant articles. This included PsycInfo, Ebscohost, ProQuest, DTIC, ABI Inform, and Sociological Abstracts. We also utilized Google Scholar as appropriate to find technical reports and other relevant materials that may have not been available in the aforementioned databases.

Following the assumptions presented previously and guided by our key search terms, we next conducted our searches in each of the databases/search engines. Our initial search returned several hundred articles, with many of the same articles appearing across the various search engines, leading us to assume that our approach did indeed provide us with a comprehensive set of articles.

Table 2 List of search terms

Core Concepts	Primary Keywords	Secondary Keywords
Formalist-Empiricist Decision Making Paradigm	Classical decision making; prescriptive decision making	
Rationalist Decision Making Paradigm	Rational decision making; descriptive decision making; judgment; subjective expected utility; bounded rationality; decision bias.	Multi-attribute utility theory
Naturalistic Decision Making Paradigm	Naturalistic decision making; recognition-primed decision making; metarecognition; expert decision making; social judgment theory; prospect theory.	Recognition/ metarecognition; narrative based models; intuitive decision making
Group Decision Making	Team decision making; group decision making; collective induction; organization decision making; signal detection theory; judge-advisor systems.	shared mental models; team situation awareness; information processing
ANSAs	Armed non-state actors; non-state actors; terrorist group; terrorism.	

Factors Influencing Decision Making	Decision bias; heuristics; social environment; socio-cultural context; individual differences; culture; goals/objectives; power structure; leadership; motivation; emotion; groupthink; moral and ethical models.	

From these results, each article was carefully reviewed to determine relevancy to the topic of ANSA decision making. Articles were retained if they provided theoretical or empirical advancements regarding decision making in ANSA, terrorist, organizational, or group contexts. Any articles that did not meet this criteria were removed. Based on an initial review of the articles, a preliminary framework of ANSA decision making was developed (see discussion below for additional detail). Following this development, a second search was conducted using reference lists from the articles originally included as well as terms discovered that were deemed relevant to the specific ANSA context and the framework (e.g., sensemaking, political structure). This second search was designed to find any additional research that may not have emerged in the primary search that could help to further develop the framework. The resulting articles were reviewed and included if they provided additional support or new information (e.g., new contextual factors, individual factors, group factors, decision making strategies) for any of the components of the framework. This search resulted in a more comprehensive set of factors listed under the individual, group, and contextual components, as discussed below.

3 A Framework of ANSA Decision Making

3.1 Overview of Framework

As discussed, based upon this initial review of the group and ANSA/terrorist decision making literature, we have developed a framework of the factors that may influence ANSA decision making, in terms of what decision process might be utilized as well as the lens in which decision makers view the decision. Our framework can be seen in Figure 1. First, while the focus is on group-level decision making, it is important to acknowledge that individual differences can affect group-level phenomenon. For decision making, individual factors such as previous experience, status, cultural values, and personal goals can impact higher level group factors such as group cognitive biases and collective attitudes (e.g., trust, cohesion). Other group factors may also play a role in influencing the decision making process, such as the power structure of the group and the history/familiarity of group members. The decision making processes of a relatively new ANSA group may be very different from a long-standing group that has a strong historical pattern of decision making.
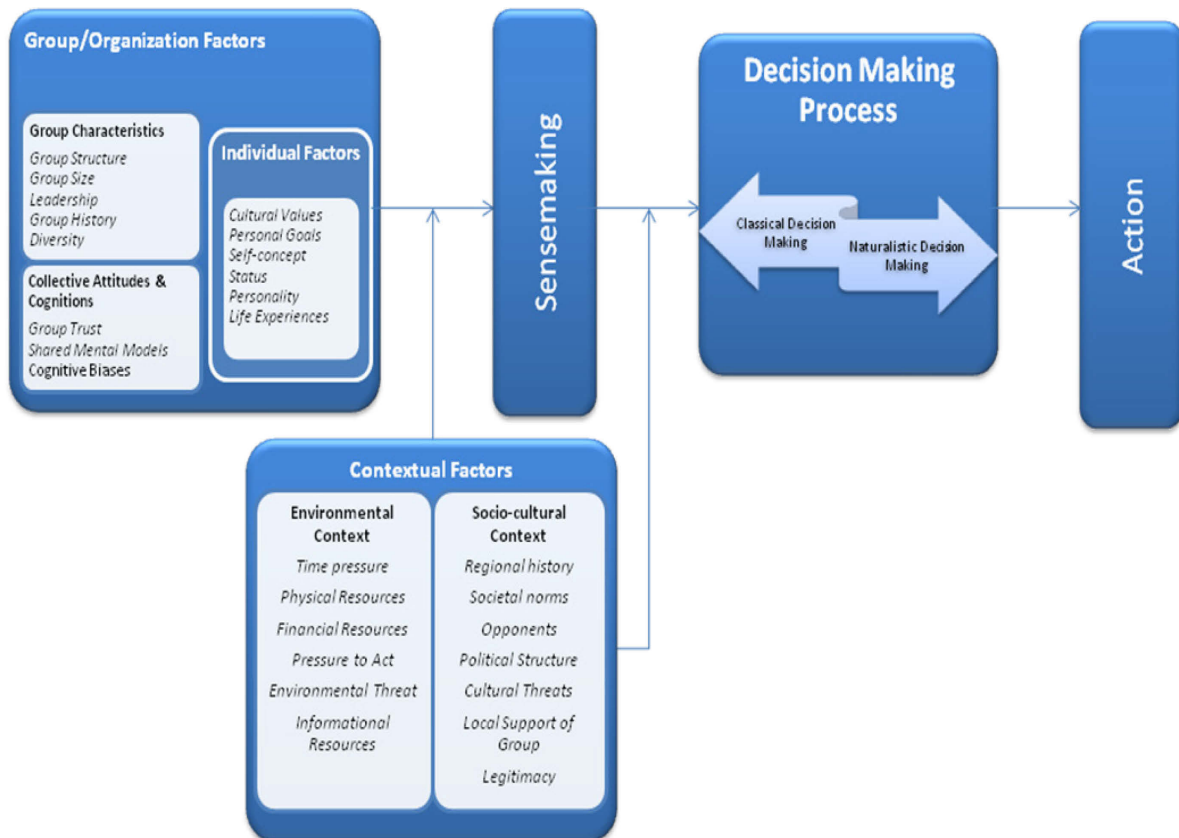

