The Hague Centre for Strategic Studies

Behavior-Oriented Operations in the Military Context

Enhancing Capabilities to Understand and Anticipate Human Behavior

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Glossary

Term	Definition
Actor analysis	Actor analysis is a systematic study of actors, from individuals to groups and populations, that influence the operational environment. The study identifies accessibility, vulnerability, and susceptibility to behavioral and attitudinal influence.
Behavioral Dynamics Methodology (BDM)	The BDM is a scientific approach to conducting effective and measurable strategic communication, influence and behavior change. At its core is a research-based and comprehensive Target Audience Analysis (TAA) component.[1]
Behavior-oriented operations	Military activities that focus on influencing and shaping desirable behavior of actors to advance mission objectives.
Commander's intent	A short expression of the operation's aim, stating the desired effects, and how the execution should develop towards the desired end state (Doctrine Publicatie 3.2.2).
Cognitive dimension	The cognitive dimension is defined as a sphere composed of human perceptions, wills, beliefs, attitudes, and decision-making which commonly can be influenced to change and/or shape behaviors of actors.
Dimension	A dimension is a sphere in which effects are observed. The Dutch doctrine distinguishes effects in the physical, virtual, and cognitive dimensions.
Desirable behavior	Desirable behavior is the behavior of a target audience that a campaign intends to stimulate or maintain to achieve commander's intent. In contrast, behavior of a target audience that undermines the achievement of commander's intent is undesirable.
Domain	An operational domain is a sphere in which military capabilities are organized. The Dutch doctrine distinguishes capabilities in maritime, land, air, space, and cyberspace domains.
Effects	Refers to the impact of operations on the behavior of actors in the physical and virtual dimensions, and unobservable impacts on actors' perceptions, beliefs, and attitudes in the cognitive dimension.

[1] Emic Consulting, "The Behavioural Dynamics Methodology For Strategic Communication And Behaviour Change," 7.

Emic perspective	Pertaining to the view from within; developed with the mind of an individual or a culture; meanings developed in terms of native categories .[2]
End state	The ultimate effect to be achieved on the operational and tactical levels or the goal of the higher level. It indicates the expected own and threat situation that must be achieved, if feasible, at the end of the deployment (Doctrine Publicatie 3.2.2).
Factor analysis	Factors encompass all characteristics relevant to the operational environment. Factors analysis aims to systematically categorize gathered information to improve the understanding and identify key conditions and trends.
Force-oriented operations	Military activities that focus on destroying key capabilities in order to restrict adversaries' freedom of maneuver.
Human domain	The human domain is an emerging concept without an agreed definition. Based on common features of various definitions, this report defines the human domain as the whole of interactions between human actors (individuals, groups, and populations) including their perceptions, decision-making, and behavior in the context of their broader environment.
Maneuvering	Achieving a position of advantage in respect to an adversary.
Maneuvrist approach	The 'maneuvrist approach' is an umbrella term to describe all operations that aim to break the will, cohesion, and distort perception of the adversaries and other relevant actors.
Mapping	A process that aims to create a comprehensive map of the operational analysis. It is composed of the analysis of factors and actors, that is observable systems and people that influence the operational environment.
Operational environment	An umbrella term that describes the environment in which a military unit conducts their operations.
Psychological Operations (PSYOPS)	Planned activities using methods of communication and other means directed at approved audiences in order to influence perceptions, attitudes, and behavior, affecting the achievement of political and military objectives. (NATO Term)

[2] Darvill, *The Concise Oxford Dictionary of Archaeology*.

Strategic Communication (STRATCOM)	STRATCOM, in the context of the NATO military, is the integration of communication capabilities and information staff function with other military activities, in order to understand and shape the Information Environment, in support of NATO aims and objectives. (NATO Term)
Target Audience (TA)	An individual or a group selected to be a target of operations.

Abbreviations

1 CMI	1 Civil and Military Interaction
1 GNC	1st German/Netherlands Corps
ASIFU	All-Sources Information Fusion Unit
BCW	Behavioral Change Wheel (Framework)
BDM	Behavioral Dynamics Methodology
CD&E	Concept Development and Experimentation
COM-B	Capability, Opportunity, Motivation, and Behavior (Model)
HTS	Human Terrain System
HUMINT	Human intelligence
IMINT	Imagery intelligence
JC-HAMO	Joint-Concept for Human Aspects of Military Operations
KLE	Key Leader Engagement
MINUSMA	The UN Multidimensional Integrated Stabilization Mission in Mali
NDD	Netherlands Defense Doctrine
OSINT	Open Source Intelligence
PMESII	Political, Military, Economic, Social, Information, and Infrastructural Factors Framework
PSYOPS	Psychological Operations
RAA	Reasoned Action Approach
RNLA	Royal Netherlands Army
SCAF	Socio-Cultural Analysis Framework
SME	Subject Matter Expert
STRATCOM	Strategic Communications
TA	Target Audience
TAA	Target Audience Analysis
TTP	Tactics, Techniques, and Procedures

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Executive Summary

Each military intervention influences human behavior. With the growing complexities of modern warfare, grey zone conflicts, and the increasing diversity of both local and global actors, there is a need for the military to carefully consider ways in which actors' behavior is influenced. After the wars of the last two decades, it became clear that the use of force alone does not guarantee success; instead, it is necessary to "outmaneuver in the human domain to achieve a true victory".[3] However, "it is no good winning 'hearts and minds' if the behavior does not change."[4] The question for the military then becomes how to integrate actor-centric and behavior-oriented considerations into the cycle of information gathering, intervention planning, and decision making to enhance the capabilities to influence behavior of relevant actors and pursue military objectives.

This report aims to discover: how to accurately interpret and effectively influence human behavior to achieve military objectives? To inform this study, HCSS invoked a combination of methods: interviews, a design workshop with military practitioners, qualitative field research, and an extensive literature review. This concept development and experimentation (CD&E) approach was further informed by experimentation (i.e. dashboard development) that yielded insights into conceptual, methodological, and procedural aspects of influencing behavior in a military context. While the study was commissioned by and primarily aimed at the Royal Netherlands Army (RNLA), findings are applicable to improve maneuvering techniques beyond land operations and even beyond the Dutch military forces.

In Chapter 1, we define 'behavior-oriented operations' as all military activities focused on influencing and shaping desirable behavior of actors to advance mission objectives. We differentiate this term from 'force-oriented operations', which concentrate on destroying key capabilities to restrict adversaries' freedom of maneuver, without controlling for the impact on the behavior of actors. The behavior-oriented approach highlights that regardless of the tempo and intensity of conflict, the military activities generate effects that in the long-term may undermine mission objectives and thus should be avoided. The term 'behavior-oriented approach' is chosen to highlight integration of techniques to the military practice, rather than a separate line of efforts. We recognize that the military should always strive to prevent undesirable effects of operations on the behavior of actors, though the ability to do so depends on the depth of acquired understanding of root causes and the planning horizon. We carry this consideration throughout the report to improve the applicability of a behavior-oriented approach to maneuvering at all levels of operation.

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[3] Flounders, "Multi-Domain Thinking and the Human Domain."
[4] Hutchinson, "Influence Operations," 13.

In Chapter 2, we discuss the conceptual and doctrinal frameworks relevant to operations that look beyond the kinetic force and acknowledge the consequences of influencing behavior of actors. The choice of terminology is relevant to the way influencing behavior is conceptualized and operationalized within the military context. We note that the Netherlands Defense Doctrine (NDD) defines the dimensions model to underline the indirect impact of operations on the cognitive dimension. We further discuss the added value of the dimensions model. Having surveyed an abundance of existing terms relevant to the human-related aspects of the operational environment, we notice great discrepancies amongst the NATO forces' lexicons. We note trends in defining the 'human domain', although we acknowledge that the relevance of a sixth operational domain to doctrinal frameworks continues to be contested. To stay close to the NDD frameworks, we recommend strengthening the understanding that the behavior of actors is influenced in all types of operations across all domains by formulating a consolidated domains-dimensions model. This model shows that all military operations, regardless of the domain, influence behavior in the physical and virtual dimensions and minds in the cognitive dimension.

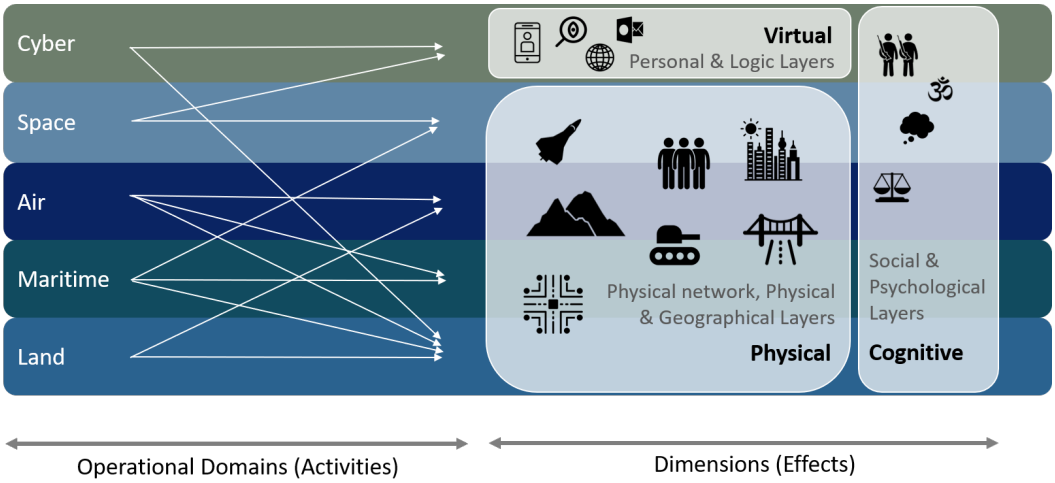

Figure 0.1: Consolidated domains-dimensions framework.

In Chapter 3, we extensively discuss the methodology of mapping the operational environment for behavior-oriented operations. We highlight that commander's intent should define the desirable end-state, including the behavior of actors. This way the commander emphasizes that information gathering and mission planning should take into consideration the effects in all three dimensions – virtual, physical, and cognitive. We then build upon current methods to improve the analysis of the operational environment in a manner that yields improved insights into the root causes of conflict. First, we recommend enhancing the PMESII[5] framework by using the Socio-Cultural Analysis Framework (SCAF).[6] This approach systematically divides categories into actionable questions and improves to comprehensively understand the human

[5] Political, Military, Economic, Social, Informational, and Infrastructural Framework.
[6] Socio-Cultural Analysis Framework.

environment. Second, we note that intent is not a sole, and often weak, predictor of human behavior. Therefore, in the suggested actor analysis, we highlight the role of external factors (e.g. financial limitations, cognitive biases, social norms) in the formation of human behavior. We propose not to categorize actors as adversary, neutral, and friendly, because we observe that actors may easily shift in this spectrum and be adversarial towards one matter and neutral/friendly towards another. We list five steps of analysis: (1) the conflict map, (2) problem exploration, (3) target audience analysis, (4) channels of communication, and (5) influence assessment (COM-B[7] model) (see Figure 0.2). The actor analysis in this report aims to understand and anticipate the behavior of groups. The objective is not to substitute current methods with new frameworks but rather to share insights of practitioners and academics into ways that existing practices can be streamlined and enhanced. Lastly, we discuss the need to integrate information across departments and units in the armed forces, to access local knowledge, to collaborate with cultural advisors and subject matter experts, and to ensure continuity of assessment by building upon the knowledge of the human environment of previous rotations. The methodology described in this Chapter assists in understanding the conflict dynamics from relevant actors' emic perspective[8], builds situational understanding and awareness, and significantly improves foresight capabilities in relation to the human environment.

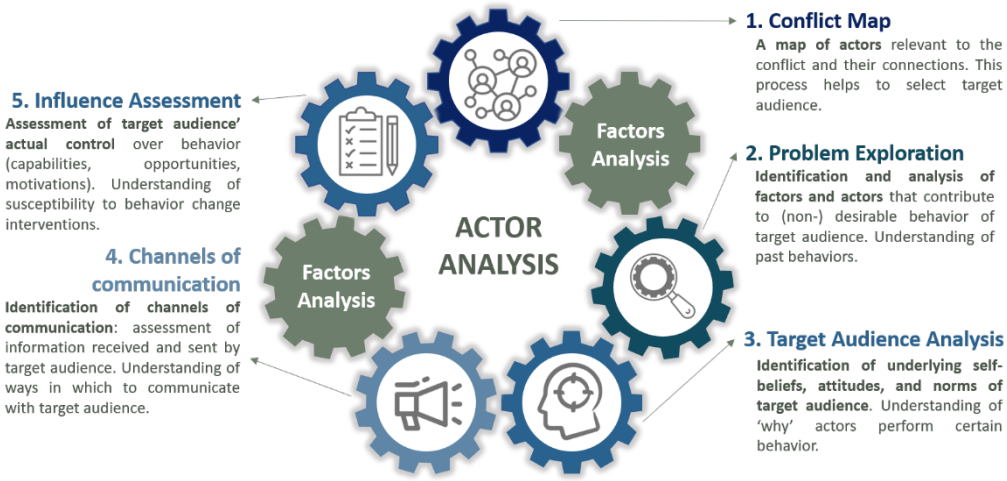

Figure 0.2: Schematic overview of the actor analysis.

In Chapter 4, we discuss the connection between the understanding of the human environment and approaches to designing operations that prevent undesirable behavioral effects and promote desirable results. We propose the following principles of the behavior-oriented approach: (1) actor-centricity, (2) forward-looking perspective, (3) horizontal and vertical coherence, (4) agility, (5) timeliness, and (6) integration. These

[7] Capabilities, Opportunities, Motivations Model, which forms an integral part of the Behavior Change Wheel Framework.

[8] Emic perspective is defined as perspective pertaining to the view from within; developed with the mind of an individual or a culture; meanings developed in terms of native categories (*The Concise Oxford Dictionary of Archaeology,* Oxford University Press). As the Dutch Army uses the Behavioral Dynamics Methodology we stress the importance of the Emic perspective being a central tenet of the Behavioral Dynamics Methodology.

six principles provide a lens through which operations should be conducted. We additionally consider in more depth three aspects relevant to the design of behavior-oriented interventions: effects, techniques, and resources. First, military forces should consider how interventions influence the behavior of the target audience and whether they generate any side effects on the minds of other relevant actors. Quantitative and qualitative analyses of the human environment improve the accuracy of predictions. Second, the military should further incorporate both kinetic and non-kinetic force to shape and influence the behavior of actors. To this end, the planning of behavior-oriented operations should be vested with the main planner. Third, the military needs to ensure flexibility in acquiring and providing units with access to a range of non-kinetic resources (e.g. cyber, money, a TV broadcasting station) to facilitate the implementation of the behavior-oriented approach. We highlight that designing operation through the behavior-oriented approach is an iterative process, which should be continuously informed by the evolving understanding of the relevant actors.

The approach presented in this report demands the development of a behavior-oriented mindset. This may be achieved in the long-term by adapting training, educating, improving collaboration with SME's, and facilitating the exchange of knowledge between those with kinetic and non-kinetic military experience. Shaping behavior is an art that may not be constrained to a specific department or unit in the military; it requires full cooperation and synchronization of actions with other governmental entities and external non-governmental stakeholders to achieve desirable effects.

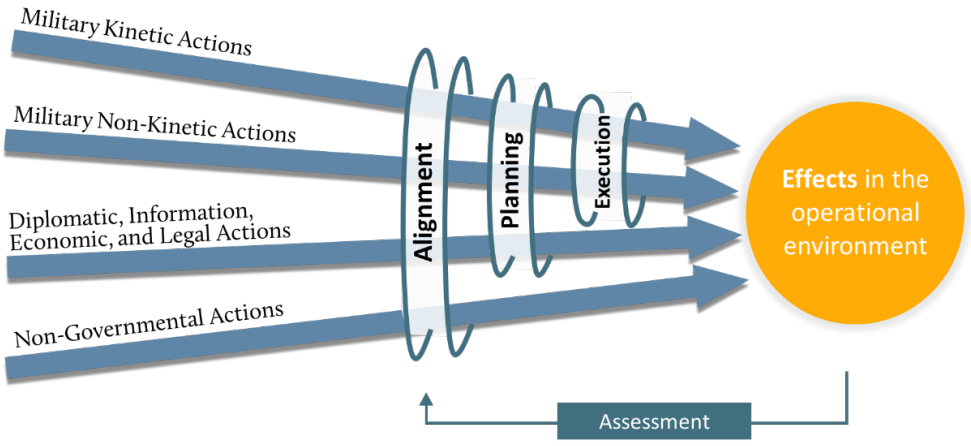

Figure 0.3: Integrating a behavior-oriented approach to operations.