Figure 1 A Framework for ANSA decision making

When faced with a situation in which a decision is to be made, these individual and group level factors impact the initial assessment of the situation, providing a perceptive

sensemaking lens that subsequently influences the decision process. This initial assessment may be either a conscious or unconscious effort on behalf of the group (or some subset thereof). The way in which sense is made of the situation through this lens in turn influences what types of decision making strategies (e.g., NDM, JDM, CDM, collective, judge-advisor) are utilized to make the decision. Most importantly, both the relationship between the antecedents to the initial assessment and the decision making process itself are impacted by contextual factors that surround the situation. These contextual factors may be environmental in nature, such as the types of resources available to the ANSA group, or socio-cultural, such as the current political structure of the region.

In the following, we provide further detail regarding the types of individual, group/organizational, and contextual factors that may influence ANSA decision making processes. As there are many factors that could be considered a part of each of these larger categories, this is not meant to serve as a final list of factors, but instead to provide an overview of the types of factors that may inform our understanding of the ANSA decision making process. Identifying such antecedents and moderators are key to developing influence interventions for impacting the decision making process. (The Adversarial Intent Section is investigating full cycle influence interventions in its project ARP 15ag "Enhanced CF Influence Operations".)

Before delving into the specifics of our framework, we should note two points. First, we draw an analytical distinction between ANSAs and terrorist groups. Though closely related, the two are not identical. A terrorist group – that is, an armed group that engages in the violent tactics of terror – may or may not be an ANSA (at least for the purposes of our analysis), depending upon whether or not it satisfies the other key criteria as set out in our working definition above (recall Box 1). Second, it should be noted that we largely drew from existing models of decision making in related groups (e.g., terrorist groups) to inform the development of our current model. Two models in particular, namely those put forth by Noricks and colleagues (2009) and Jackson (2009), were especially influential in our thought processes and final framework. As evidenced in Figures 2 and 3 (next pages), these models are highly detailed, providing a wealth of information regarding terrorist decision making and related behaviours. While our framework incorporates several of the same factors depicted in existing models, it differs in that it is broken up into individual, group, and contextual factors. Our goal is thus to provide a more streamlined approach to understanding ANSA decision making, while still encompassing the bulk of factors included in previous models. Chunking the seemingly infinite number of factors influencing decision making into three broad categories can lead to a more high-level understanding of decision making in ANSA groups which can be more approachable from a practical standpoint.
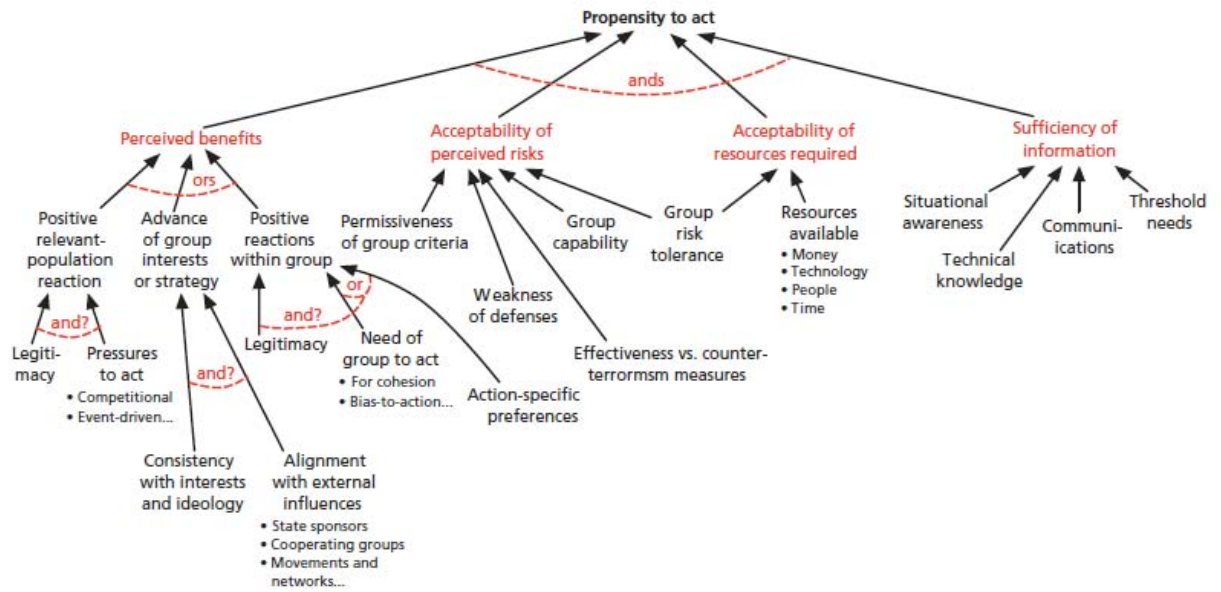
Figure 2 Factors influencing terrorist decisions and behavior (Noricks et al. 2009)
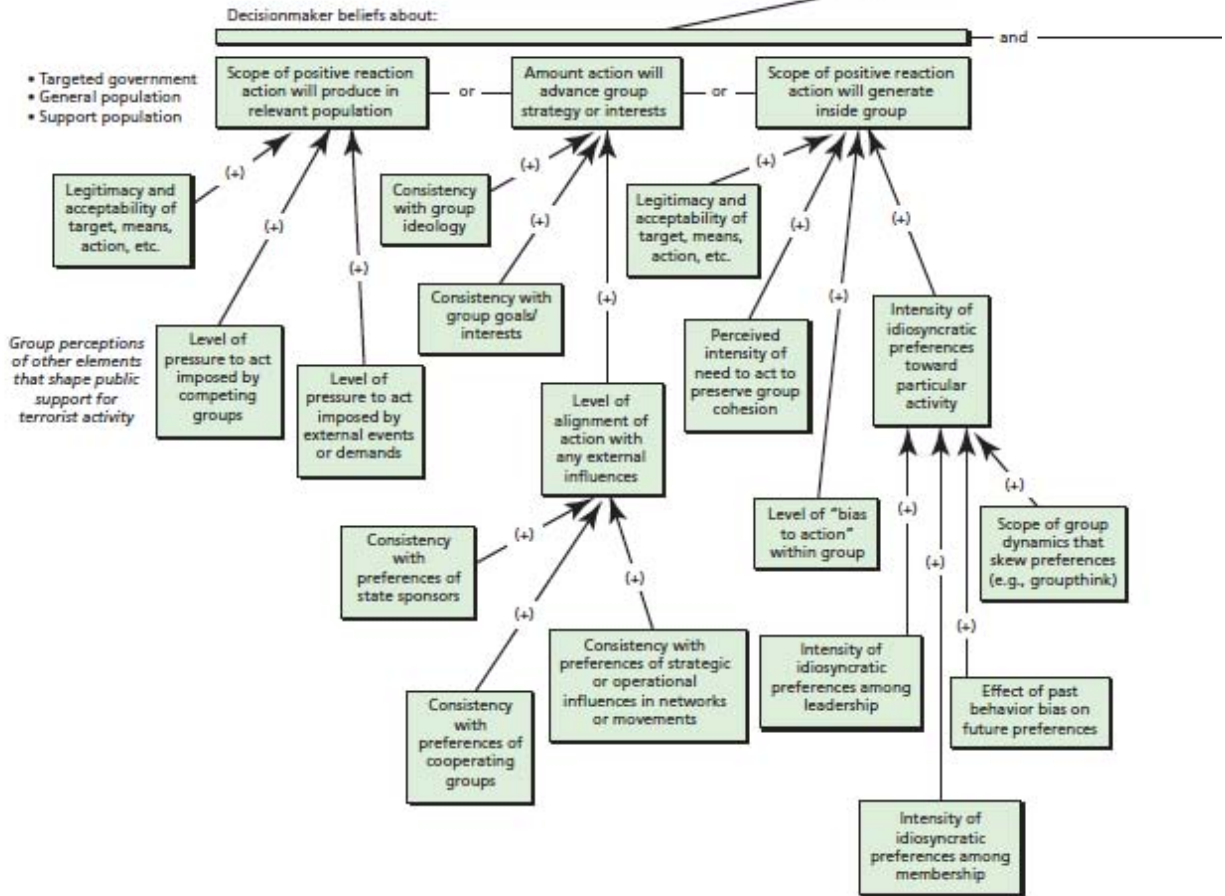
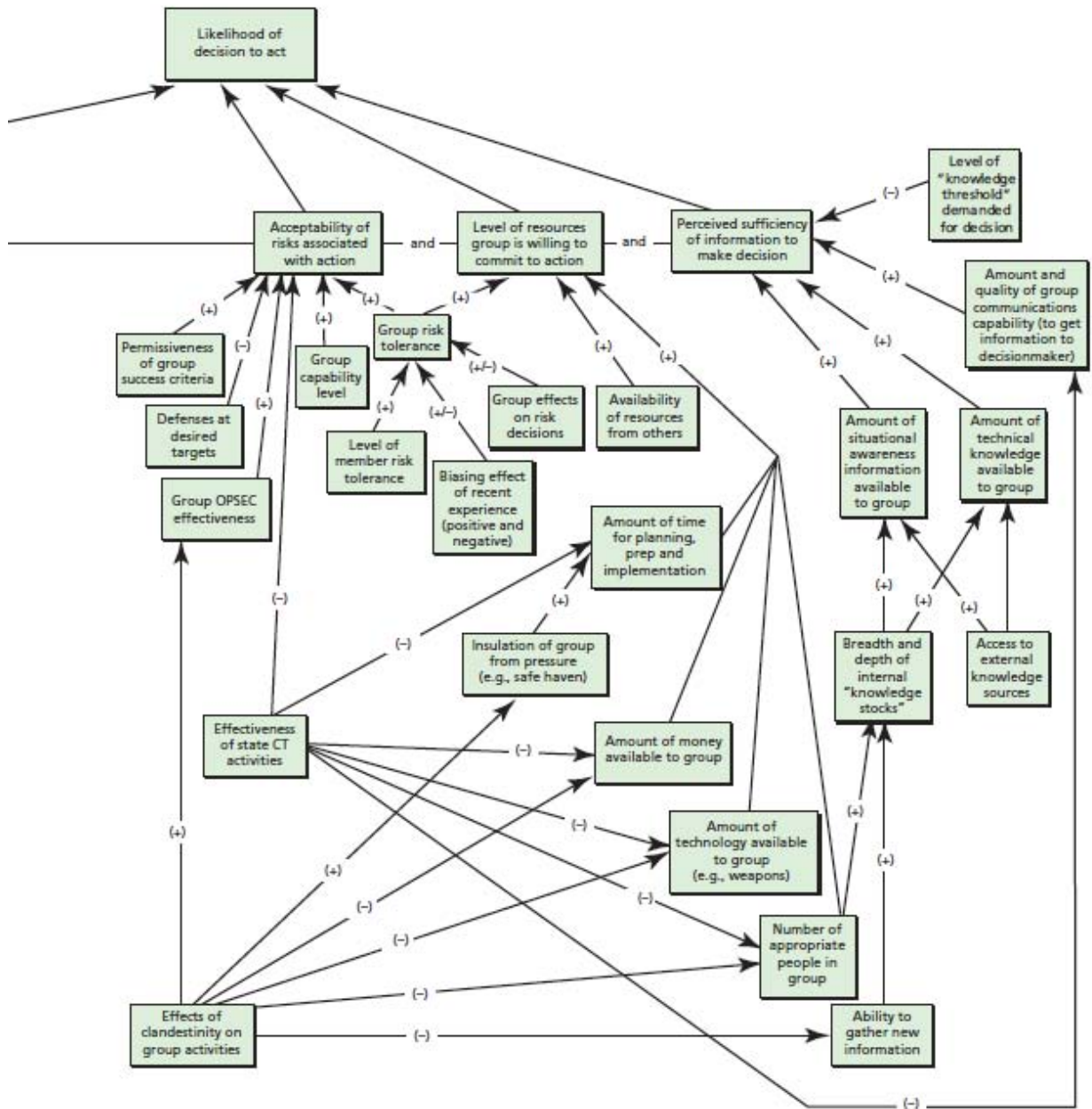*Figure 3 Factors shaping terrorist group decisionmaking (Jackson 2009)*