In Chapter 5, we conclude that the biggest challenge to the implementation of behavior-oriented operations is its current separation into independent categories of psychological operations, information maneuver, strategic communications, or cyber operations. Instead, we advocate for the integration of behavior-oriented considerations into doctrinal frameworks, information gathering, analysis and interpretation, and the planning and decision-making phases of all operations. Given a long-standing tradition to employ force-oriented operations, there is a need to change mindsets, adapt training programs, and improve cooperation internally between

branches and externally with experts, local organizations, and SME's. This process is already ongoing, and we are hopeful that this study will contribute to its advancement.

Our recommendations to continue the integration of a behavior-oriented approach into military operations include:

Conceptually:

- **Promoting** the use of the NDD dimensions model to organize and plan military activities and to highlight the impact on human mind in the cognitive dimension and behavior in the physical and virtual dimensions;
- **Maintaining** a consistent use of terms related to the study of humans in the operational environment in the Dutch doctrinal publications and other relevant documents – favoring the use of 'human environment' (menselijke landschap) or 'human geography' over other terms;
- **Refering** to the cognitive dimension consistently across military publications and doctrines. Accordingly, remove "behavior" from entities in the cognitive layer (in the 7-layers model) and instead consider it an observable element of the physical and virtual dimensions to align the interpretation with the dimensions model and those of other countries (e.g. the UK and the US);
- **Exploring and testing** the 7-layers model[9] to strengthen the understanding of relations between the cognitive and the remaining six layers. Resolve inconsistencies in the use of the layers model between different documents, for example, the use of six layers in the NDD and seven layers mentioned in the Ascalon documents;
- **Observing** the developments in the application of terms 'human domain' and 'cognitive domain' to further develop an appreciation of their relevance to the NDD and to prevent future discrepancies with the conceptualization of domains across the allied forces doctrines (e.g. Spain);
- **Supporting** the efforts to define common terms and models for the purposes of NATO joint operations to create a shared understanding of the ways that behavior-oriented operations are incorporated into the planning and decision-making procedures;

Methodologically:

- **Promoting** the practice of forming the commander's intent by defining (un)desirable behavior of actors;
- **Endorsing** the use of an enhanced PMESII framework in information gathering, especially the analysis of in-depth qualitative and quantitative questions using the SCAF, to ensure adequate and comprehensive analysis of human-related factors and enhanced situational awareness;

[9] The 7-layers model is introduced in the RNLA's Future Land Operating Concept. It is an expanded model of the dimensions, where the physical dimension is divided into geographical, physical network, and physical layers; the virtual dimension into the logical and virtual persona layers; and the cognitive dimension into the cognitive and social layers.

- **Improving** the practice of analyzing actors in the operational environment, especially the use of problem space mapping to connect trends observed in quantitative and qualitative data;
- **Educating** analysts in the intelligence branches in assessing the influenceability of human behavior by military actions, by assessing barriers to behavior change and identifying potential functions of influence;
- **Investing** in adequate resources, personnel, and capabilities to collect, visualize, interpret, and analyze information (e.g. the resources to conduct qualitative research, dashboards). Ensure that access to these resources is provided at all levels of operations;
- **Collaborating** with external SME's, cultural advisors, psychologists, anthropologists during the analysis and interpretation of data to improve situational awareness;
- **Ensuring** that the entire process, from collection and analysis to the interpretation and application of data facilitates a continuous and aggregated development of knowledge, not hampered by rotation-based deployments;

Procedurally:

- **Employing** a behavior-oriented approach to operations according to the six principles of interventions design: actor-centricity, forward-looking perspective, horizontal and vertical coherence, agility, timeliness, and integration;
- **Incorporating** behavior-oriented considerations in all operations, including short-term force-oriented military interventions to ensure that generated effects on the behavior of actors are desirable in the long-term. This should be enforced through explicit doctrine and Tactics, Techniques, and Procedures (TTPs) that codify a behavior-oriented approach in a practical sense; as well as by infusing the intrinsic urge to do so through education and training;
- **Training** not only analysts but planners and commanders alike to foresee and anticipate second- to n^{th} -order effects of interventions on the minds and behavior of relevant actors;
- **Instituting** sufficiently broad mandates to allow the conduct of small-scale activities to test and observe the effectiveness of interventions on actor' behavior, including before the deployment of troops to anticipate and preemptively shape the behavior of relevant actors;
- **Providing** lower tactical levels with sufficiently broad freedom to maneuver to conduct behavior-oriented interventions with a minimal length of approval cycles;
- **Building** lasting partnerships with non-governmental agents in conflict areas and with local knowledge to improve the accuracy of predictions, expand the toolbox of available resources, and design of interventions;
- **Communicating** objectives and utility of behavior-oriented operations within the defense organization, other governmental bodies, and external partners to form 'a-whole-of-society approach' to influencing the behavior of actors of conflict. This can take the form of publications (such as this one) or formal conferences in which the topic is addressed with a variety of stakeholders;

- **Enhancing** the capability to influence actors by promoting diversity amongst military personnel. Make sure that diverging interpretations are valued and included in the considerations of assumptions and hypotheses;
- **Recognizing** ways in which military personnel is influenced to act and develop programs (e.g. incentives or rewarding schemes) to promote a behavior-oriented mindset;
- **Cooperating** with allied forces to advance the knowledge of a behavior-oriented approach to operations and to collectively develop Tactics, Techniques and Procedures applicable to joint operations, for example, through NATO fora or by supporting the efforts of the Dutch 1 CMI to cooperate with their German counterparts.

1. Introduction

In September 2017, the United States armed forces conducted airborne leaflet propaganda in a city north of Kabul in Afghanistan.[10] Leaflets displayed a lion, symbolizing the American-led coalition, chasing after a white dog covered in a Taliban banner. The leaflets were dropped days before the Americans announced that they would send more troops to the country. The leaflet campaign was most likely intended to increase the popular support of the American coalition. Instead, the leaflet campaign fueled "anti-American sentiment". Local population, authorities, religious leaders, and the Taliban considered the depiction of the dog and the use of Islamic religious text offensive.[11] The effects were not in the perceptions of local actors. The operation additionally resulted in a popular outrage and suicide bomber attacks leading to injuries and deaths.[12] This operation, for which the American military officials publicly apologized, highlighted a lack of cultural sensitiveness and a misunderstanding of the local people even after nearly 16 years of local presence.[13]

This case is just one of many that demonstrate the need for the military to take into consideration the effects on actors' behavior when drafting military operations, in order to avoid undesirable consequences and enhance capabilities to maneuver.

War is a human endeavor and conflicts are fueled and shaped by human perceptions, decisions, and behavior. In this context, all military activities as well as inactions inevitably result in changing attitudes, perceptions, and behaviors of the conflict actors. The difficulty lies with the ability to consciously create desirable reactions. As Michael Flynn explains,

> In the contemporary era, the perceptions of populations are increasingly the center of gravity of all conflicts. Thus, investments in sociocultural tradecraft contribute to preventing the onset of conflict, to effectively prosecuting conflict if it comes, and to ensuring attainment of political goals and sustainable peace after the end of conflict. Greater attention to sociocultural tradecraft is central [...] to accurately reflect and be adaptive to the new demands of the 21st century across the spectrum of challenges we face."[14]

Nowadays, militaries search for methods to better understand relevant actors and for effective maneuvering techniques to influence their behavior in conflict.

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[10] Mashal, Abed, and Faizi, "Afghan Anger Simmers Over U.S. Leaflets Seen as Insulting Islam."
[11] Faizy and Bengali, "U.S. Military Apologizes for 'highly Offensive' Leaflets It Distributed in Afghanistan"; Wellman, "Afghan Defense Ministry: US Leaflet Drop Broke Agreement."
[12] Faizy and Bengali, "U.S. Military Apologizes for 'highly Offensive' Leaflets It Distributed in Afghanistan"; Mashal, Abed, and Faizi, "Afghan Anger Simmers Over U.S. Leaflets Seen as Insulting Islam."
[13] Faizy and Bengali, "U.S. Military Apologizes for 'highly Offensive' Leaflets It Distributed in Afghanistan."
[14] Preface by Ltg Michael Flynn in: Cabayan et al., "Operational Relevance of Behavioral & Social Science to DoD Missions."

The need to consider the effects of conflicts on the mind and behavior of actors is further exacerbated by the increasing diversity of relevant actors, including non-state actors and civilians.[15] Particularly, conflicts are progressively fought in the ambiguous grey zone characterized by hostile interventions that do not cross a threshold of a legitimate war and make substantial use of digital battlefields.[16] Government institutions and militaries alike find it difficult to understand the needs and intentions of relevant actors, and indeed to pinpoint which actors are relevant in the first place.

1.1 Why influence human behavior in the military context?

Whether by distributing leaflets or by firing missiles, actors' attitudes, perceptions, and behaviors are influenced. The question for the military is not whether to influence behavior, but rather how to integrate actor-centric and behavior-oriented considerations into the cycle of information gathering, intervention planning, and decision making, in order to enhance the capabilities to influence actors of conflict.

We distinguish between two approaches, each representing a different focus of military activities. We refer to **force-oriented**, or capability-oriented, operations to represent activities which focus on destroying key capabilities to restrict adversaries' freedom of maneuver.[17] We refer to **behavior-oriented** operations to highlight the focus of activities on influencing and shaping the desirable behavior of actors in order to advance mission objectives. The two approaches are not contradictory but inherently intertwined in the way that military activities are designed and conducted.

Conflict is increasingly centered around people and information, and simultaneously acquires a form of permanency in the grey zone of competition between peaceful cooperation and armed conflict. The Dutch armed forces, and in particular the Royal Netherlands Army (RNLA), have recognized the need to strengthen their ability to influence actors of conflict; see, for example, 'Informatie als wapen, middel en doel' (trans. Information as a weapon, enabler and target),[18] 'Future Land Operating Concept',[19] and the Commander of the Army's vision of 2018.[20]

In this context, the military should not only be concerned with influencing actors not to demonstrate certain behavior – that is dissuasion, but also with the ability to generate concrete (new) behavioral reactions. Therefore, behavior-oriented operations are far more than disablement techniques and include considerations such as the persuasion of new behavior - to make actors do – and the support of existing behavior. Hence, in this report the ability to influence behavior is three-sided: (1) in a negative

[15] General Sir Rupert Smith, Methods of Warfare, 720.
[16] Torossian, Fagliano, and Görder, "Hybrid Conflict: Neither War, nor Peace"; Laborie Iglesias, "Conflictividad, Ámbito Cognitivo y Comunicación Estratégica," 4.
[17] The term "force-oriented operation" is often used in the context of the US military maneuver. See, for example, Perkins, "Multi-Domain Battle and FM 3-0," 13.
[18] Dekkers and Grijpstra, "Informatie Als Wapen, Middel, En Doel [Internal Publication]."
[19] "Future Land Operating Concept, Edition Ascalon [Internal Publication]."
[20] "Veiligheid is vooruitzien: de toekomstvisie Koninklijke Landmacht."

way to influence actors not to perform behavior(s); (2) in a neutral way to influence actors to continue behaving in the same way; (3) and in a positive way to influence actors to perform new behavior(s).

1.2 Why 'behavior-oriented operations'?

Term 'behavior-oriented operations' is used to distinguish it from already known and widely applied terms, such as strategic communication (STRATCOM), information operations (INFOOPS), and psychological operations (PSYOPS). In general terms, these operations imply the use of communication techniques only. [21] Despite the definition of STRATCOM as an integration of communication capabilities with other military activities, we are of the impression that STRATCOM and INFOOPS remain in practice primarily communication-focused. Furthermore, a partial (not full) reason for our way of thinking is a position of a STRATCOM officer apart from the main planning officer. Instead, the main planner remains the integrator of all activities and the STRATCOM officer retains its limited involvement in the planning and integration of military activities. This report is broader in that it considers the use of any capabilities, without focusing on any capabilities in specific, to influence actors.

Behavior-oriented operations strengthen the capability to achieve military objectives; they require a mindset that integrates behavior-oriented considerations throughout the entire cycle from information gathering and planning to decision-making across all levels of operations.

The term 'behavior-oriented operations' is most closely related to the concept of 'influence operations', as proposed in the RAND publication. In this US-focused definition, influence operations encompass everything from diplomatic and informational, to economic and military capabilities, in order to "foster attitudes, behaviors, or decisions by foreign target audiences".[22] In the words of William Hutchinson, "in fact, the raison d'être of influence operations is to alter behavior; it is no good winning 'hearts and minds' if behavior does not change."[23] Despite, many similarities, we chose to use the term behavior-oriented operations throughout the report to highlight the effects on behavior, rather than the execution of influence.

1.3 When to apply behavior-oriented operations?

Primarily, application of and preparation for behavior-oriented operations may only be conducted within legal boundaries and in accordance with the mandate. There are also

[21] STRATCOM, in the context of the NATO military, is the integration of communication capabilities and information staff function with other military activities, in order to understand and shape the Information Environment, in support of NATO aims and objectives. (MC 0628 Nato Military Policy On Strategic Communications, 4).
[22] Larson et al., "Foundations of Effective Influence Operations: A Framework for Enhancing Army Capabilities," 2.
[23] Hutchinson, "Influence Operations," 13.

practical aspects that may guide the application of behavior-oriented operations, which we consider in the paragraphs below.

Using force without considering ways in which actors will react to it in the future undermines military objectives in the long-term. One's actions may undermine military objectives by inciting anger or a greater willingness to fight. Hence, the impact of operations on the behavior of actors should always be considered. It should always be a priority to understand how military activities will be perceived by relevant actors, and whether they will generate desirable reactions given the mission objectives.

This study observes that, even though behavior-oriented operations should always be integrated into military efforts, certain conditions may undermine the possibility to understand and anticipate human behavior. Even though it is not possible to predict the behavior of actors in response to one's actions with certainty, methods presented in this report bring the military closer to the foresight capabilities. This process, however, is time-consuming and requires desk research, subject matter expertise, qualitative research, observation and analysis of trends and events (see Chapter 3). Therefore, where military forces are in a condition of little knowledge of the human environment (for example, at the beginning of the mission or deployment), there are limited opportunities to anticipate the impact of operations on human behavior. An example of the deployment of Dutch forces to Uruzgan, Afghanistan, mentioned in further detail in Chapter 3, demonstrates that the behavior-oriented approach was progressively applied with greater frequency as the knowledge of the human environment in Afghanistan was developed. Once the military has a better understanding of the ways that actors of conflict behave and respond to events, they may with greater effectiveness apply a behavior-oriented approach to operations regardless of the conflict intensity.

Further, a distinction should be made between immediate but short-lived behavior responses and long-term but sustainable behavioral changes (see also Section 3.3). To shape and anticipate desirable behavioral responses does not suffice with a one-off intervention but requires a durable effort and a careful mix of trial, application, evaluation, adjustment, and reapplication of interventions. As commented by Raymond De Young, "behavior change does happen but durable change happens only slowly."[24] In high-intensity conflicts, the military may be required to act rapidly; providing limited time to anticipate and observe the impact of actions on behavioral change. Again, this does not preclude the role of behavior-oriented operations in high-intensity conflicts. Rather, it exposes some of the challenges posed by the slow-change notion of behavioral change on the one hand, and the rapid nature of modern warfare on the other. The combination of the (tactical/operational/strategic) level of the military unit with the intensity of the conflict determines the planning horizon. Short planning horizons (hours-long) hinder an effective application of behavior-oriented operations while long

[24] De Young, "Slow Wins: Patience, Perseverance and Behavior Change."

planning horizons (months- or years-long) provide better conditions to their development and application. In both low- and high-intensity conflicts that have a relatively long planning horizon, the opportunities are merrier to observe, understand, and anticipate behavior in advancement of the military objectives.

1.4 This study

1.4.1 Objective

This report is written as part of a project commissioned by the Army Staff (CLAS) and executed by the Hague Centre for Strategic Studies (HCSS). The RNLA wants to further investigate and advance the knowledge of ways in which human behavior is influenced in conflict. The central question that drives this investigation is:

> How can the Dutch army accurately interpret and effectively influence behavior of relevant actors to achieve military objectives?

Based on the central question, this study pursues the following three objectives:

1. to situate behavior-oriented interventions in a doctrinal conceptual framework;
2. to enhance the ability of the RNLA to interpret the operational environment systematically and accurately to gain information relevant for the effective planning of behavior-oriented operations; and
3. to enhance the ability of the RNLA to effectively design and apply behavior-oriented operations to achieve desired effects.

The capability of the military to influence human behavior additionally raises legal concerns that may interfere with the ability to collect information and/or to perform behavior-oriented activities. Legal aspects of behavior-oriented operations are not analyzed in this report. The authors, nevertheless, note that any of the recommendations made in this report must adhere to legal norms and principles and be performed in accordance with the mandate.

1.4.2 Methodology

This project is developed in a Concept Development and Experimentation (CD&E) method. In other words, the development of concepts and insights is intertwined with ongoing experimentation thereof in a so-called spiral development process. This includes interchangeable engagement of quantitative and qualitative research methods, concept development, and an experimental application of methods (see Figure 1).

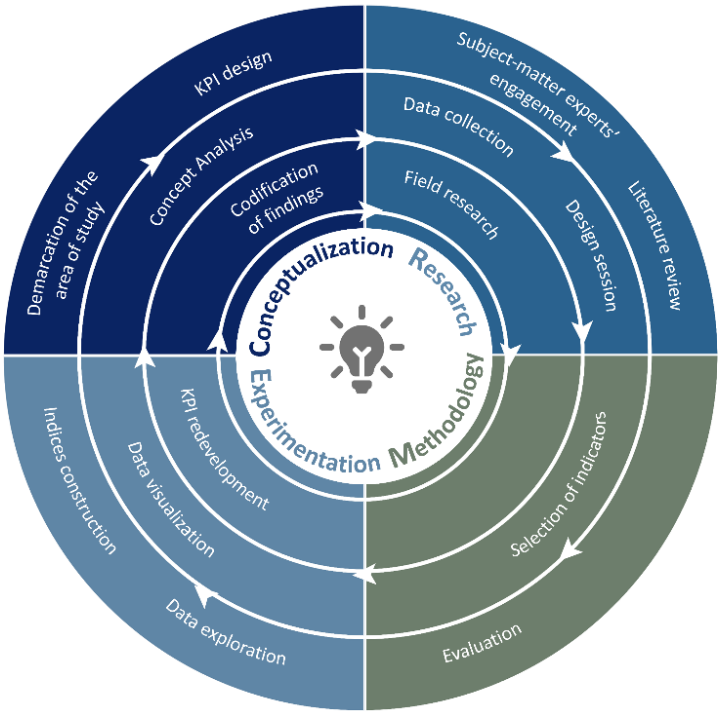

Figure 1: Project methodology: concept development and experimentation (CD&E)[25]

Findings in this report are supported with the following sources and methods:

1. An extensive literature review of both military and academic sources;
2. Own experimentation, including the development of two 'proof of principle' dashboards based on real-world cases:
   a. of the Dutch diplomatic mission to and military presence in Lithuania in association with the NATO enhanced Forward Presence (eFP); and
   b. of the Kingdom's Navy and Royal Marechaussee's duties on Curaçao;
3. Own qualitative research, which includes:
   a. unstructured not-for-attribution interviews with more than 20 Dutch military personnel from strategic level planners, former commanders, to human terrain analysts, including personnel trained in the Behavioral Dynamics Methodology; and subject matter experts (SME's) of behavioral studies;[26]
   b. a design workshop aimed at developing new ideas for techniques and resources necessary to effectively influence the behavior of actors;[27]
   c. qualitative field research conducted on Curaçao island.[28]

The development of dashboards to map the operational environment played a key role in the project. The dashboards served as an experimentation tool to assess the feasibility of theories, models, and concepts in actual and current case situations. The results from

[25] Figure icons providd by the Noun Project.
[26] Interviews took place between November 2019 and September 2020.
[27] The design workshop took place on the 17th of June 2020 in Utrecht, the Netherlands and gathered eleven subject matter experts and military staff members.
[28] Field research to Curacao took place in September 2020.

the dashboards' development were integrated into the insights for the mapping of the operational environment for behavior-oriented operations and informed the discussion about the foresight capabilities.

1.4.3 Structure

This report is structured according to the order in which behavior-oriented operations are organized, prepared, and conducted. Firstly, in Chapter 2, we discuss the conceptual (and doctrinal) framework that accompanies behavior-oriented operations. As shown, the choice of terminology, and by extension the framework, is particularly relevant to the way influencing behavior is conceptualized and operationalized within the military context and requires a nuanced analysis of the existing proposals in this area. Secondly, in Chapter 3, we extensively discuss the methods of mapping the operational environment for behavior-oriented operations, that is to understand targets and the context within which their behavior is to be interpreted. This Chapter develops critical implications to the way information is gathered, analyzed, and interpreted by military analysts. Thirdly, in Chapter 4, we discuss ways in which the insights from the mapping of the operational environment is operationalized with the aim of implementing behavior-oriented operations into military maneuverings. In this Chapter, further focus is placed on the decision-making chain. The report's final remarks are included in Chapter 5. The report is accompanied by the Glossary of terms on page v and Appendices from page 84 onwards.

2. Conceptual Framework

A range of conceptual models has been proposed over time and across different countries to strengthen the relevance of human-related aspects to military doctrines. The landscape of concepts remains fragmented as subtle differences in definitions obfuscate terminology. Matters are complicated by the use of different terms for essentially the same notions and, vice versa, the same terms for different notions.

The aim of this Chapter is threefold. One, to delineate the current Dutch doctrinal conceptualization of operations that influence human behavior in the Netherlands Defense Doctrine (NDD) in Section 2.1. Two, to highlight strengths and weaknesses of the Dutch conceptualization vis-à-vis external developments in defense doctrines and academia in Section 2.2 and in reference to the so-called 'maneuvrist approach' in Section 2.3. And three, to utilize alternative representations and terminologies to suggest a clearer framework for understanding how to conceptualize military actions aimed at influencing human behavior in Section 2.4. Overall, this Chapter provides a suggested framework for enhancing current military doctrine to include adequate reference to the analysis and application of behavior-oriented operations.

2.1 Doctrinal conceptualization: domains vs. dimensions

The NDD provides two models to distinguish the organization of capabilities in domains (in Section 2.1.1) and the generation of effects in dimensions (in Section 2.1.2). The dimensions model in the NDD is further subdivided into layers (in Section 2.1.3). The following subsections delineate relevant concepts to identify models relevant to the conduct of operations in a behavior-oriented approach.

2.1.1 Domains model

The domains model provides a framework for the organization of military capabilities and activities along five domains: maritime, land, air, space, and cyberspace (see Figure 2).[29] The cyberspace domain is the most recent to have been added to the military lexicon after it was recognized as a sphere of influence in which the military can maneuver to achieve mission objectives.[30] The addition of the cyberspace domain to the doctrine had a transformative influence that broke the traditional military conceptualization of domains as physical spaces.[31]

29 Currently, the Netherlands Armed Forces consider space force as an integral part of the air forces. "Nederlandse Defensie Doctrine," 74.
30 Welch, "Cyberspace."
31 Welch.

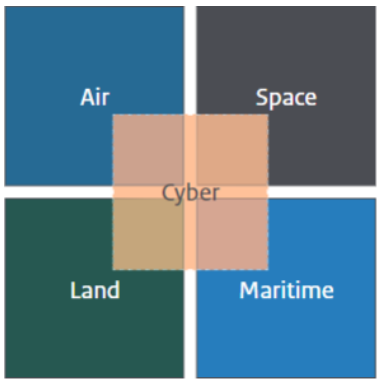

Figure 2: Domains model

Notably, the Dutch model of operational domains mentions the relevance of humans only in relation to military operations on land. The doctrine specifies that the land domain is where "human existence lies", concluding that the land domain is a "home domain" of all actors in conflict.[32] Although the vast majority of people live on land, this approach sets aside that (1) an increasing number of people spend time at sea, in the air, and even in space; and, more importantly, (2) that 'human existence' encompasses more than the location where humans reside. The economic and ecological importance of sea, air, and space, for instance, to human existence is extensive. We may therefore attribute human existence and behavior to capabilities and actions in other domains than the land domain. In fact, as in the case of cyberspace, some have suggested looking at a separate 'human domain' that transcends the physical domains altogether. This approach is discussed in further detail in Section 2.2.2.

2.1.2 Dimensions model

The dimensions model[33] (see Figure 3) provides an alternative way of conceptualizing military operations. The model distinguishes between the physical, virtual, and cognitive dimensions.[34] It shows that the physical and virtual dimensions influence the cognitive dimension, that is the will, perceptions, and decision-making. Vice versa, the cognitive dimension of actors impact the events and behavior in the physical and virtual dimensions.

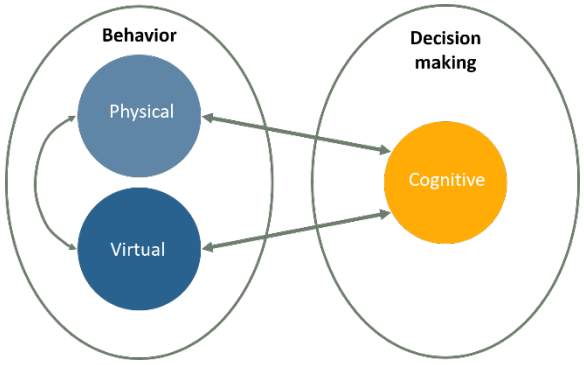

Figure 3: Dimensions model

The NDD stipulates that effects in the cognitive dimension are achieved commonly through indirect means.[35] In other words, a transmitter in the physical or virtual world is required to affect the cognitive process. Similarly, effects in the physical and virtual dimensions may be observed directly. The cognitive effects are not easily observable

[32] "Nederlandse Defensie Doctrine," 77.
[33] Figure adopted and translated from "Nederlandse Defensie Doctrine," 82.
[34] "Nederlandse Defensie Doctrine," 82.
[35] "Nederlandse Defensie Doctrine," 83.

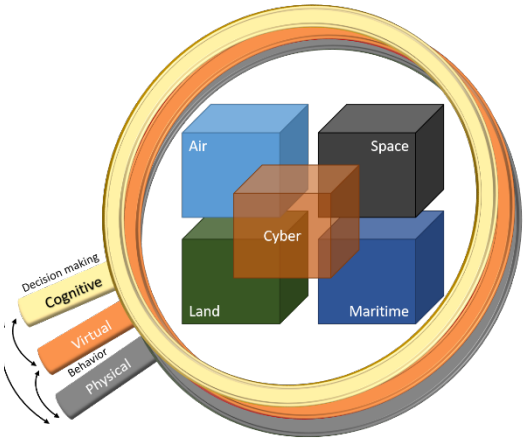

Figure 4: Dimensions as "a lens" of operations

unless a study of the changing perceptions, wills, or intentions is conducted (or advanced brain-machine or brain-brain interfaces are used, a rather futuristic option that will not be discussed in this document).

Even though in the NDD, the dimensions model is visualized independently from the domains model, these two are conceptually closely associated. The dimensions model provides an effects-based lens to conducting military operations.[36] A model provided by the courtesy of 1 Civil Military Interaction (1 CMI), in Figure 4, helps to visualize the role of effects in the three dimensions to (multi-)domain operations. It shows that in all operations, it is possible to evaluate their impact on the operational environment by anticipating the effects on the physical, virtual, and cognitive dimensions.

2.1.3 Information Environment: 7-layers model

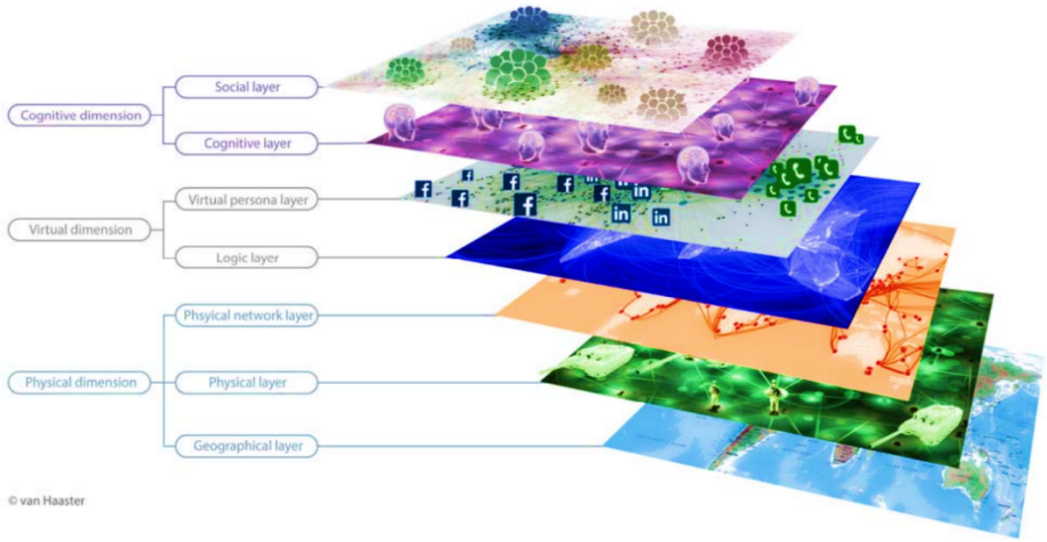

Figure 5: 7-layers model[37]

The NDD further divides the three dimensions into layers that together form a comprehensive context for military activities. Although the NDD leaves the layers models largely unexplained, it is elaborated in the RNLA's Future Land Operating Concept (edition ASCALON, July 2017). The 7-layers model (see Figure 5) in the ASCALON divides the physical dimension into geographical, physical network, and

[36] "Nederlandse Defensie Doctrine," 82-83.
[37] van Haaster et al., "Manoeuvring and Generating Effects in the Information Environment."

physical layers; the virtual dimension into the logical and virtual persona layers; and the cognitive dimension into the cognitive and social layers.[38] Note that the NDD does not mention the physical network layer (fysieke netwerklaag), thus dividing the dimensions into six, instead of seven, layers. Additionally, the 7-layers model in ASCALON identifies entities in each layer (see Figure 6). The 7-layers model encompasses the cognitive layer of the human psyche (e.g., will, perception, and behavior) and the social layer with groups and audiences.[39]

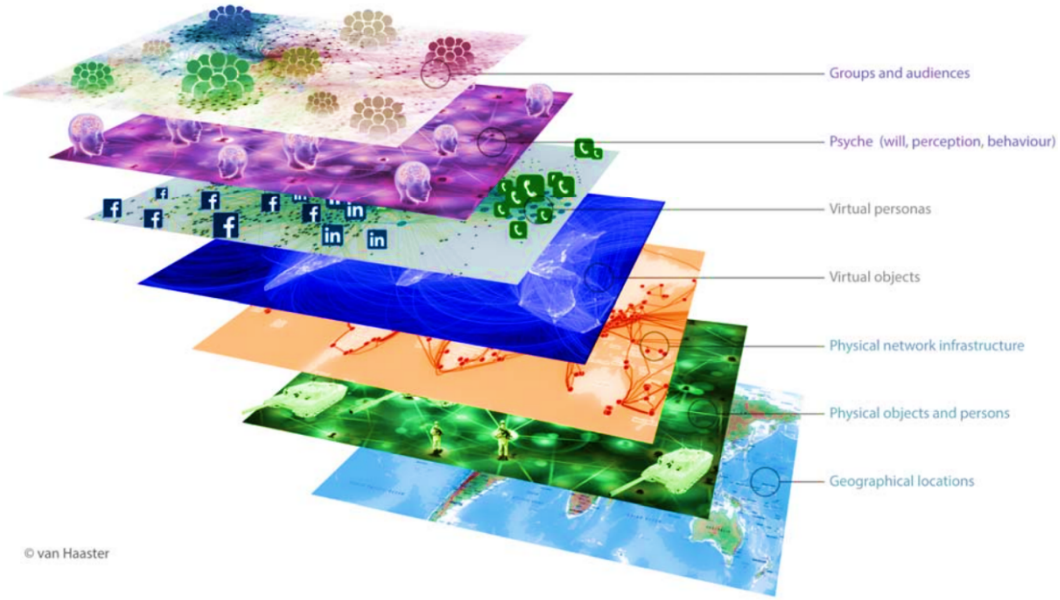

Figure 6: Entities of the 7-layers model[40]

What becomes evident is that there is a discrepancy between the dimensions model, where 'behavior' is placed with the physical and virtual dimensions on one hand, and the 7-layers model, where 'behavior' is included within the cognitive dimension on the other. Since the 7-layers model is meant to be an extension of the dimensions model, it is recommended to consider removing 'behavior' from the cognitive layer and instead of treating it as an element of the observable environment in the physical and virtual dimensions. Messages produced on social media (virtual persona layer) or the creation of dams (physical layer) are an example of human behavior.

The distinction between the observable nature of behavior in the physical and virtual dimensions and the unobservable nature of perceptions, attitudes, decision-making in the cognitive dimension is supported by the UK and US publications. The UK Joint Doctrine Note of 2019 recognizes that behavior, even though it originates from the cognitive dimension, creates observable effects in the physical and virtual dimensions

[38] Dekkers and Grijpstra, "Informatie Als Wapen, Middel, En Doel [Internal Publication]," 11-14.
[39] van Haaster et al., "Manoeuvring and Generating Effects in the Information Environment."
[40] van Haaster et al.

(see Figure 7).[41] The UK defines the cognitive dimension as "the sphere in which human decision-making occurs as a product of assimilated knowledge acquired through thought, experience and sense, and where effects target will and understanding. Similarly, the US Department of Defense defines the cognitive dimension as "composed of the attitudes, beliefs, and perceptions of those who transmit, receive, respond to, or act upon information."[42] This report will proceed to discuss the cognitive dimension defined as a sphere composed of human perceptions, will, beliefs, attitudes, and decision-making which commonly can be influenced indirectly to generate effects on cognitive processes and behavior of actors.