Figure 3(con't): Factors shaping terrorist group decisionmaking (Jackson 2009)

3.2 Antecedents to ANSA Decision Making

3.2.1 Individual Factors

Individual factors are characteristics of the organization's members that impact the group, and, in turn, the group's decision making process. As such, these factors are subsumed within the larger group/organization factors component of the model. Individual factors influence group processes by contributing to the overall structure and collective characteristics of the group. Each member, for example, enters the group with slightly different cultural values that combine and collectively impact the specific culture that develops within the organization. Similarly, individuals' unique belief systems (McCormick 2003) and personal goals contribute to the ideals and objectives that ultimately characterize the organization as a whole. Group members' past experiences have also been identified as significant contributors to organizational processes (della Porta 1992, 1995a, 1995b as cited in Creshaw 2000; Post, Ruby & Shaw 2002). Individual members' previous experience with violence, for instance, is thought to push the group toward violent, as opposed to nonviolent actions (Post et al. 2002). The decision to act is also influenced by a "bias to action" which often emerges in terrorist and related groups, and can produce pressure to act rather than waiting or reflecting on individual decisions (Crenshaw 2000; Drake 1998 as cited in Jackson 2009). This bias can shape group decision making norms and create potential conflict if it is stronger in some members of the organization than in others. Specifically, decision makers' attitudinal orientations toward risk can vary significantly, typically falling into one of three categories: risk acceptant, risk neutral, or risk averse (Dutter & Seliktar 2007). On a related note, individuals' perceptions of risk and uncertainty may differ, leading to different probability estimates of the possible outcomes that may result from action.

Emotions are another individual level factor that can largely contribute to the decision making process (Loewensten & Lerner 2003). Emotions can influence decision making in two distinct ways: expected emotions and immediate emotions. Whereas expected emotions are those that the decision maker predicts will occur as a result of the decision outcome, immediate emotions are experienced at the time of the decision and reflect a combination of anticipated emotions as well as emotions that arise from factors unrelated to the decision itself. Group decisions will likely be influenced by an overall emotional tone created by a combination of expected and immediate emotions experienced by individual members. Somewhat related to emotions and also critical to the group decision making process is the strength of individual members' commitment to the organization (della Porta 1992, 1995a, 1995b as cited in Creshaw 2000). Members who intensely identify with the group are more likely to support decisions that will maintain the support of their peers and increase their sense of belonging by engaging in shared risk.

Decision making in terrorist and related organizations can also be influenced by several other individual factors such as cognitive biases, personality traits, status, and self-concepts (McCormick 2003; Creshaw 2000). Further, the degree to which such factors influence group decision making may depend on characteristics of the group's organizational structure. Generally, researchers view terrorism and related behaviours as a group activity that is primarily influenced by shared, rather than individual characteristics (Crenshaw 2000). Crenshaw (2000), for example, argues that "shared

ideological commitment and group solidarity are much more important determinants of terrorist behaviour than individual characteristics" (p.409). In poorly organized groups, however, individual characteristics, particularly those of leaders, arguably become more important than socio-political factors (Sprinzak 1995). Regardless of the strength of their influence, however, individual factors clearly play an important role in group decision making, largely though their impact on group and organizational factors.

3.2.2 Group/Organizational Factors

Group and organizational factors are those that characterize the group as a whole and are thought to have a significant impact on sensemaking, and, in turn, decision making in terrorist and related groups. Several factors that are important at the individual level, such as biases and ideology, can also be influential at the group-level. We conceptualize group factors as fitting into one of two broad subcategories: group characteristics or collective cognitions, attitudes, and affect. Group characteristics include descriptive information about the qualities of the group itself. The structure of the group, for instance, is widely cited as an influential factor in the decision making process (Enders & Jindapon 2010; Post et al. 2002; Jackson 2009). Group structure can determine which group members are involved in the decision making process, and the degree of influence each member exerts on the final decision. While decision making might involve only a few members of high authority in hierarchically structured groups, the process is likely to be decentralized in groups that have flatter structures (Enders & Jindapon 2010). Importantly, individual nodes may not make decisions that are entirely optimal for the overall interests of the group. In a chapter on terrorist decision making, Jackson (2009) describes what is known as "the terrorist cell," either an isolated entity, or the smallest unit within a larger group structure. Cells can differ in the degrees to which they are linked to one another, and might have different functions, thus they might approach organizational decisions in distinct ways. Group structure can also influence the way information is processed, with information flowing from member to member more easily in highly, as opposed to loosely connected networks (Enders & Jindapon 2010).