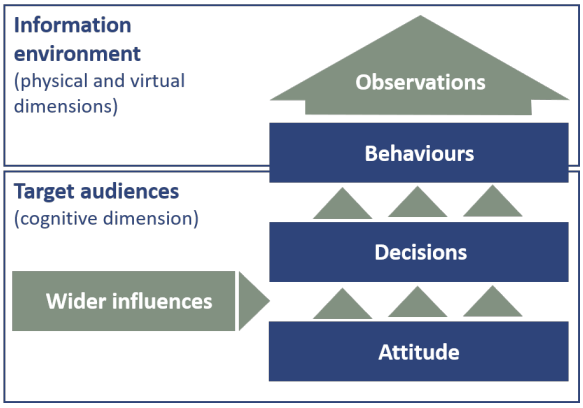

Figure 7: The UK dimensions model

Altogether, the 7-layers model is a useful reference to highlight that the world is composed of interconnected layers and that generating effects in the physical layer, for example by destroying capabilities, creates interrelated effects in the cognitive layer. Similarly, maneuvering to create effects in the cognitive dimension results in effects in other layers.

2.2 Alternative conceptualization: the human element in warfare

The concept of influencing human behavior in warfare has a longstanding history. The role and relevance of the human aspects of warfare were already underlined in early historic times, for instance by Thucydides in his History of the Peloponnesian War and by Sun Tzu, a Chinese general and military strategist in the 4th century BC.[43] More recently, after the wars in the Middle East from 1990 onwards, Western forces began to pay closer attention to the relevance of the concept to warfighting strategies and to discuss the appropriate terminology.

Terms 'human dimension', 'human landscape', 'human factor', 'human geography', 'human terrain', 'human domain', and 'cognitive domain' emerged. A survey of the emerging terms, both from military doctrines and academic literature, contributes to the understanding of their relevance to the military lexicon.

[41] Figure adopted from "Joint Doctrine Note 2/19," 11.
[42] "Strategy for Operations in the Information Environment," 3.
[43] Tzu, *The Art of War*, 84 ("Know the enemy and know yourself; in a hundred battles you will never be in peril. When you are ignorant of the enemy but know yourself, your chances of winning or losing are equal. If ignorant of both your enemy and of yourself, you are certain in every battle to be in peril.").

2.2.1 A survey of terms

Human dimension. Most commonly, the term 'human dimension' is used loosely in reference to the human aspects of warfare.[44] There are however some exceptions. The United States conceptualizes the 'human dimension' as "capabilities the Army requires to meet the challenges of the future operational environment".[45] Similarly, the Australian Land Doctrine describes the 'human dimension' as the Australian Army's "large reservoir of human talent".[46] The U.S. and Australian use of the term is inward-looking as it refers to the human aspect of warfare as one's army and its abilities to respond to the threats of modern warfare and thus neglects the emic perspective[47] of the enemy forces and a myriad of other human actors of warfare.[48] Many doctrines, including the Dutch one, reserve the term 'dimension' to refer to a sphere in which the effects of military activities are observed.[49] In this doctrinal definition of 'dimensions', the NDD does not define a separate 'human dimension'.

Human factors. Another term is the 'human factor(s)'. The U.S. Joint Chiefs of Staff describes the 'human factor' as "the physical, cultural, psychological, and behavioral factors attributed of an individual or group that influence perceptions, understandings, and interventions".[50] The United Kingdom considers 'human factors' to be elements of culture, institutions, technology and infrastructure, and physical locations that together compose the human elements that affect the operational environment.[51] The shortcoming of this conceptualization is the difficulty in discerning between 'human' and 'other' factors. A broader definition of 'factors' included in this report, and reflected in the NDD, encompasses all "environmental characteristics" that are "relevant in the (inter)national context and operational environment", from raw sources, to culture, to political and demographic developments.[52]

Human terrain. The term 'human terrain' is currently in use in the UK and the Netherlands[53] and was previously used in the US. In the UK definition, the term

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[44] See, for example, Coffman, "Operational Art and the Human Dimension of Warfare in the 21st Century"; Parker, "Locating the Human in Doctrine," 89; Schneider, "A New Form of Warfare," 9.
[45] "The Human Dimension White Paper: A Framework for Optimizing Human Performance."
[46] "Land Warfare Doctrine," 20.
[47] Emic: pertaining to the view from within; developed with the mind of an individual or a culture; meanings developed in terms of native categories. [Definition provided by The Concise Oxford Dictionary of Archaeology, Oxford University Press]
[48] Hoffman and Davies, "Joint Force 2020 and the Human Domain"; Childers, "The Human Dimension: Taking Innovation to the Individual and Leader Level"; Parker, "Locating the Human in Doctrine."
[49] "Nederlandse Defensie Doctrine," 82.
[50] Parker, "Locating the Human in Doctrine," 89.
[51] UK Ministry of Defence, "Joint Doctrine Publication 04 - Understanding and Decision-Making (Second Edition)," 21.
[52] "Nederlandse Defensie Doctrine," 20.
[53] The Dutch definition of the human terrain covers all interactions between actors and systems in the *Human Dimension* that may affect the employment of forces in an area of operations. This definition uses the term 'human dimension' and lacks further explained of its meaning. This definition, therefore, is inconsistent – see for example, the use of term 'human environment' (*menselijke landscape*). The term itself appears in a document from 2010, indicating that terminology may have changed since then. Defensie Inlichtingen en Veiligheids Instituut, *Inlichtingenbulletin "Intelligence Preparation of the Environment" (IP-2)*.

emphasizes instead the role of culture in the situational understanding thus embedding ethnography (cultural anthropology) in military analysis.[54] The term has been used in the most recent UK publications of 2019.[55] In the US, also with a focus on the cultural aspects, the concept was translated into an extensive program under the name of 'the human terrain system' (HTS). The HTS aimed to build cultural capability by embedding special HTS teams into the infantry brigades stationed in Afghanistan between 2007 and 2014.[56] The HTS program, however, received heavy criticism, thus leading to a withdrawal of funding and, by extension, the use of the term.[57] In this process, the study of anthropology in the US military intelligence circles became a study of macro-level systems, thus the term 'human terrain' was replaced in the US by 'human geography'.[58]

Human geography. The term 'human geography' attracted attention at the beginning of the second decade of the 21st century.[59] In principle, human geography is a defined branch of geography that studies human interactions with their environment and the effects it has on culture, organization of society, agricultural and other economic activities, urbanism, et cetera.[60] For example, the UK doctrine defines it as "the branch of geography concerned with how human activity affects or is influenced by the earth's surface".[61] The term has also been used in the context of the US information gathering efforts.[62] Human geography as a broad field of social sciences can be of benefit to the military to amplify the tools used to understand the operational environment. Importantly, it introduced a shift from an anthropological approach (in human terrain) to geospatial mapping, yielding implications for the way that study of the operational environment is conducted.[63] Despite its use in the US and the UK, the term 'human geography' has not been (formally) adopted in the Dutch military context.

Human environment. The other term used in reference to the human aspects of warfare, primarily by the land forces, is 'human environment' (in Dutch: 'menselijke landschap').[64] The Dutch Army defines the human environment as "the entirety of individuals and organizations with their beliefs, values, interests, aims, and encompasses all forms of interaction between them".[65] The human environment is placed alongside the physical and information environments of the land environment **(see Figure 8)**[66] which conceptually limits its application to land operations. Similarly in the US doctrine, 'human environment' refers to human dynamics in (land) urban

[54] "Joint Doctrine Note 4/13 Culture and Human Terrain," iii.
[55] "Joint Doctrine Note 2/19," 31; "Doctrine Note 19/04 Information Manoeuvre," 12.
[56] Connable, "Human Terrain System Is Dead, Long Live… What?"
[57] Wainwright, "The U.S. Military and Human Geography," 5–7.
[58] Wainwright, 5–7.
[59] Wainwright, "The U.S. Military and Human Geography."
[60] Definition provided by the National Geographic.
[61] "Joint Doctrine Note 4/13 Culture and Human Terrain," 1–2.
[62] Wainwright, "The U.S. Military and Human Geography."
[63] Wainwright.
[64] "Deducties Voor Het Landoptreden; Editie Silene," 46; "Doctrinebulletin 2020-03: Environments, Dimensions, Domains."
[65] "Doctrinebulletin 2020-03: Environments, Dimensions, Domains."
[66] "Deducties Voor Het Landoptreden; Editie Silene," 46.

operations.[67] If separated from the concept of land operations, 'human environment' together with its counterparts the physical and information environments come to represent three dimensions: cognitive, physical, and virtual. This broader understanding of the human environment is found in the draft NATO doctrine (AJP-01) which defines the human environment as: "the entirety of audiences, actors, adversaries and enemies with their beliefs, values, interests. and aims, and it encompasses all forms of interaction between them". Given the inclusion in the NATO doctrine, there is potentially a greater shared understanding of the term amongst the allied forces.

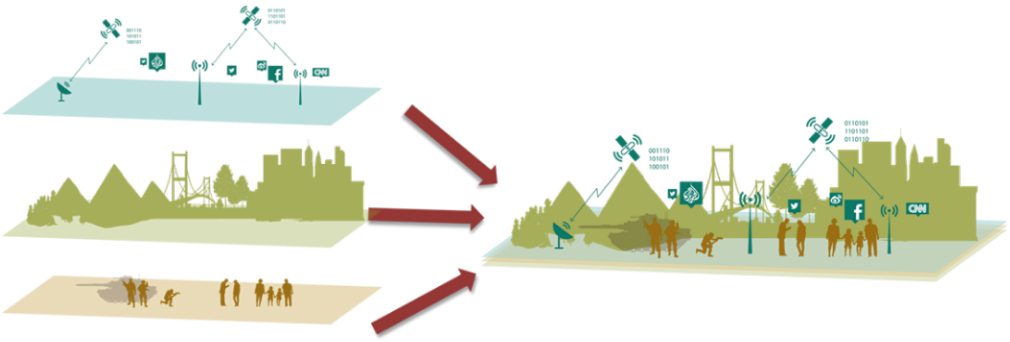

Figure 8: Three disjunct environments of the land environment[68]

Altogether, many terms have been proposed to highlight the study of humans and their environment in the context of military activities. Except for the term 'human dimension' (as conceptualized by the US and Australia), all surveyed terms refer to the ability to develop an understanding of humans in the operational environment. From surveyed terms, we conclude that terms 'human geography' and 'human environment' are most suitable to represent the need for the inclusion of information gathering related to the human aspects of the operational environment. Both terms have gained widespread recognition. The term 'human geography' has not been applied in the Dutch context. The term 'human environment' has been found in NATO concepts. There are, however, some limitations to both terms: 'human geography' implies geospatial information gathering, whereas 'human environment' may be understood in a limited application to land operations. It is recommended to ensure that terms used in the military publications and the doctrinal publications are used consistently.

2.2.2 Human/Cognitive Domain

In the overview above, we have left out one term: 'human domain'. We have singled out this term due to its novelty, a growing interest amongst the military and academic circles, and a unique approach suggesting a fundamental conceptual shift.

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[67] "Joint Publication 3-06: Joint Urban Operations."
[68] "Deducties Voor Het Landoptreden; Editie Silene," 46.

The term 'human domain' emerged in the second decade of the 21st century. In 2013, a group of British scholars concluded that "the concepts of 'human geography' and 'human terrain' have been encompassed within the Human Domain that is now a critical element of conflict prevention and crisis management".[69] Subsequently, academics encouraged armed forces to develop capabilities to influence 'human domain'.[70] On the contrary to the aforementioned terms, 'human domain' highlights full integration of human-related considerations into military planning. This integration is a crucial, and in our view necessary, step.

Term 'human domain' is gaining increasing interest amongst armed forces, as shown in a survey of selected Western definitions of 'the human domain' (see Table 1). The Dutch term 'human environment' and the Spanish term 'cognitive domain' are included in the survey due to their definitional similarity to the 'human domain'.

Table 1: Selected definitions of the 'human domain' and related terms

Source	Definition
Netherlands Army, Future Land Operating Concept, 2017.[71]	The **human environment** (menselijke landschap) is the entirety of individuals and organizations with their beliefs, values, interests, aims, and encompasses all forms of interaction between them.
U.S. Special Operations Command, Operating in the Human Domain, 2015.[72]	The **human domain** is the people (individuals, groups, and populations) in the environment, including their perceptions, decision-making, and behavior.
UK MoD, Joint Doctrine Publication 04 Understanding, 2010.[73]	The **human domain** concerns the interaction between human actors, their activity, and their broader environment. It is defined as the totality of the human sphere of activity or knowledge.
Australian Defence Doctrine Publication, 2013.[74]	The **human domain** is where decisions are made, individually or collectively.
Ministerio de Defensa de España, Doctrina Para el Empleo de las FAS, 2018.[75]	The **cognitive domain** (in Spanish: ámbito cognitivo) is an intangible area that is inherent to the human being, considered in individual, social or organized form, and is essential to the capacity of judgement and decision-making. The scope encompasses the will of all people affected by the conflict and artificial systems as they permeate all other domains.
RAND, The Human Domain and Influence Operations in the 21st Century, 2016.[76]	The **human domain** is comprised of humans—including humans as physical beings, human thought, emotions, and human action—and what they create, such as groups, infrastructure, art and so on.

The survey of definitions of the 'human domain' reveals three common features: the human actors, their broader environment, and their activities (except for the Spanish

definition, which will be discussed in further detail below). Firstly, 'human domain' highlights the military impact on actors of conflict, individuals as well as groups, organizations, and populations. Especially in the age of digital interconnectedness, populations have demonstrated the ability to communicate through social media to create common narratives, revealing susceptibility to influence. Secondly, 'human domain' highlights the context of human interactions in a broader environment that comprises of culture, geographical location, infrastructure, language capabilities, education, political system, et cetera. Thirdly, the broader environment influences behavior of actors, in other words, activities within the human domain. Based on the survey of definitions, we define the 'human domain' as follows:

> The **Human Domain** is the whole of interactions between human actors (individuals, groups, and populations) including their perceptions, decision-making, and behavior in the context of their broader environment.

Even though there are certain similarities between the definitions of the 'human domain', the differences are prominent in its application. At least two distinct applications of the term 'human domain' can be found. One, in which the term is used loosely to refer to the analysis of humans in the operational environment. Second, where the term 'domain' is used in the context of doctrinal conceptualization on par with other operational domains to define the organization of activities.

In the doctrinal conceptualization, domains are understood as frames "in which armed forces are organized and deployed".[77] In this context, the use of the term 'human domain' indicates a distinct sphere of operations in which the military can conduct activities. The authors of this paper found the use of a distinct domain that specifically refers to operations that affect humans in the military doctrines of Spain as 'cognitive domain' (trans. ámbito cognitivo) (see Figure 10)[78] and of Australia as 'human domain' (see Figure 9)[79].

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[69] Stedmon et al., "Human Factors and the Human Domain," 3.
[70] See, for example, Metz, "Strategic Landpower Task Force Research Report"; Hoffman and Davies, "Joint Force 2020 and the Human Domain"; Sweijs et al., "Playing to Your Strengths"; Tatham and Giles, "Training Humans for the Human Domain"; Flounders, "Multi-Domain Thinking and the Human Domain."
[71] The definition was adjusted based on recent development, where the word "whole of" was replaced with "entirety of". "Editie Ascalon," 26–27.
[72] "Operating in The Human Domain," 3.
[73] UK Ministry of Defence, "Joint Doctrine Publication 04 - Understanding," §309. The 2nd edition of the UK Joint Doctrine Publication published in 2016 does not refer to 'human domain', only to human factors.
[74] "Australian Defense Doctrine Publication - Information Activities," 5.
[75] Ministerio de Defensa, "Doctrina para el empleo de las FAS," 81.
[76] Gregg, "The Human Domain and Influence Operations in the 21st Century," 94.
[77] "Nederlandse Defensie Doctrine," 74–75.
[78] Ministerio de Defensa, "Doctrina para el empleo de las FAS," 79.
[79] "Australian Defense Doctrine Publication - Information Activities," 1-6.

The Spanish doctrine clarifies that the cognitive domain "allows armed forces to achieve objectives which are outside the reach of other domains, using communication techniques, the science of psychology, and other social sciences."[80] Visualization from the Spanish doctrine helps to further understand that the cognitive domain is an additional component of all other domains: cyberspace, aerospace, maritime, and land (see Figure 10).[81]

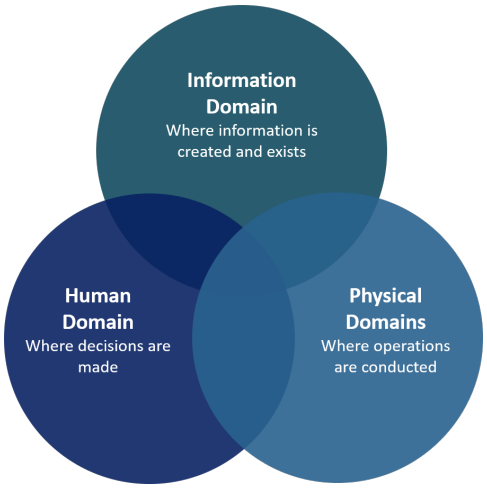

Figure 9: Domains of operation in the Australia Defense Doctrine

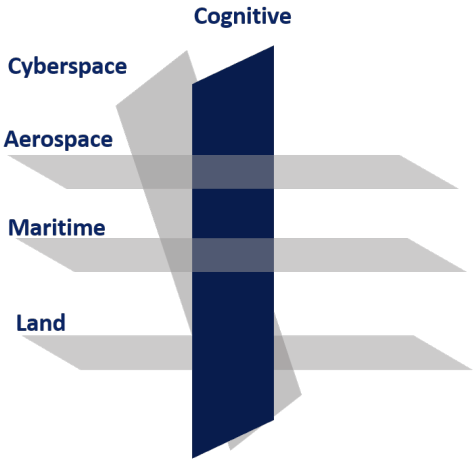

Figure 10: Domains of operation in the Spanish Defense Doctrine

The challenge of applying a doctrinal conceptualization of 'human domain' lies in the fundamental conceptual shift towards a 'sixth domain' (sixth, in the context of the NDD).[82] The notion of a separate human/cognitive domain goes beyond acknowledging the importance of humans. It holds that there is a separate class of actions that do not take place (or not only take place) in one or more of the four physical domains and/or the cyber domain, but in a space that is conceptually distinct from these. The choice of the term 'domain' emphasizes the integration and the re-use of principles (such as 'maneuvering') that have a clear meaning and application in other domains. Operationalizing the human/cognitive domain safeguards that critical human aspects are not overlooked but fully integrated within the military strategic and operational planning. This understanding of the 'human domain', however, is contested and was rejected by the NATO Allied Joint Operations Doctrine Working Group in February 2020. Those that oppose its implementation highlight that the domains model presented an alternative way of conceptualizing the effects of military operations, including those that impact human mind (cognitive) and human behavior (physical and virtual).

[80] Ministerio de Defensa, "Doctrina para el empleo de las FAS," 81.
[81] Gamboa Herraiz, "El Ámbito Cognitivo," 7.
[82] The 'human' or 'cognitive' domain is seen as the 'sixth domain' based on the Dutch domains model (see Figure 2).

Importantly, the potential use of the 'cognitive domain' does not necessarily replace the use of the Dutch dimensions model with the term 'cognitive dimension'. The two terms are conceptually distinct (although in practice this distinction is obfuscated): the cognitive domain is a sphere in which activities are *organized* based on defined strategies, methods, and capabilities. The cognitive dimension in the Dutch model is a sphere in which effects on perceptions, wills, and decision-making are generated. The Spanish doctrine defines the 'cognitive domain' as an operational domain and the 'psychological dimension' as a sphere of effects (see Figure 11). For example, the use of warfighting ships by the coast of an opponent's land may be conducted to transmit a message of strength. Such activity is an example of ways in which dimensions and domains interact. While the operation in conducted in the maritime domain, the effects are observed on the opponent's will to fight (cognitive dimension) and may lead to increased hostile activity along the coast (physical dimension).

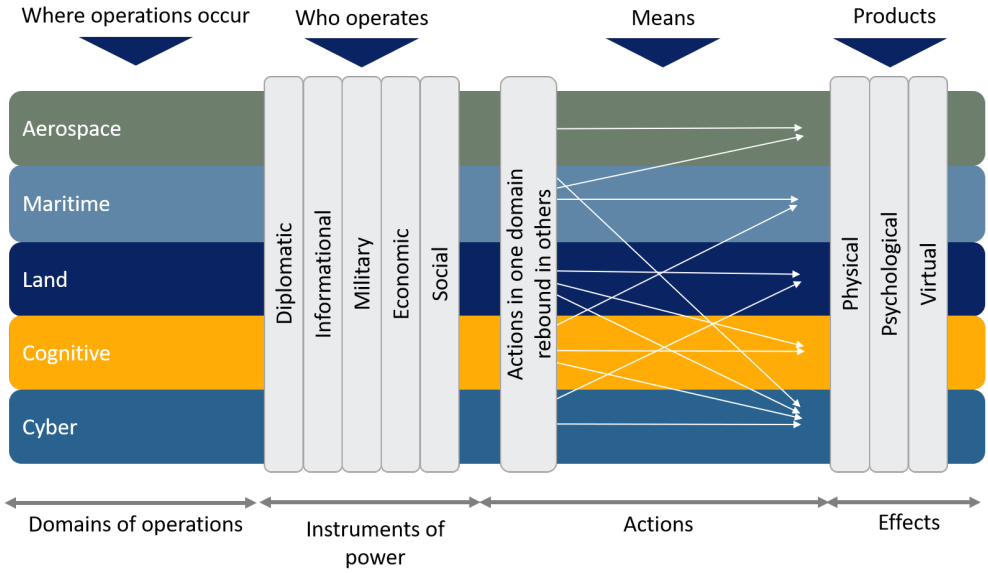

Figure 11: Integrated model of operations as defined in the Spanish Defense Doctrine[83]

In conclusion, the choice of terminology affects the operationalization of the 'human' in the military context. The choice should be conscious and well-defined. The terms chosen should further support the implementation of behavior-oriented operations in all military activities. As shown in this survey of terms, behavior-oriented operations may be promoted (1) by exposing the dimensions model, in particular, the impact of the cognitive dimension on the behavior of actors in the physical and virtual dimensions; and (2) by including the sixth domain of operations that highlights the operations devoted to influencing humans rather than destroying the land, maritime, cyber, sea, or space capabilities. A third category of terms describes the human aspect of the operational environment (i.e., the human environment); this category, however, does not affect the organization of the operations. At the moment, the RNLA continues to favor the use of the dimensions model to represent the impact on human behavior and

[83] Figure adopted and translated from Ministerio de Defensa, "Doctrina para el empleo de las FAS," 83.

the term 'human environment' to highlight the importance of studying human-related aspects of the operational environment. We hope that the discussion in this Chapter serves to expose some of the differences in terminology and doctrine between the Allied powers, thus contributing to the understanding of weaknesses and strengths of each. In Section 2.4 we will further explain the consequences of adding a sixth domain.

2.3 The maneuvrist approach

Besides the aforementioned conceptual models, the NDD additionally mentions the 'maneuvrist approach'[84] as an umbrella term to describe all operations that aim to break the will and cohesion and distort the perception of adversaries.[85] Contrary to the direct (attrition) approach, the maneuvrist approach at its core aims to target the weak spots of the opponent instead of their strengths. The aim is not to destroy the opponent but to paralyze him/her, either physically or psychologically.[86] In this way, the maneuvrist approach can be applied in both behavior-oriented and force-oriented operations.

We recognize that the maneuvrist approach and the behavior-oriented approach have considerable overlap. However, they are conceptually distinct. Whereas the maneuvrist approach aims to 'paralyze' the adversary, the behavior-oriented approach aims to 'influence' the adversary (one way could be by paralyzing its decision-making process).

2.4 Recommendations: integrated framework

Conceptual models or frameworks – with 'model' being the more generic term and 'framework' referring to a model at a high abstraction level, covering a relatively broad area but with relatively little detail and often acting as the top layer of a hierarchy of more detailed sub-models – aim to capture a complex reality in a relatively simple manner. As a means, a conceptual model should help its users to better understand structures, processes, and relationships in the real world; and to share effectively and univocally that understanding. To fulfill this purpose, a conceptual model must meet (at least) the following two requirements. First, it should represent those aspects of reality that are deemed important for effective decision-making. Second, it should do so in a clear and (relatively) easy to understand manner for the intended users. Conclusions in this Section aim to support a conceptual framework that meets these two requirements.

The current NDD introduces two connected models: the domains model (Figure 2) and the dimensions model (Figure 3), which together define military activities along the lines of chosen capabilities and anticipated/observed effects. From the two, we consider that the dimensions model provides a better reference for conducting behavior-oriented operations, as it promotes activities that influence the cognitive dimension

[84] The 'manoeuvrist approach' is a concept that originated in the UK and has not been used in the US military documents, therefore it is commonly accepted and referred to according to the UK spelling.
[85] "Nederlandse Defensie Doctrine," 92; "Landoperaties: Doctrine Publicatie 3.2," paras. 4303-4304.
[86] Teitler, Bosch, and Klinkert, *Militaire Strategie*, 69.

and result in observed behavior in the physical and virtual dimensions. In contrast, the domains model supports activities divided into physical and cyber capabilities and neglects the possible use of, for example, INFOOPS, PSYOPS or other influencing techniques.

The second requirement is for the model to relatively easily present complex concepts. The survey of terms conducted in this Section shows that there are numerous models, terms, and concepts that may be used to present a similar idea of influencing human behavior in the military context. Notably, the NATO Glossary in its current version lacks definitions for surveyed terms, thus the alignment of terminology amongst allies is hindered. Subtle differences between mentioned concepts lie in the emphasis they put on either the *effects* achieved by certain actions (e.g. the dimensions model); the conduct of *actions* to achieve certain effects (e.g. the domains model); or the *environment* in which certain actions lead to certain effects (e.g. the layers model or the land environment model). However, the use of distinct terminology and different categorizations obscures the large conceptual overlap between likewise approaches with different accents.

At its core, a consolidated model should strengthen the understanding that the behavior of actors is influenced in all types of operations across all domains. It should visually represent the relevance of behavior-oriented considerations to the way military activities are organized. To this end, we envision two ways to proceed with the enhancement of the NDD models. Given the transcendent nature of behavior-oriented operations, one could imagine introducing a 'sixth domain' of operations that crosses through all the other domains and emphasizes the integration of all activities. Introducing a 'sixth domain' (the human/cognitive domain) may indicate that the dimensions model becomes obsolete as the domains then encompass not only activities and capabilities, but also effects.

Despite the appetite for a 'sixth domain', we recognize the value of ensuring continuity with the current doctrinal conceptualization found in the NDD. The current framework has generated a change of thinking within the armed forces, in which the value of the cognitive dimension as the road to incorporating behavior-oriented methods into military operations is acknowledged. Given the attention received by the dimensions model, we envision a combined model that includes dimensions and domains to put effects-oriented (and by extension, behavior-oriented) considerations at the core of all military activities. Figure 12 shows an example of the suggested consolidated domains-dimensions model.[87] This consolidated model shows that the effects on the cognitive dimension are pertinent to all single-domain and multi-domain operations. Since the NDD states that the cognitive dimension is primarily influenced through the virtual and physical dimensions, thus we include the cognitive dimension second in order to the other two dimensions. Additionally, given the inclusion of

[87] Figure icons provided by the Noun Project.

humans, groups, and audiences, and the human psyche in the extended layers model – this model highlights that human psyche and human behavior are inherently affected by all military interventions.

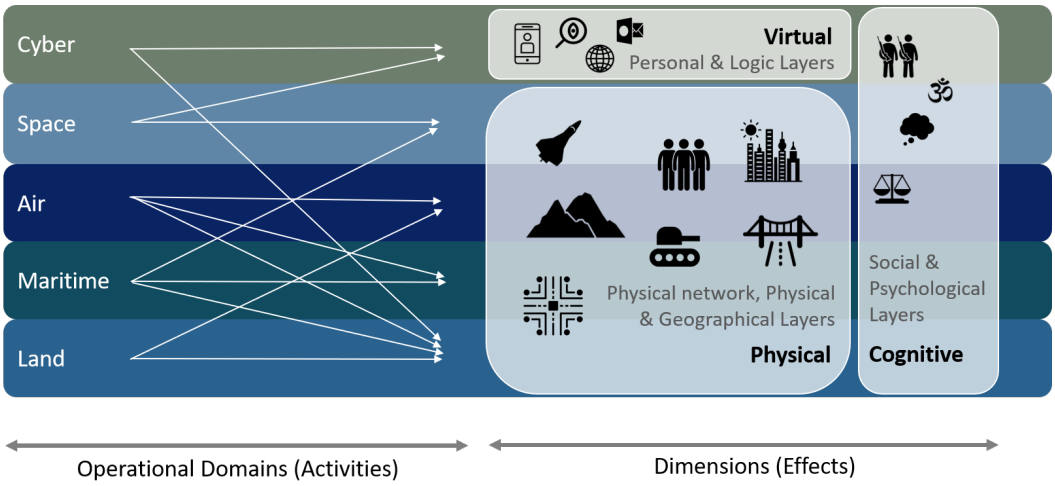

Figure 12: Consolidated domains-dimensions model

We, therefore, recommend to:

- **Promote** the use of the NDD dimensions model to organize and plan military activities and to highlight the impact on human mind in the cognitive dimension and behavior in the physical and virtual dimensions;
- **Maintain** a consistent use of terms related to the study of humans in the operational environment in the Dutch doctrinal publications and other relevant documents – favoring the use of 'human environment' (menselijke landschap) or 'human geography' over other terms;
- **Refer** to the cognitive dimension consistently across military publications and doctrines. Remove "behavior" from entities in the cognitive layer (in the 7-layers model) and instead consider it an observable element of the physical and virtual dimensions to align the interpretation with the dimensions model and those of other countries (e.g. the UK and the US);
- **Explore and test** the 7-layers model to strengthen the understanding of relations between the cognitive and the remaining six layers. Resolve inconsistencies in the use of the layers model between different documents, for example, the use of six layers in the NDD and seven layers mentioned in the ASCALON documents;
- **Observe** the developments in the application of terms 'human domain' and 'cognitive domain' to further develop an appreciation of their relevance to the NDD and to prevent future discrepancies with the conceptualization of domains across the allied forces doctrines (e.g. Spain);

- **Support** the efforts to define common terms and models for the purposes of NATO joint operations to create a shared understanding of the ways that behavior-oriented operations are incorporated into the planning and decision-making procedures.[88]

Terms in this paper are applied consistently with the recommendations. Definitions of each term can be found in the Glossary (page viii) for further clarity.

[88] Since 2015, NATO STRATCOM Centre of Excellence is leading NATO efforts within designed projects to develop consistent conceptualization of military terminology for Information Operations (i.e. Multinational Information Operations Experiment (MNIOE)), Strategic Communication (i.e. NATO StratCom policy & doctrine development & Work on STRATCOM Terminology Improvement). To find out more, see https://www.stratcomcoe.org/program-work

3. Mapping actors and their environment

Modern warfare is an unpredictable environment with difficult-to-discern and rapidly changing nuances of the human environment.[89] Complex networks of actors in a given environment and the growing importance of popular perceptions highlight the need to intelligently navigate within this landscape and to shape responses of relevant actors. To address the challenges of such battlefields, this Chapter discusses methods that aid a comprehensive analysis of actors and the environment in which they interact to aid situational awareness and improve foresight capabilities.

Understanding the operational environment involves "an accurate interpretation of the specific circumstances and insight into the likely reaction of (groups of) actors to these specific circumstances," as described in the Dutch land forces doctrine.[90] Understanding audiences and the dynamics between them is the key objective to developing effective behavior-oriented interventions. However, without knowledge of the context in which actors interpret their reality, in other words without an emic perspective[91], there is a risk of misunderstanding their behavior. Hence, the mapping of the operational environment should involve an analysis of factors that influence actors of conflict, on one hand, and of actors that influence (or have the potential to influence) the area of operations, on the other.

The analysis of factors can be referred to as a study of the operational environment. The factors analysis aims to identify and understand dynamics influencing behavior within a given operational environment. Depending on the level of analysis and the frequency of information gathering, factors range from stable (e.g. demographics) to relatively dynamic (e.g. vote share of political parties) indicators. In this Chapter, we outline how the analysis of factors can be enhanced to improve the understanding of trends and the operational environment's characteristics with their influence on human behavior.

The analysis of actors is a study of relevant actors and ways in which they perpetuate an undesirable conflict situation. We define relevant actors as all individuals, groups, nations states, non-state actors, and international actors that have the potential to substantially contribute to or hinder the success of a particular mission.[92] It is broader than a study of adversaries. The analysis of actors studies who are the key players, what their role is, why there are involved, and how their behavior can be influenced.

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[89] Carter, "Clouds or Clocks: The Limitations of Intelligence Preparation of the Battlefield in a Complex World," 38.
[90] "Landoperaties: Doctrine Publicatie 3.2," para. 4306.
[91] For a definition of an emic perspective see the Glossary.
[92] The definition of 'relevant actors' provided in this report is different from more low-tactical level definition used by the US forces. The definition provided in the JC-HAMO of relevant actors is: "individuals, groups, and population whose behavior has the potential to substantially help or hinder the success of a particular campaign, operation, or tactical action." See: "Joint Concept for Human Aspects of Military Operations (JC-HAMO)," 1.

Together, the analyses of factors and actors form a comprehensive map of the operational environment. In this Chapter, we describe methods that improve the ability of the armed forces to develop effective strategies to shape the behavior of actors.

This Chapter is organized as follows:

1. The first section describes how a commander's intent can be used as a means to guide information gathering towards behavior-oriented operations;
2. The second section examines and enhances the inclusion of human-related aspects in the analysis of factors;
3. The third section discusses methods that aid a structural analysis of actors to improve the armed forces' ability to understand and anticipate actors' behavior;
4. The fourth section discusses the process of data collection and interpretation to highlight the organizational requirements;
5. The fifth section provides recommendations to the RNLA to discern the implications of our findings to the process of gathering, analyzing, and interpreting information at various levels of operation.