Group history is another group factor that can greatly contribute to the decision making process in ANSA groups (Post et al. 2002). The group's collective knowledge of their previous decision making experiences and the value of the corresponding outcomes will likely be considered in future decisions. Further, terrorist groups often adopt the norms and procedures of their predecessors, basing decisions on a traditional course of action rather than on the specifics of the situation at hand (Dunn 1972 as cited in McCormick 2003). Decision making can also be influenced by additional group characteristics such as group composition, group size, and leadership style (Jenkins 1980; Feinstein & Kaplan 2010; Post et al. 2002).

The second category, collective attitudes and cognitions, refers to certain perspectives and thought processes that are shared by the group and play a significant role in group-level decision making. Perhaps most importantly, the overall ideology and primary objectives of the organization will likely be driving forces in the decision making process (Sanchez-Cuenca & Calle 2009; Jackson 2009; Post et al. 2002; Dutter & Selikatar 2007; McCormick 2003). Strategic theories of terrorist decision making identify the expectation of how a decision will influence the group's objectives as one of a few primary factors

influencing the decision making process (March 1994 as cited in McCormick 2003). Jackson (2009) cites group goals, interests, and values as a major class of elements shaping terrorist groups' decisions to act. The type of goal can further influence the specific course of group decision making. A distinction can be made, for example, between goals that are fundamental, and those that are instrumental (Dutter & Seliktar 2007). Similarly, terrorist and related groups must strive to achieve a constant balance between establishing influence and maintaining their own security (Enders & Jindapon 2010; McCormick 2003). As such, decision making often involves identifying the optimal trade-off between primary group objectives and security objectives. Further, sub-goals sometimes develop that do not necessarily reflect the overall purpose or goals of the group (Jackson 2009). As an example, certain members might adopt criminal means of accumulating resources in order to support their own standard of living. As individuals become more invested in the organization, the survival of the group might also become a goal in and of itself that can play a role in group-level decision making.

On a related note, groups also make decisions based on common expectations about the potential consequences of a decision, and a shared understanding of the value or risk associated with such consequences in relation to the group's objectives (Feinstein & Kaplan 2010; Jackson 2009; McCormick 2003; Noricks et al. 2009). Decisions will be evaluated in terms of the group's perceptions of the risks involved, as well as their understanding of the degree to which risks are tolerated or acceptable within the group (Jackson 2009). Similarly, groups make judgments about the resources that are required to carry out specific decisions, and compare that assessment to the group's norms regarding the amount of resources they are typically willing to expend. On the other hand, groups also develop shared beliefs regarding the payoff that could result from a particular decision, and subsequently determine how that decision can advance group interests or goals. This often requires agreement about which audiences are important to them, and a judgment about the likely reactions of such audiences.

The decision making process is also significantly influenced by cognitive and affective biases that develop within the group or organization (Jackson 2009; McCormick 2003; Post et al. 2002). Because terrorist and related groups often operate on a discrete or clandestine level, they are thought to be particularly susceptible to such biases. Decision making can quickly become a closed, rigid process, which interferes with the group's ability to accurately interpret external information and adapt accordingly (Simmel 1950 as cited in McCormick 2003). These groups can form their beliefs based on incomplete reflections of reality, creating ideas that are increasingly removed from their dominant, and even their subcultures (della Porta 1992 as cited in McCormick 2003). Every aspect of the group's decision making process—its views of itself and its enemies, its ability to identify and respond to changes in its environment, and its ability to accurately weigh the costs and benefits of alternate decisions—is greatly impacted by this false sense of reality. Certain types of biases appear to be particularly prevalent in terrorist and similar groups. Groupthink, for example, promotes conformity in thought processes and decision making through group pressures and norms (Jackson 2009). Group members' desire for approval and consensus may inhibit their ability to realistically appraise alternative courses of action (Post et al. 2002), pushing decisions away from what might appear optimal to an outside observer (Jackson 2009). Another bias influencing group decision making is polarization, or what has been termed "risky shift" (Post. et al. 2002). Risky

shift refers to the tendency for groups to make decisions that are more risky than those that would have been made based on either individuals deciding alone, or on an average of those individual decisions (Jackson 2009). Terrorist groups are also said to have a bias toward action due to continuous pressure to act in order maintain influence (McCormick 2003). Other factors that can introduce bias into decision making include internal loyalties or dynamics that limit dissent and questioning, and the group's immediate past experiences (Jackson 2009).

As described above, decision making can be influenced by a number of group and organizational factors. Recent research has identified another characteristic—whether a group's operations are classified as either "old" or "new" terrorism—that encompasses several of the other factors, thus largely impacting the decision making process (Crenshaw 2000). "New" terrorism is thought to differ from "old" terrorism in regards to goals, methods, and organization (Hoffman 1999 as cited in Crenshaw 2000). Specifically, "old" terrorists seek short-term political power through revolution, national liberation, or secession (Crenshaw 2000). Terrorism is a form of communicating a specific message to an audience and results are anticipated in the here and now. Such groups are highly tight and centralized, leading group members to experience strong group solidarity, intense personal loyalty to each other, and particularly distorted perceptions of the outside world (Sprinsak 1995 as cited in Crenshaw 2000). In contrast, "new terrorists" are motivated by religious imperatives and seek to transform the world. Rather than earthly constituencies, they feel accountable only to some form of deity or mystical idea, thus do not seek popular support, and are less likely to claim public credit for their actions. "New terrorists" are more inclined to use highly lethal methods, and have been described as using unlimited means to accomplish unlimited ends (Crenshaw 2000). Such organizations are decentralized, diffused, and highly unorganized. Though it is not clear whether ANSA groups can also be categorized as more traditional or modern, these distinctions in terrorist groups clearly emphasize the impact of group and organizational factors on the decision making process.