This report enhances methods of analyzing factors and actors to strengthen the ability of the military to plan behavior-oriented operations. Mapping lays the foundation for the following step, namely: maneuvering in a behavior-oriented approach, discussed in Chapter 4.

3.1 Commander's intent: behavior-oriented approach

The collection and processing of information form a circular process which to a great extent informs the planning of the military operations (see Figure 13).[93] The gathering of broad information starts before the commander has received the mission. The gathering of focused information starts when the mission is formulated, and the focus is determined by the commander's intent. In other words, the process of understanding the operational environment is guided by the objectives defined by the commander. Therefore, this Section discusses how the commander's intent can be used as a means to guide the information gathering towards the development of behavior-oriented interventions.

[93] "Revolutionizing AF Intelligence Analysis [White Paper]." Figure adopted from "AJP 2: Allied Joint Doctrine for Intelligence, Counter-Intelligence and Security."

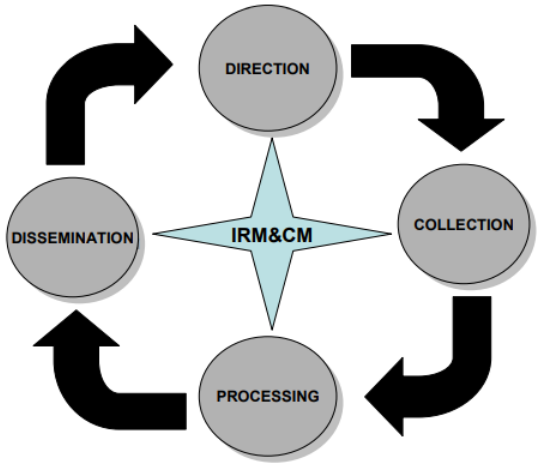

Figure 13: The Intelligence Cycle

The commander's intent facilitates a shared comprehension of the mission objectives. It is a short expression of the operation's aim, stating the desired effects, and how the execution should develop towards the desired end state.[94]

In this Chapter, which focuses on the gathering of information, we highlight that the commander's intent has a significant impact on the way information gathering is conducted. Therefore, we stress the need for the intent to reflect desirable effects on the behavior of relevant actors.[95] Concurrently, the commander's intent intrinsically follows from insights emerging from information gathering.

We distinguish between two approaches represented in the way commanders' intent is defined. The first one refers to the force-oriented approach, which focuses on destroying key capabilities in order to restrict adversaries' ability to fight. This approach can be seen in the following example: 'I will attack to neutralize an armed group in order to prevent them from employing violence towards the local population.' The second refers to a behavior-oriented approach, where the commander's intent is defined in terms of effects achieved on the behavior of actors and/or the cognitive dimension. See the following example: 'I will undermine the will of an armed group to employ violence towards the local population by increasing the protection of the immigrants, decreasing the number of youngsters that join as fighters, and increasing the effectiveness of the police forces to solve reported criminal offenses.' Especially in a behavior-oriented approach, the commander's intent should be actor-centric and follow from the understanding of actors' (undesirable) behavior, and therefore should adapt as the apprehension of actors progresses.

Importantly, neither approach precludes the use or engagement of the other. In fact, the key is to gain a sufficient understanding of the operational environment to be able to select and combine approaches based on the type of TA, susceptibility to influence the type, and intensity of hostilities. When acting holistically, both approaches are combined to maximize effects on the battlefield.

Former US Army officer, Jeffrey Reilly, suggests that the commander's intent (at the US strategic level) is motivated by and defined in relation to the following five elements:

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[94] "Doctrine Publicatie 3.2.2 Commandovoering".
[95] See also, Duistermaat et al., "Behavioural change as the core of warfighting."

1. **National direction** – the political strategic vision provided by state authorities;[96]
2. **Tension** – the desired political end state of the adversary which highlights the points of tensions and may impede the achievement of own's end state;
3. **Time (i.e. planning horizon)** – time necessary to accomplish the end state and the aftermath duration of achieved effects;
4. **Actors influence** – relevant actors of conflict that may positively or negatively influence the achievement of the end state;
5. **Limitations** – the barriers created by capabilities, resources, and other internal or external factors that may limit the achievement of the end state.[97]

As shown through Reilly's five elements, a desirable end state is a vital element in the development of the commander's intent. The end state defines the desirable situation that the military wishes to reach at the end of the operation.[98] To draft an end state holistically, it is critical to consider not only the distribution of force and power but also the behavior of actors and the dynamics between them at the end of the conflict. We provide the following example of an end state that supports a behavior-oriented approach: 'A stable community that accommodates immigrants without armed aggressions neither by the population nor vice-versa by the immigrants'.

Ultimately, defining the commander's intent (including the end state) in terms of the behavior of relevant actors aims to refocus the efforts of information gathering to effectively support behavior-oriented operations.

3.2 Factors analysis

Why conduct a factors analysis?

- To improve situational awareness and foresight capabilities by gaining a comprehensive overview of an operational environment
- To systematically categorize gathered information and develop a baseline of understanding
- To identify trends and characteristics of an operational environment with relevance to the mission objectives
- To inform the understanding of root causes of a conflict situation
- To support the analysis of actors by gaining a better understanding of the context in which actors interact, exhibit behavior, and interpret information
- To inform key aspects of designing operations in a behavior-oriented approach

[96] In the context of the Dutch armed forces, the national direction and the political objectives are relevant only to the superior commanders' intent.
[97] Reilly, *Operational Design*, 9–11.
[98] "Landoperaties: Doctrine Publicatie 3.2," 6–11.

Analysis of factors is the initial step and the foundation in the process from understanding the observed system to developing and applying military interventions. Factors refer to all interdependent elements that jointly affect the operational environment and actors acting in it. The objective of analyzing factors is to identify trends and characteristics of the operational environment that affect the mission objectives. The process of analysis stretches from a comprehensive overview of the environment to a focused and nuanced analysis of specific elements and/or tensions.

It is common practice for analysts to map the environment by classifying collected information into categories to simplify the complexities of the conflict situation.[99] Numerous frameworks of factor categorization exist.[100] A widely applied and the one currently in use by the Dutch armed forces is the PMESII framework, which distinguishes between Political, Military, Economic, Social, Informational, and Infrastructural factors. In this Section, we analyze the way the PMESII framework is currently used (Section 3.2.1) and propose ways in which the use of the PMESII framework may be enhanced (Section 3.2.2). The PMESII framework in this report is enhanced by incorporating actionable quantitative and qualitative questions to improve the depth of analysis.

In the landscape of hybrid and population-centric conflicts, the application of the PMESII framework supports the view that military interventions should be based on the understanding of the root causes of conflict. As one of our interviewees explains, "observing the symptoms is not enough, we must understand the causes".[101] Understanding root causes relevant for communities in the operational environment advances the understanding of (systemic) tensions that influence actors' perceptions, attitudes, and behaviors and aids the subsequent analysis of actors (see Section 3.3).

3.2.1 PMESII framework: introduction

The PMESII framework is a widely used method. It is recognized by the Dutch Ministry of Defense,[102] in the Army Doctrine Publication,[103] and in the Dutch Army handbook Tactical Activities.[104] In practice, the application of the PMESII framework by the Dutch forces is semi-formal and differs depending on the assigned mission and time

[99] Whereas commonly analysts categorize collected information manually, it may be that in the coming years this practice will change due to the growing relevance of algorithmic systems' ability to find patterns in data. Whereas this may be a groundbreaking factor data collection, analysis, and interpretation.
[100] Examples of other frameworks include: the Political, Economic, Social and Technological (PEST) Framework; the Political, Economic, Social, Technological, Legal, Environmental and Information (PESTLEI) Framework; and the Social, Technological, Economic, Environmental, Political, Legal, Ethical and Military (STEEPLEM) Framework. [UK Ministry of Defence, "Joint Doctrine Publication 04 - Understanding" para 308.] Alternative frameworks include those divided according to the mission variables: Mission, Enemy, Terrain and Weather, Troops and Support, Time Available, and Civilian Considerations (METTTC). *Intelligence* (*ADP 2-0*), 1–2.
[101] Interview 1.0 with a former NLD Taskforce Uruzgan commander.
[102] *Joint Doctrine Publicatie 5 Commandovoering*.
[103] "Landoperaties: Doctrine Publicatie 3.2."
[104] "Handboek: Tactical Activities Land-CA-02."

available.[105] This diffused application of the PMESII framework may at times impede collaboration between units, departments, or organizations. The earliest accounts of integrated use of the PMESII framework by the Dutch forces dates to the deployments to Uruzgan, Afghanistan (2006-2010), and was further improved during the Dutch presence in MINUSMA (2014-2019).[106] The Dutch refer to it as the x-PMESII framework, in which "x" highlights the interconnectedness of all factors.[107] The connection of multiple factors in the PMESII framework shows that understanding is not category-specific, but each information and data point contributes to a more comprehensive overview of the operational environment (see Figure 14).[108]

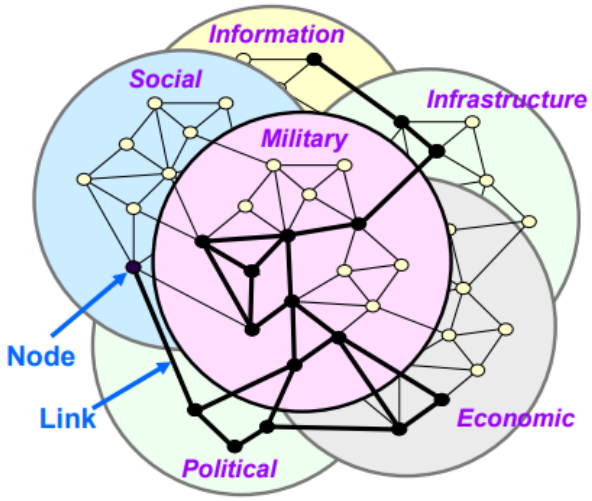

Figure 14: Representation of the PMESII framework factors[109]

The PMESII framework supports a system thinking approach in that it seeks to "define smaller and independent aspects of an environment, classify the data points into categories, explore relationships, and subsequently garner a greater understanding".[110] Dividing the system into subcategories allows a human mind to better analyze each element, but it may obscure the ability to find connections between varying categories. Critics have argued that the PMESII framework is too linear to adequately capture a dynamic reality.[111] They argue that "the model and its components remain static and drive research of an environment rather than the environment driving research to then formulate a model."[112]

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[105] Interview 1.0 with a former NLD Taskforce Uruzgan commander; Interview 2.0 with a NLD officer with PSYOPS and STRATCOM experience; Interview 5.0 with a NLD senior officer with intelligence experience; Interview 6.0 with a NLD officer with intelligence experience.
[106] Rietjens, de Waard, and van Fenema, "Employing Comprehensive Intelligence."
[107] Rietjens, de Waard, and van Fenema, 321.
[108] Ducote, "Challenging the Application of PMESII-PT in a Complex Environment," 20–21.
[109] Ducote, 21.
[110] Ducote, 12.
[111] Ducote, "Challenging the Application of PMESII-PT in a Complex Environment"; Laurence and Matthews, *The Oxford Handbook of Military Psychology*, 94.
[112] Ducote, "Challenging the Application of PMESII-PT in a Complex Environment," 11.

It is recommended that analysts use the PMESII framework as a supporting tool rather than a one-size-fits-all solution to data collection and actively seek to expand the scope of the analysis. It is important to use tools and develop practices that, on the one hand, simplify (e.g. through visualization) findings and, on the other hand, support the analysis of cross-category tensions to capture the complexity of the human environment.

3.2.2 Beyond the PMESII framework

In this Section, we discuss two ways in which the PMESII framework may be strengthened and standardized. The two directions refer to: (1) a horizontal enhancement, which seeks to redefine the categories and define new ones to create a comprehensive view of the environment (Section 3.2.2.1), and (2) a vertical enhancement, which provides tools to improve the depth of understanding within a selected category (Section 3.2.2.1). Insights in this Section are based on interviews, literature review, and own experimentation (i.e. dashboard and data analytics) during which we assessed the feasibility and utility of each method.

3.2.2.1 Horizontal enhancement: categorization

We first discuss the scope of each of the PMESII categories to highlight elements that are included in the framework. Since there is no universally accepted list of the PMESII factors, we provide a list of elements surveyed from an array of documents, both those that refer to more old-school and those including modern-day aspects. Subsequently, we highlight new categories included in alternative frameworks that cover aspects that often fall outside the scope of the PMESII framework and nevertheless should be included in the analysis.

Table 2: Scope of the PMESII categories[113]

Category	Scope
 Political	Includes "local and regional governments; international relations; foreign alliances; unofficial power centers (gangs, cartels, multinational organizations, and militias); and political or ethnic grievances and affiliations".[114] This category may further identify political ideologies, informal policies, popular leaders, perceptions of the government amongst the population, and external affiliations with like-minded partners.[115] In this sphere, it is important to gain an understanding of the sources of power legitimacy.[116]
 Military	Includes the "rules of engagement, establishment and location of exclusion zones and no-fly zones, maritime defense zones" and other zones relevant to military capabilities.[117] Additionally, should further study the will to fight, the underlying causes of joining the army/militia, the military habits, the age and educational level of military/militia recruits, and the perceptions and legitimacy of the military/non-state actors within the society.[118]
 Economic	Includes factors that directly influence the financial situation of the state or of specific groups, organizations, and individuals. It stands for the monetary elements, the financial system, the labor market, trade capabilities, power parity, access to natural resources, industrial centers, etc.[119] The role of new forms of economic exchange, bitcoin, and financial applications (e.g. WeChat, Apple Pay), should be considered. Additionally, this category includes trends in and causes of unemployment, corruption, criminal activities, inequality, economic behavior, and foreign investments.[120]
 Social	Includes macro-level information about the population: demographics, gender distribution, migration statistics, access to education, etc. Valuable understanding can be gained from statistical data on the perceptions of migrants, ethnic strife, religious affiliations, and health-related indicators such as depression rates.[121] Historical events and their influence on current social tensions may be highlighted.[122]

[113] Icons included in the Table provided by the Noun Project.
[114] "Joint Publication 2-01.3," III.38-40.
[115] "Socio-Cultural Analysis Framework (SCAF)," 7–8.
[116] "Psychological Operations Tactics, Techniques, and Procedures," 3–8.
[117] "Joint Publication 2-01.3."
[118] "Psychological Operations Tactics, Techniques, and Procedures," 3–8.
[119] "Joint Publication 2-01.3."

 Information	Includes both the sources and the means of information transmitted to actors of conflict as well as an analysis of its content, e.g. "government-controlled news media; unofficial sources such as local independent news media; unauthorized internal sources such as underground radio and newspapers; and third-party sources such as the international press and various social media outlets".[123] Additionally, new forms of information transmission should be included: social media, phone applications, messaging apps, video channels, and other platforms that disseminate information in the virtual dimension. Verbal and non-verbal language may be analyzed to understand interpersonal communication.[124]
 Infrastructure	Includes "transportation means and systems; communications nodes; power production facilities and transmission grids; pipelines; and medical treatment facilities".[125]

A review of the PMESII framework reveals that the inclusion of the following factors is limited: natural environment, culture, and psychology. We briefly describe each factor to highlight the possible horizontal enhancement of the PMESII framework.

(1) Natural environment

While the PMESII framework includes a study of the infrastructure, it is focused on manmade aspects of the environment. The natural environment is not exposed by this framework. To include this additional aspect, the US military extends the framework to include "P" in PMESII-PT to highlight the role of the Physical environment.[126] Similarly, an alternative Socio-Cultural Analysis Framework (SCAF) defines "Geography" as a separate category, which encompasses the physical features of the earth and atmosphere, natural disasters, weather patterns, environmental issues, et cetera.[127] Within the Dutch intelligence, the physical environment is examined as part of the Environmental Evaluation,[128] therefore the enhancement of the PMESII may not be necessary in the context of Dutch intelligence.

[120] "Socio-Cultural Analysis Framework (SCAF)," 19–20.
[121] "Joint Publication 2-01.3"; "Socio-Cultural Analysis Framework (SCAF)."
[122] "Psychological Operations Tactics, Techniques, and Procedures," 3–7.
[123] "Joint Publication 2-01.3," III.38-40; "Psychological Operations Tactics, Techniques, and Procedures," 3–9.
[124] "Socio-Cultural Analysis Framework (SCAF)," 63.
[125] "Joint Publication 2-01.3," III.38-40.
[126] Ducote, "Challenging the Application of PMESII-PT in a Complex Environment."
[127] "Socio-Cultural Analysis Framework (SCAF)," 68–70; Ducote, "Challenging the Application of PMESII-PT in a Complex Environment."
[128] "Leidraad Inlichtingen (LD 5)."