3.2.3 Contextual Factors

The final category of factors in our model that can influence ANSA group decision making is contextual factors, or those that are external to the group. Like group/organizational factors, we divide contextual factors into two subcategories: environmental characteristics and socio-cultural characteristics. As implied, environmental characteristics are simply attributes of the operating environment or situational demands. The specific resources required to carry out a particular decision, for example, are perhaps the most prominent environmental factor influencing group decisions (Feinstein & Kaplan 2010; Jackson 2009; Noricks et al. 2009). Resources to consider include such things as planning time, human resources, and financial costs (Feinstein & Kaplan 2010). The amount and type of available resources can also drive the decision making process. Groups can receive different types of support, for example, ranging from ideological, financial, or material support, to operational support, such as weapons, training, and troops (Post et al. 2002). Informational resources are also major contributors to group decision making (Jackson 2009). Jackson (2009) argues that terrorist groups have different thresholds for the amount of information they require before they decide to act. Two broad types of information are required: situational

awareness, or the group's understanding of its environment, and the technical knowledge needed both to evaluate alternative courses of action and also to implement the final decision. Groups can attain information through other groups, state sponsors, and sympathetic individuals external to the group, to name a few.

Decision making can also be driven by environmental pressure or threat, whether it be real or perceived (Post et al. 2002). For example, the group might perceive a serious threat to individual members or leaders resulting from arrests, physical attacks, or catastrophe. Highly threatened groups are more likely to arrive at extreme, or high-risk decisions. Other environmental characteristics include time pressure (McCormick 2003), overall costs (Feinstein & Kaplan 2010), and counterterrorism policies (Jackson 2009).

Socio-cultural characteristics, the second category of contextual factors, also play a prominent role in group decision making. (A second contract team in support of TIF Project 10ad08 carried out a comprehensive review of the scientific literature exploring the socio-cultural context of violent intergroup conflict. It expands on many of the points mentioned here. See Taylor et al. 2010.) Historically rooted or current conflict between domestic groups, for example, might trigger certain responses from terrorist and related groups (Post et al. 2002). Conflict can arise on the basis of ethnic-, religious-, or socio-economic class-based differences. Access to critical resources and political power can also be a source of conflict between groups. Even in the absence of a current conflict, the politicization of historical conflicts and grievances can open "old wounds" (Post et al. 2002, p.79). The presence of opponents, such as a regime, government, competing groups, or a specific enemy, will also feed into the decision making process (Post et al. 2002). Similarly, constituents and supporters can also play a role by providing resources, or encouraging or deterring certain courses of action.

Political, economic, and social instability are other important contextual variables, largely thought to precipitate violent decisions among terrorist groups (Post et al. 2002). Finally, defenders' resources (Dutter & Seliktar 2007), counterterrorism efforts (Jackson 2009), societal norms, and political structure, can all be driving forces in decision making in terrorist and ANSA groups.

3.2.4 Sensemaking

While individual, group, and contextual factors influence the decision making process, it is important to understand through what mechanism they do so (Ilgen et al. 2005). Upon entering a situation where a decision is required, the group engages in a filtering or sensemaking process by which the situation is interpreted based on the many individual, contextual, and group factors that can influence decision making. As characterized by Weick (1995), sensemaking "involves turning circumstances into a situation that is comprehended explicitly into words and that serves as a springboard into action" (p.409). From this perspective, we can see that sensemaking is not an objective process, but instead involves the constitutive development of subjective understanding of the environment. Because of this subjectivity, different individuals may develop unique perspectives of the environment, even for teams that experience the exact same incident.

This sensemaking idea stems from research regarding the use of a cultural lens to filter through cultural beliefs in order to determine what cultural factors will influence a person

in a given situation. Klein (2004) first conceptualized the notion of a cultural lens as being derived from various individual and collective characteristics/cultures, moderated by the situational context. It is the situation that determines which cultural characteristics will be most prescient to the individuals engaged in the decision making process. In other words, the individual, group, and contextual factors which emerge in this decision making context can be any set of factors that has the most influence. Hence, it can be the culture found at the individual, team or organizational level – whichever culture has the most influence over behavior given the context.

This idea translates well into the concept of ANSA decision making, especially in a group decision making context. As a situation begins to unfold, these groups must determine the important characteristics of the situation, yet this does not occur in a vacuum. Instead, the interpretation of a situation through making sense of it is heavily influenced by these individual, group, and contextual factors. This in some ways is similar to the Brunswick Lens model of decision making, in which individual interpretations of cues in the environment influence decision making. However, our framework presents this sensemaking as a separate component outside of the decision making itself, as this initial round of sensemaking is simply developing a frame for the environment that is affected by the factors that influence the ANSA group as a whole. For example, an ANSA group with a history of rebelling against another group may interpret this other group's actions in a situation very differently than with a group with which they have never had any negative interactions. Furthermore, how the ANSA group interprets this situation can make a difference in terms of how they decide to approach making the decision itself. Therefore, sensemaking regarding the surrounding environment precedes the actual decision making process. Subsequently, the framing of the decision based on this sensemaking will determine how decision strategies are selected.

3.2.5 Decision Making Strategy Selection

As discussed previously, depending upon how ANSA groups make sense of the inputs and contextual factors in a given situation, it is expected that groups will select from the continuum of decision making strategies previously discussed (i.e., classical decision making, behavioral decision making, naturalistic decision making). For example, it may be possible that when faced with time pressures and uncertainty, groups may be more likely to use naturalistic decision making as they can draw upon previous expertise and experience.

Other combinations of the factors presented above may also influence the selection of a decision making strategy. As previously discussed, when making decisions, groups tend to either involve everyone, such that individual perspectives are brought together in order to form a group consensus, or approach decisions from a "judge-advisor" system, where there are multiple inputs but only one decision maker (Kerr & Tindale 2004). Determining which approach is most appropriate for a given decision can be dependent upon how the ANSA group makes sense of the situation prior to entering the decision making process.

Furthermore, in addition to the more traditional approaches to group decision making, it is important to also explore what is specifically known regarding the decision making

strategy selection of ANSAs and related groups. Based upon our review, there appears to be very little literature that directly explores ANSA decision making. Furthermore, while we recognize that ANSAs are not the same as terrorist groups or organizations (Policzer 2005), we do believe that the perspectives on terrorist group decision making may be useful in informing our understanding of ANSA decision making, as many of the factors (e.g., historical background of the country, threats to local community, religious beliefs) that guide terrorist group decision making may also influence ANSAs. Therefore, the following provides an overview of what is known regarding terrorist group decision making.

Terrorist groups and their decision making processes have long been topics of interest for policy-makers and researchers spanning multiple fields. Identifying and understanding the factors that influence groups' decisions mark powerful steps toward the development of effective negotiation and defensive strategies. Various frameworks for understanding terrorist decision-making have been proposed, each emphasizing different components of the overall process. Historically, scholars have viewed terrorism as either a means to an end (i.e., rationalism), or a means of individual expression (i.e., expressionism) (McCormick 2003). Such views have guided theories of terrorist decision making, and continue to play a role in more recent perspectives.

Three prominent approaches to understanding terrorist decision-making have emerged, namely the strategic frame, the organizational frame, and the psychological frame. In strategic theories, terrorism-related decisions are viewed as rational, instrumental choices aimed at accomplishing specific group objectives. Decisions are predominantly influenced by factors external to the organization. In contrast, factors internal to the group itself are the primary determinants of decision-making in organizational perspectives. Finally, in psychological theories, individual psychology is considered central to the decision-making process. We draw from these theories to guide our discussion of factors that significantly influence decision-making within ANSA and terrorist organizations.

The strategic model of terrorist decision-making can be further divided into two sub-approaches (McCormick 2003). In the first approach, terrorist groups are assumed to act with a "collective rationality" (Crenshaw 1990). Specifically, in this perspective, a terrorist group is viewed as a unitary actor characterized by a single set of beliefs and preferences rather than a collection of divergent viewpoints. Decisions are thus made by a single mind as opposed to being influenced by multiple, individual thought processes. In contrast, our approach to terrorist decision-making incorporates both individual- and group-level factors. Characteristics of the group itself and the individuals comprising it are thought to have reciprocal influences on one another. While individual characteristics combine to influence the group, the group also feeds back and influences its individuals. Though individual characteristics are considered in the psychological approach, our model differs from existing frameworks in that it incorporates both individual-level and group-level factors thought to influence decision-making, as well as their potential impact on one another.

The second sub-approach, namely the "procedural" theory of strategic decision-making, assumes terrorist groups operate based on incomplete perceptions of reality (Simon 1997 as cited in McCormick 2003). While they make decisions rationally, according to their

beliefs, such beliefs are invariably flawed. In line with this view, as we discussed above, our framework of terrorist decision making assumes factors influencing decisions are colored by individual and group perceptions. Environmental factors, in particular, reflect the group's perceptions of such factors, and not necessarily objective facts.

In sum, there is much that can be gained from exploring the terrorist decision making literature in terms of understanding ANSA decision making. However, this literature must be supplemented with what is known regarding more general approaches to individual and group decision making in order to provide a more comprehensive perspective to understanding how ANSAs make decisions.

4 Summation

4.1 Recommendations for Future Research

Overall, the literature specifically regarding ANSA decision making is very limited. While we can draw from group decision making and other groups similar to ANSAs (e.g., terrorist organizations), additional research specific to ANSAs is necessary to determine not only the appropriateness of the aforementioned framework, but also how to successfully intervene during the ANSA decision making process to reduce the likelihood of negative outcomes. While research in this domain is no easy endeavor, there are a number of methods that can be implemented to gain a better understanding of decision making specifically in ANSA groups (see Table 3 for a summary).

Table 3 Recommendations for future research

Recommendation	Description
Historiometric Methods	• Analysis of existing sources of data (e.g., interview records, newspaper and magazine articles, audio and video recordings of news stories). • Quantifies qualitative data, facilitating the identification of important relationships. • Minimizes experimenter biases. • Allows for the examination of behavior as it is embedded in its natural social context. • Contact with ANSA groups is not necessary.
Qualitative Methods	• Interviews with ANSA individual members and/or groups. • Observation. • Social network analysis.
Archival Data	• Analysis of group documents and records. • Can provide rich information regarding group characteristics and cultural context. • Information may be biased toward decisions that had negative outcomes rather than decisions not to act.

First, historiometic methods can be used to analyze existing sources of data relating to ANSAs, such as interview records, newspaper and magazine articles, and audio and video recordings of news stories. In this approach, qualitative data can be quantitatively coded, facilitating correlational analyses and the identification of important relationships. The historiometric approach is ideal for ensuring findings are relevant to important situations, as unimportant situations are typically not historically documented. Historiometric analysis has additional advantages including the minimization of experimenter biases, as we rely on data produced by historians, biographers, and archivists. Most importantly for our purpose of generating a new conceptualization of ANSA decision making is the ability to examine behaviour as it is embedded within its

natural social context. Historiometric analysis has made significant contributions to social psychological research such as Janis's Groupthink phenomenon, and, more recently, leadership theory (O'Connor et al.1995; Strange & Mumford 2002). Furthermore, this technique allows the researchers to uncover relationships without having to make contact with ANSA groups.

In contrast, another method that can be employed is to interview ANSA individual members and/or groups. As feasible, researchers can establish contact with former ANSA members and pose a series of questions relating to decision making in their former groups. Other qualitative techniques such as observation or social network analysis can also be implemented when possible in combination with interviews in order to more completely extrapolate contextual information and develop a more accurate understanding of ANSA decision making.