(2) Culture

Another category, sometimes overlooked in the analysis of characteristics of the operational environment, is culture. Whereas some perceive culture be encompassed by the Social domain, there is no agreement whether this is the case. The SCAF framework highlights the importance of culture to the understanding of the local population, attitudes, and "expected behavior in a given situation" by explicitly distinguishing the category of cultural components.[129] Similarly, the Joint Concept for Human Aspects of Military Operations (JC-HAMO) recognizes cultural factors as a separate category and highlights the way cultural differences affect perceptions.[130] The Dutch doctrine publications[131] mention the analysis of culture but not in relation to the PMESII framework. Therefore, it is considered beneficial to enhance the PMESII framework by additionally including the study of cultural factors.

(3) Psychology

A separate category of psychological factors is identified in the JC-HAMO as a way to highlight the study of "how people perceive, process, and act upon information".[132] Distinct patterns of situation analysis, judgment, assumptions, emotions, and mental health impact human behavior. Although this category is undoubtedly critical to the analysis of human decision-making, it is arguably more relevant to the actor analysis rather than the operational environment as a whole. Therefore, aspects of psychological analysis are suggested to be incorporated into Target Audience Analysis (Section 3.3.3).

3.2.2.2 Vertical enhancement: depth of analysis

The horizontal enhancement of analysis, that is the analysis beyond "the boxes" of the PMESII categories, is especially useful at the beginning of the intelligence cycle to gain a broad view of the issues, tensions, and characteristics in a given environment. However, with a growing understanding of the operational environment and more focused mission objectives (see Section 3.1 on the commander's intent), there is a need to improve the depth rather than the scope of analysis. This is where a horizontal analysis takes priority.

Through experimentation, we came to understand the need for a detailed and systematic analysis of the operational environment. Whereas a broad scope allows one to perceive the environment from 'a birds eye' perspective, the depth of analysis is necessary to understand the different characteristics between, for example, groups, neighborhoods, political party affiliations, or ethnic groups. This more detailed analysis is what brings the military closer to the understanding of the root causes. There are

[129] "Socio-Cultural Analysis Framework (SCAF)", 51.
[130] "Joint Concept for Human Aspects of Military Operations (JC-HAMO)," 7.
[131] See, for example, "Nederlandse Defensie Doctrine," "Joint Doctrine Publicatie 5 Commandovoering," "Leidraad Inlichtingen (LD 5)," "Doctrine Publicatie 3.2.2 Commandovoering."
[132] "Joint Concept for Human Aspects of Military Operations (JC-HAMO)," 7.

numerous approaches to improve depth of analysis, including the well-known ASCOPE[133] approach. Yet, we found the Socio-Cultural Analysis Framework (SCAF) framework to best fit the purpose of operationalizing the PMESII categories. The SCAF provides an extensive list of investigative questions that, when answered thoroughly, lead to a very detailed and comprehensive analysis of trends and events.

Based on knowledge from behavioral, social, and political sciences, SCAF develops a taxonomic approach to arrange terms in a hierarchical framework "in which more general descriptors (e.g. car) link to more specific descriptors (Mercedes), which then link to even more specific descriptors."[134] Each category is divided into factors, sub-factors, and discussion topics (see an example of the SCAF division of the Political category in Figure 15). For each discussion topic, SCAF provides guiding questions to aid the development of an in-depth understanding of the operational environment. SCAF questions range from quantitative to qualitative and from general to specific. For example, a qualitative question is: "Do people self-identify first with their community, region, city, nation, etc.?" An example of a general and quantitative question is: "What is the male to female ratio for the population?" Lastly, a specific question is: "Which groups are underserved by the medical professionals and why?" Altogether, the framework consists of 272 indicators and 678 questions, which demonstrates the extent of detail provided by this framework. In practice, the commander's intent and broader mission objectives should guide the selection of relevant questions, this way limiting the total number of questions to those that will best serve the specific needs. Findings may be represented visually, for example in a format of a dashboard, to aid the understanding of trends.

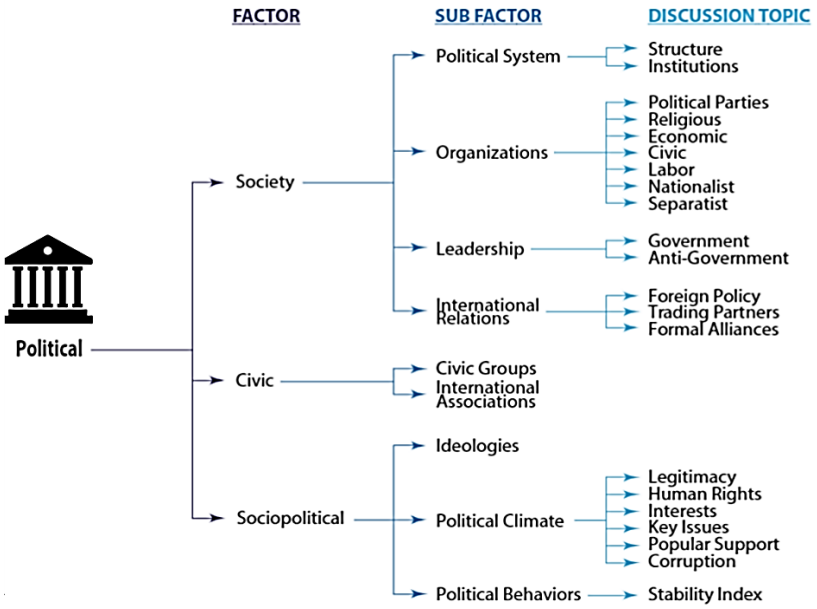

Figure 15: Taxonomical division of the political category[135]

[133] Areas, Structures, Capabilities, Organizations, People, and Events Framework.
[134] "Socio-Cultural Analysis Framework (SCAF)," 3.
[135] "Socio-Cultural Analysis Framework (SCAF)."

In conclusion, the methods described in this Section improve the scope and depth of factors analysis. These methods aim to reorient information gathering using the commander's intent towards aspects relevant to understanding the root causes of conflict. However, in rapidly changing environments, one should recall the words of Carl von Clausewitz and Dietrich Dörmer, who warned that any rigid methodology limits a fresh flow of ideas and creative thinking.[136] Thus, one should remember to always leave space for flexibility, adaptation, and continuous evaluation of methods.

Connecting the analyses of factors and actors

The analysis of factors is a process which studies complexities of the observed environment. Among others, it studies political, social, military, economic, information, and infrastructural components that potentially influence the mission. For example, raising trends in unemployment, high school dropout rates, criminal activity, and diminished foreign investments may all constitute factors contributing to instability. The analysis of factors aids the understanding of the context within which actors interact and interpret their surroundings.

The analysis of actors works as follows. Having interpreted tensions, one must understand who the actor behind each act is. For example, high school dropout rates may be related to parents who redirect the attention of children to housework, to criminal groups that incentivize students to join criminal activities, to teachers who are unable to keep students' attention, et cetera. Identifying actors, how they relate to each other, and how they affect the system can be complex - not least since the system is dynamic. Mapping actors requires a diligent analysis and an understanding of human behavior, attitudes, perceptions, intentions, and susceptibility to influence.

Lastly, having identified which tensions exist (e.g. unemployment) among which actors (e.g. youth), it is time to understand 'why' (e.g. due to youth discrimination). The answers to "why" questions require an understanding from within: why is a certain actor acting in a certain way? Being able to understand why undesirable behavior is demonstrated and why desirable behavior is not being demonstrated, we are in the position to anticipate the susceptibility of the TA to influence activities and plan interventions accordingly.

Without the analysis of factors, understanding of actors lacks context. Without the analysis of actors, the factors' analysis lacks the depth necessary to understand underlying processes. The two are interrelated and should be analyzed iteratively.

[136] Carter, "Clouds or Clocks: The Limitations of Intelligence Preparation of the Battlefield in a Complex World," 38.

3.3 Actor analysis

Why conduct an actors analysis?

- To understand the root causes (triggers or drivers) of conflict
- To anticipate the behavior of adversaries and other relevant actors
- To improve the ability to influence and shape behavior of target audience
- To inform key aspects of planning in a behavior-oriented approach
- To improve insight and foresight capabilities

Traditionally, the military analyzes actors to map their intentions, capabilities, activities, vulnerabilities, and disposition.[137] The objectives are then defined mostly from an etic perspective (outsider's perspective), reflecting what is "our" goal in the operational environment. One of our interviewees said, "we think we know how people act but as Mali and Afghanistan showed we don't; they act strangely and not in the way we expected them to act."[138] Similarly, the assumptions of the Western coalition forces stationed in Afghanistan regarding the Afghani population were often erroneous, since they failed "to explain how populations understand their reality".[139] This highlights that an etic perspective is insufficient to conduct effective strategies, especially when it comes to understanding and anticipating the behavior of relevant actors. As another interviewee responded, "people do not act strangely, we simply do not understand why they acted this way".[140] The understanding of the emic perspective (insider's perspective) is needed to understand how to achieve objectives, how will relevant actors react to the activities, and how will their behavior change as a result of our actions. The methodology described below assists in understanding the conflict dynamics from relevant actors' emic perspective[141], builds situational understanding and awareness, and significantly improves foresight capabilities in relation to the human environment.

The understanding of actors, in this context, has the objective of developing effective interventions that shape the behavior of actors in a way that serves to achieve military objectives. In the words of a Dutch commander deployed to MINUSMA, "we want to know in advance what is going on in people's minds, and to integrate a predictive

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[137] Email from NLD officer from the Expertise Centre of JISTARC, dated November 30th, 2020.
[138] Interview 2.0 with a NLD officer with PSYOPS and STRATCOM experience.
[139] Rietjens, de Waard, and van Fenema, "Employing Comprehensive Intelligence," 315.
[140] Email from NLD officer from the Expertise Centre of JISTARC, dated November 30th, 2020.
[141] Emic perspective is defined as perspective pertaining to the view from within; developed with the mind of an individual or a culture; meanings developed in terms of native categories (The Concise Oxford Dictionary of Archaeology, Oxford University Press).
As the Dutch Army uses the Behavioral Dynamics Methodology we stress the importance of the Emic perspective being a central tenet of the Behavioral Dynamics Methodology. Therefore it is relevant to note that the Behavioral Dynamics Methodology defines 'emic logic' as: 'the reasoning behind the accounts, narratives and analyses expressed in terms of the conceptual schemes and categories that are regarded as meaningful and appropriate by the members of a group or culture under study'. See Emic Consulting, "The Behavioural Dynamics Methodology For Strategic Communication And Behaviour Change," 21.

element to our analysis"[142] Achieving desired effects in a meaningful way requires an understanding of how actors' behavior is formed and can be influenced. The Dutch military conducts a physical reconnaissance of the area of operations before deploying troops. It would be wise to include the virtual dimension and the cognitive dimension as well.

There are as many behavioral change theories as scholars working on the topic. The purpose of this report is not to scope all of these behavioral change theories. It is to enhance the existing theories that have already, to a certain degree, been adopted in the military context. For this reason, we discuss Fishbein's and Ajzen's theory of Reasoned-Action Approach (RAA) which is a widely accepted and applied theory in the field of psychology and others.[143] Forms of the RAA model have been translated into the military context and can be found in the NATO Psychological Operations Handbook (see Figure 16), the UK Joint Doctrine Note 2/19,[144] the Behavioral Dynamics Methodology (BDM),[145] the Behavioral Change Wheel (BCW) Framework, and selected publications of the Dutch 'Militaire Spectator'.[146] In general terms, the simplified behavior model is represented in the NDD's dimensions model. The cognitive dimension represents the underlying factors (i.e. beliefs, norms, and self-belief). The physical and/or virtual dimensions represent (a) external physical and/or virtual factors that influence the cognitive processes, and (b) the observed behavior of actors. As follows from the RAA and the dimensions model, the cognitive dimension is influenced by and influences the physical and virtual dimensions.

[142] Rietjens, de Waard, and van Fenema, "Employing Comprehensive Intelligence," 325.
[143] Fishbein and Ajzen, *Predicting and Changing Behavior*.
[144] "Joint Doctrine Note 2/19," 13.
[145] Emic Consulting, "The Behavioural Dynamics Methodology For Strategic Communication And Behaviour Change."
[146] See for example, Duistermaat et al., "Behavioural change as the core of warfighting."

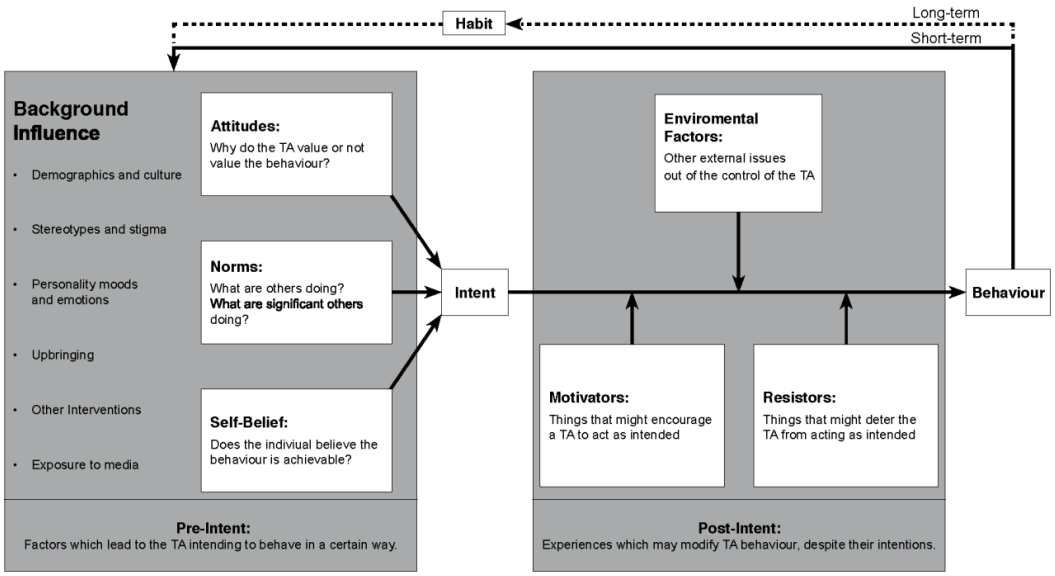

Figure 16: Simplified behavior model[147]

The RAA Model explains that human behavior is formed in a two-step process. In the first step, people form self-beliefs, culture, social environment, information they receive from media, perceptions of their family members, et cetera.[148] These beliefs guide individual decision-making and form the intention to behave (or not) in a certain manner.[149] The intended behavior is additionally impacted by the individual's attitude towards certain behavior and the (social or family) norms by which they are surrounded.[150] In the second step, the execution of intended behavior depends upon the actual control over behavior, which is "requisite skills and abilities, or presence of environmental constraints".[151] For example, the duration of the conflict may act as a resistor to an actor's willingness to fight and thus undermine the execution of intended behavior.[152]

The RAA theory suggests that intention is a strong predictor of behavior.[153] However, researchers have found that behavior may be formed without a necessarily well-formed intent (e.g. the cognitive dissonance and the social cognitive theories). Among others, Daniel Kahneman and Paschal Sheeran, have demonstrated that human behavior is often performed unconsciously and is significantly influenced by external factors (e.g. priming effects and cognitive biases).[154] These findings highlight that much more than Fishbein and Ajzen initially expected, a lower actual control over behavior results in lower predictability of behavior from intention. For example, past behavior patterns

[147] NATO, *NATO Psychological Operations Handbook,* Draft Version (2.0) 24th March 2014, 26.
[148] Fishbein and Ajzen, *Predicting and Changing Behavior*.
[149] Fishbein and Ajzen.
[150] Fishbein and Ajzen.
[151] Fishbein and Ajzen, 21.
[152] Reilly, *Operational Design*, 10.
[153] It must be noted that authors of the RAA theory recognized that a lack of "actual control" may influence the ability to perform intended behavior Fishbein and Ajzen, *Predicting and Changing Behavior*, 21–22.
[154] Sheeran, "Intention—Behavior Relations"; Kahneman, *Thinking, Fast and Slow*.

have been recognized as strong predictors of future behavior.[155] There is also stronger evidence of past and present behaviors leading to attitudes, rather than attitudes leading to behavior.[156] Nonetheless, especially in unstable contexts such as conflict situations, which are "less conducive to habit formation", the intent remains a relevant element in predicting future behavior.[157]

The intent vs. behavior discussion is longstanding, and it will continue in the academic realm of social sciences. It does not preclude the relevance of studying intentions, wills, and attitudes. It is, however, important to recognize that intention is not the sole factor predicting future behavior. Other factors, such as past behavior or external events, may be equally important in assessing the actual control and the predictability of behavior. Therefore, understanding and anticipating human behavior require both the analysis of actors and of the environment (factors) in which behavior is exhibited.