Finally, archival data, such as group documents and records, can be analyzed for factors relating to ANSA group decision making. As there are many available archives regarding ANSA actions, it may be possible to derive data from such archives to explore characteristics of the ANSA groups and the cultural contexts within which their decisions were made. However, this information typically provides a one-sided view of ANSA decisions, in that most of the available information will focus primarily on decisions that had negative outcomes (e.g., attacks, kidnappings) as opposed to decisions not to act in a negative manner.

4.2 Limitations

There are a number of limitations to the information provided in this report that should be addressed. First, as described in our methodology, very limited literature exists dealing specifically with ANSA groups. To develop our framework, we thus relied on findings from related literature bases such as those pertaining to terrorists, guerillas, and other radical groups (e.g., McCormick 2003: Post et al. 2002). While we recognize that such groups are not necessarily the same as ANSA groups (Policzer 2005), we argue that similarities exist that render related literatures highly informative and instrumental in our understanding of ANSA decision making. On the other hand, we understand that ANSA groups can differ considerably from terrorist groups in regards to such things as group ideals, overall objectives, and organizational structure, to name a few.

Nevertheless, we believe our framework is applicable to ANSA groups because broad categories and types of factors that influence decision making are described, rather than aspects highly specific to certain terrorist groups. For example, we identify organizational structure as a group-level factor contributing to the decision making process. Though ANSA and terrorist groups may have different structures, what can be gleaned from our findings is the relative importance of structure, regardless of the specific type. Hence, while most of the factors in our framework were identified and supported through terrorist-related literature, general themes can be abstracted and applied to ANSA decision making.

Second, regardless of the type of group in question, the bulk of the relevant literature lacks empirical support. Understandably, investigating terrorist and related groups is

extremely challenging, if not sometimes impossible. However, it is worth noting that much of the literature used to inform our framework is based on case studies, or is theoretical in nature. While such research is highly valuable, the general lack of empirical evidence should be considered when interpreting and applying our findings.

Finally, as mentioned, there is a wealth of research theorizing about, or conducting case studies on, the factors that influence terrorist groups' decisions to act. What is missing, however, is research regarding decisions not to act. For every decision to act, there are likely exponentially more decisions not to act that are never reported. As such, our reported findings are based more on research relevant to groups' decisions to act and less on literature pertaining to decisions not to act. Future research incorporating the decision not to act could be highly beneficial, as it could have important implications for policy makers aiming to influence ANSA decision making.

4.3 Conclusion

Certainly, group decision making is a well-studied topic in the arena of team and organizational decision making. However, little is known regarding how ANSAs as a special type of group make decisions. We hope that with our framework, we can provide unique insight that combines knowledge from organizational psychology and related disciplines (e.g., terrorist decision making literature) to more accurately inform our understanding of these groups.

Our framework identifies both antecedents as well as moderators we believe to be relevant to the ANSA decision making process, which may be viewed as intervention points from a military influence operations perspective. This should help to recognize and guide future research as well as the development of training interventions to better understand ANSAs. For example, changes to a power structure within an ANSA, coupled with a new set of opponents in the local region, may lead to very different decision making processes for that ANSA than for an ANSA whose power structure remains constant as new opponents emerge. Subsequently, being able to recognize that such changes have an impact on decisions and outcomes is critical for military practitioners. Training interventions to improve or enhance their ability to recognize these changes could therefore be designed as one means to address this issue.

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(U) As Armed Non−State Actors (ANSAs) become increasingly involved in both perpetuating and resolving persistent social conflict, understanding the strategic decision making of these groups is critical. To address this issue, we conducted an extensive literature review focused on determining what is known regarding judgment and decision making approaches considered in the context of team, small group, and organizational settings. Our review resulted in the development of a guiding framework that draws upon group decision making literature, as well as specific facets of ANSA and terrorist decision making literature to identify the key antecedents to ANSA decision making, as well as the factors that may moderate the processes in which decisions are made. Specifically, such factors were categorized as group/organizational factors, individual factors, or contextual factors in the context of our framework, and their influence on group sensemaking, and in turn, decision making, were explored. These three broad categories encompass a range of factors that can influence ANSA decision making, providing a streamlined lens through which we can begin to understand it and make valuable predictions. Our framework thus sets the stage for future research as well as the development of training interventions designed to understand and influence ANSA decision making.

(U) Puisque les acteurs armés non étatiques (AANE) sont de plus en plus actifs tant en provoquant des conflits sociaux durables qu'en aidant à les résoudre, il est crucial de comprendre le processus décisionnel stratégique de ces groupes. À cette fin, nous avons effectué une analyse documentaire exhaustive dans le but de déterminer ce qui est connu des modes de jugement et de prises de décision des équipes, des petits groupes et des organisations. Ce travail a débouché sur une structure directrice, inspirée des ouvrages traitant des processus décisionnels collectifs de même que des aspects spécifiques des AANE, et des ouvrages traitant des processus décisionnels des terroristes, laquelle permettra d'identifier les antécédents clés des décisions des AANE, ainsi que les facteurs qui tempèrent les processus décisionnels. Nous avons en particulier catégorisé ces facteurs en facteurs collectifs et organisationnels, en facteurs individuels et en facteurs contextuels à l'intérieur de la structure, et nous avons scruté leur influence sur le raisonnement des groupes et, conséquemment, sur leur prise de décisions. Ces trois grandes catégories englobent une foule de facteurs susceptibles d'influer sur les décisions des AANE, lesquels nous fournissent une vision simplifiée qui amorce une compréhension du processus décisionnel et la formulation de prévisions utiles. Notre structure jette les bases pour les recherches futures et pour la conception de modules de formation visant à faire comprendre le processus décisionnel des AANE et à agir sur celui−ci.

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(U) ANSA; armed non−state actor; decision making; group decision making; organizational decision making

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