Concurrently, the intent vs. behavior discussion forms the basis to comprehend ways in which the military may influence behavior. In other words, how they may interfere with the behavior formation process to enforce/reshape/create desirable behavior. Multiple intervention pathways exist, either by changing the post-intent factors or by influencing the pre-intent factors. The simplified behavior model (Figure 16) further helps to understand that a brief intervention into the physical barriers is likely to only change the behavior in the short-term since the actor's intent will remain unchanged. Instead, multiple interventions that generate new habits or interventions, focusing on shaping the underlying perceptions and attitudes, are needed to influence behavior in the long-term. Among others, Oinas-Kukkonen showed that behavioral changes accompanied by a compatible intention (whether existing or shaped) make it more likely that the TA will engage in and persist in displaying desirable behavior.[158]

This Section outlines a systematic methodology to analyze actors. This methodology enhances the ability of the military to understand relevant actors and provides a solid foundation to develop effective behavioral change interventions. Methods presented in this Chapter are a result of a synthesis of the aforementioned publications: the NATO Psychological Operations Handbook, the UK Joint Doctrine Note 2/19, the Behavioral Dynamics Methodology Course Reader, the BCW Framework, and selected publications of the Dutch 'Militaire Spectator'. Further, the BDM and interviews with the military personnel trained in BDM contributed substantially to the development of the problem exploration and the TAA.[159] Additionally, given the CD&E nature of the project, methods were enhanced in the process of experimentation (i.e. dashboard and data analytics).

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[155] Sheeran, "Intention—Behavior Relations."
[156] Hutchinson, "Influence Operations," 15.
[157] Sheeran, "Intention—Behavior Relations," 26.
[158] Oinas-Kukkonen, "A Foundation for the Study of Behavior Change Support Systems."
[159] The BDM is further explained in Appendix I.

The overview of the actors' analysis' methodology is represented in Figure 17. This process is far from linear. It requires a cyclic development of a hypothesis, deepening of understanding, and acceptance or rejection of a hypothesis. The inclusion of factors analysis in the methodology cycle highlights the importance of incorporating findings related to the environment in which actors interact with the analysis of actors' behavior. This Section is structured according to the methodology presented below.

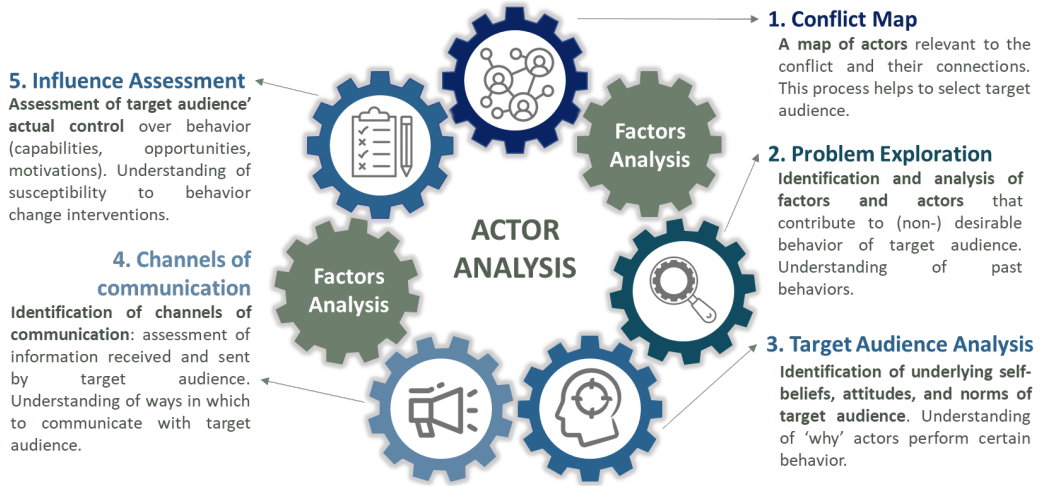

Figure 17: Schematic overview of the actor analysis[160]

Table 3: A table of inputs and outputs of actor analysis

	Input	Output
1. Conflict Map	- List of (potential) conflict actors - Desk-based research and field interviews to identify nature of relations between actors	- Map of actors and their connections - Position of one's forces within the network - Selection of TA based on the commander's intent
2. Problem Exploration	- Quantitative data to identify general trends - Identification of NDB based on the commander's intent - Desk-based research, insights from SME and qualitative field interviews to identify dynamics between NDB and underlying factors	- Problem Space Map with a comprehensive overview of the system of actors and factors that support NDB - Improves understanding of past behaviors and external influences on actors' behavior
3. Target Audience Analysis	- Desk-based research and field interviews to identify demographics, culture, stereotypes, personal traits and emotions, upbringing, media, politics, etc. that influence TA's intent and behavior	- Improves understanding of TA's wills, motivations, attitudes, perceptions - Improves understanding 'why' certain behavior is performed
4. Channels of communication	- Desk-based research and field interviews to identify channels through which TA communicates	- Identifies TA's most suitable channels to influence actors - Improves understanding of TA capabilities and resources
5. Influence Assessment	- Synthesis of previous steps and findings - COM-B Model Analysis of capabilities, opportunities and motivations of TA	- Improves understanding 'why' certain behavior is performed - Improves understanding of susceptibility of TA to behavior change interventions - Feeds into the design of maneuvering strategies

[160] Icons provided by the Noun Project.

3.3.1 Conflict Map

The first step of the actor analysis is the identification of relevant actors and their connections within the operational environment. Mapping the conflict provides insight into existing actors in each context, as well as the nature and type of interactions between them. The objective is to improve situational understanding by providing an ongoing overview of the conflict dynamics. Additionally, in the context of a mission, the conflict map illustrates who may be influenced by military interventions and assists in determining the TA.

It is worth mentioning that the conflict map is in some intelligence circles replaced by an alternative 'human terrain map'. These two maps, however, differ in their approach. The 'human terrain map' focuses more on the alignment of actors along the lines of adversary/neutral/friendly. The 'conflict map' aims to showcase the connections. The conflict map should also be distinguished from the concept of social network analysis. Social network analysis is a method used to analyze social cohesion within a specific group and to understand social ranking,[161] whereas a conflict map is much broader and visualizes the nature of relationships between different (groups of) actors.

The conflict map represents actors relevant to the conflict. Relevant actors are all those whose attitude and behavior (positive or negative) may influence the ability of the military to achieve the commander's intent.[162] Depending on the needs of the mission, the commander's intent, the level of operations, and the detail of analysis, the military may distinguish between macro-, meso-, and micro-level actors (see Table 4).[163]

Table 4: An overview of relevant actors per level of analysis

Actor type	Examples
Macro-level actors (structures)	states, multinational actors, governments, populations, coalitions, interstate movements, military alliances, multinational, international corporations, etc.
Meso-level actors (groups)	criminal organizations, police forces, political parties, terrorist networks, communities, non-governmental organizations, diasporas, corporate entities, etc.
Micro-level actors (individuals)	soldiers, politicians, formal or informal leaders, religious leaders, company directors, humanitarian workers, individual members of armed groups, etc.

[161] The Social Network Analysis and its relevance for the military decision-making provides a "limited contribution" to the ability of the military to predict behavior. However, it remains a useful tool to visualize network data and identify leadership. Larson et al., "Foundations of Effective Influence Operations: A Framework for Enhancing Army Capabilities."
[162] "Doctrine Publicatie 3.2.2 Commandovoering," 5–27.
[163] "Planner's Handbook for Operational Design Version 1.0," V–14; Interview 1.0 with a former NLD Taskforce Uruzgan commander; Interview 2.0 with a NLD officer with PSYOPS and STRATCOM experience.

The analysis of actors may be narrowed down to the level of individuals. It allows one to identify figures in influential positions that may be engaged in Key Leader Engagement (KLE). At the same time, the analysis at the meso-level, that is of groups, is of greater relevance to behavior-oriented operations. There are several reasons for this argument. Firstly, influencing individuals may have limited effects as leaders change and new individuals may take over positions of power undermining previously achieved effects.[164] Secondly, members within well-defined groups exhibit similar behavior "when confronted with the same specific impulses", therefore understanding ways in which interventions influence entire groups rather than individuals is more effective.[165]

To this end, the dichotomization of groups is of great importance. Macro- and meso-level actors are not necessarily homogenous. The analysis should be sensitive to within-group differences (i.e. female v male, young v elderly) and conduct an appropriate audience segmentation.[166] For example, even within well-defined groups, such as ISIS, there are vast differences in the way members of the group behave.[167] The military should refrain from generalizing existing entities. Furthermore, individuals often have more than one identity, hence the map should reflect the possibility of individuals belonging to several groups. Well-defined groups and entities of conflict provide a basis for understanding the differences in reactions of actors to military interventions.

We note that in some military practices, actors are divided into categories of the adversary, neutral, and friendly/supportive. In these systems, actors are color-coded and may reflect the level of hostilities presented.[168] In our view, a categorical division into hostile and supportive actors may be largely arbitrary, since in hybrid conflicts allegiances change quickly, commitments are "biased", and the relationships are multi-layered.[169] There may be differences in the level of hostility/support from actors depending on the focus of the dispute or the role in which they represent interests. Therefore, we highlight that it is increasingly more important to understand the complexity of connections between actors, rather than their categorical pertinence.

We present an example of Fisher's 'conflict map', see Figure 18. It visualizes relationships and systematic links between actors.

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[164] Interview 7.0 with a military officer with operational military experience in the field of behavior research and analyses.
[165] Martijn and Rick, "Control from the Ground Up: Embedding Influence Activities in the Conduct of War (Forthcoming)."
[166] Herber, "Conflict Analysis: Topic Guide," 14; Martijn and Rick, "Control from the Ground Up: Embedding Influence Activities in the Conduct of War (Forthcoming)."
[167] Martijn and Rick, "Control from the Ground Up: Embedding Influence Activities in the Conduct of War (Forthcoming)."
[168] Herber, "Conflict Analysis: Topic Guide," 14; Ministrie van Defensie, "Human Terrain Mapping."
[169] UK Ministry of Defence, "Joint Doctrine Publication 04 - Understanding," 23; Interview 1.0 with a former NLD Taskforce Uruzgan commander.

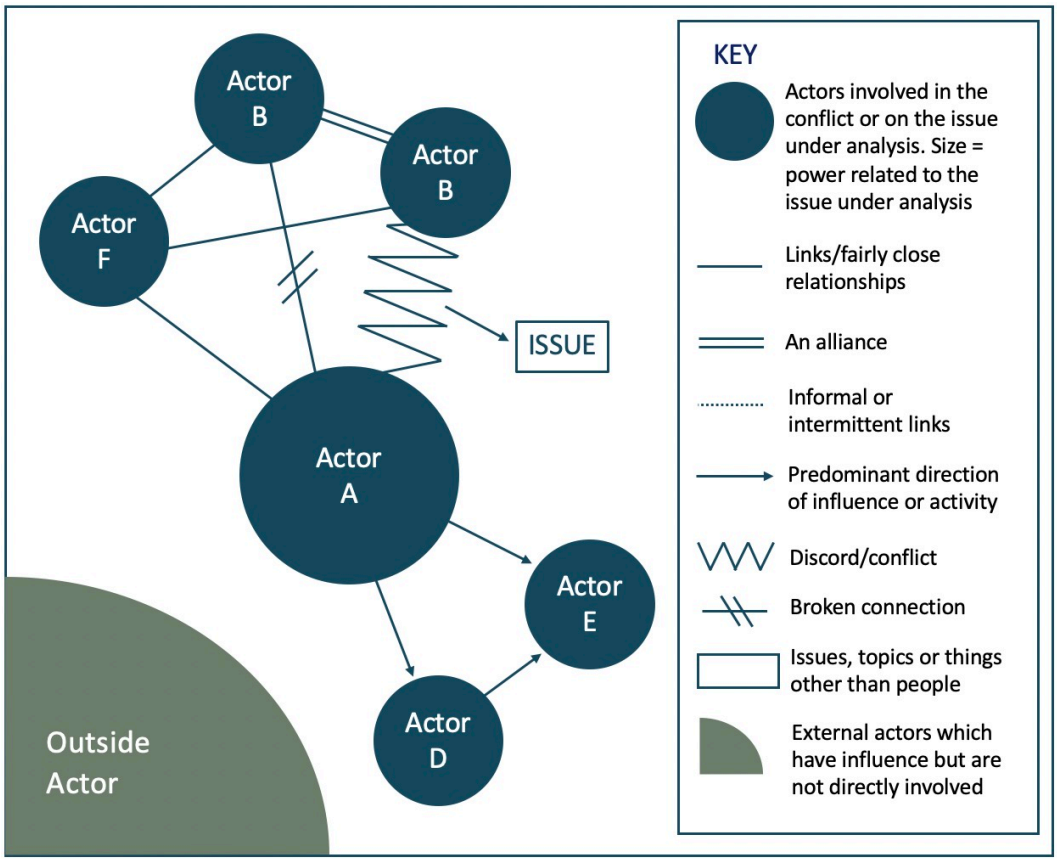

Figure 18: Simplified conflict map[170]

The added value of using the conflict map technique is the actor-centrality (presented in Figure 18 as Actor A). Relevant actors are placed around the TA on the map. Additionally, the map allows distinguishing connections between actors as "fairly close relationship", "alliance", "informal or intermittent links", "direction of influence", "discord or conflict" and "broken connection".[171] The connections between the relevant actors, their length and type, may be defined based on the needs of the military unit. Ties may be defined based on observed interactions, cultural ties, the language of communication, religious similarities, et cetera. Depending on the context, the religious ties may be a strong indicator of relations, whereas in other conflicts the political affiliation is more important. Therefore, the conceptualization of the conflict map is context-specific. Particularly relevant is the intent of each actor in the short-, medium-, and long-term.[172] For example, two actors whose short-term intent is to fight the discrimination of immigrants may be considered to have a common goal and their relationship is likely to be "fairly close". If the same two actors are found to have similar long-term goals, their cooperation can turn into "an alliance".

[170] Adopted from Herber, "Conflict Analysis: Topic Guide," 14.
[171] Fisher, *Working with Conflict*.
[172] Note, this is a preliminary analysis of actors' intent and should not be equated with a detailed target audience analysis (see section 3.3.3 on page 53), which provides insights into the pre-intent of actors: self-beliefs, perceptions, and norms.

Furthermore, the conflict map aids in distinguishing between the positive and negative relations between actors. For example, those with "fairly close relationship" links may be an indication of "key communicators", that is members to whom TA turns to for information, advice, or help.[173] In case there are particular issues between two actors, it is useful to tag an issue topic on the map. It is important to put own forces on the map to identify the position in the landscape and the closest connection within the network to the TA.[174] Lastly, there may be actors (e.g. marginalized groups, diasporas, other states) that have an interest in the conflict but are not directly connected to the actors of conflict; Fisher's map of actors recognizes them as "outside actors".[175]

3.3.2 Problem Exploration

The second step of analyzing actors aims to gain a better understanding of specific TA's behavior. Whereas the conflict map technique provides a tool to visualize existing relations, problem exploration is a process by which one gains a better insight into how these actors and the systemic factors influence the behavior of the TA.

In this report, we present the **Problem Space Mapping (PSM)**, a problem exploration tool developed for and used in the BDM. The PSM is a qualitative method to visually represent a multi-layered system of confounding factors and related actors that contribute to supporting certain behavior of the TA. The PSM represents a specific type of mind-mapping in which the actor and their behavior under analysis are placed at the center of the map. In this section, we highlight the process and added value of BDM's PSM as we observed through interviews with Dutch military officers trained in this method.

The PSM begins by identifying the problem at the top of the diagram. To support behavior-oriented planning, the problem is defined in terms of undesirable behavior, which is the TA's behavior that destabilizes the situation and hinders the ability to achieve military objectives. With a growing understanding of the TA's behavior, the PSM can alternatively be focused on the analysis of desirable behaviors and barriers to their performance. Defining the problem statement requires an initial understanding of a conflict and an area of operations.

The PSM should be a collaborative exercise conducted by military analysts together with cultural advisors and SME's with local knowledge. Experts who can look at undesirable behavior through an emic perspective contribute to the comprehension of systematic reasons 'why' certain behavior is (or is not) being displayed.

For clarification, we provide an example at a strategic level of operation in Figure 19, in which we identify a state actor's threats of territory seizure as undesirable behavior. As shown in the example, the main undesirable behavior is connected to specific

[173] "Psychological Operations Tactics, Techniques, and Procedures," 5–4.
[174] Fisher, *Working with Conflict*, 22.
[175] Fisher, 22.

events/trends in the second layer of analysis and subsequently to factors that contribute to the fulfillment of these activities in the third-layer of analysis. Since the PSM is primarily a mind-mapping tool, it should provide space to expand the map to the number of layers necessary to understand the observed system of factors that contribute to the performed behavior. During the mapping process, analysts should refer to the PMESII analysis of factors to identify the impact of previously identified instabilities and tensions on the behavior of the TA. The PSM aims to identify all factors without which the undesirable would not occur.

The PSM may additionally identify actors who are connected to subfactors. These actors may be either consciously or unconsciously supporting undesirable and, in some cases, may participate in a long chain of events that establish favorable conditions for TA's behavior.

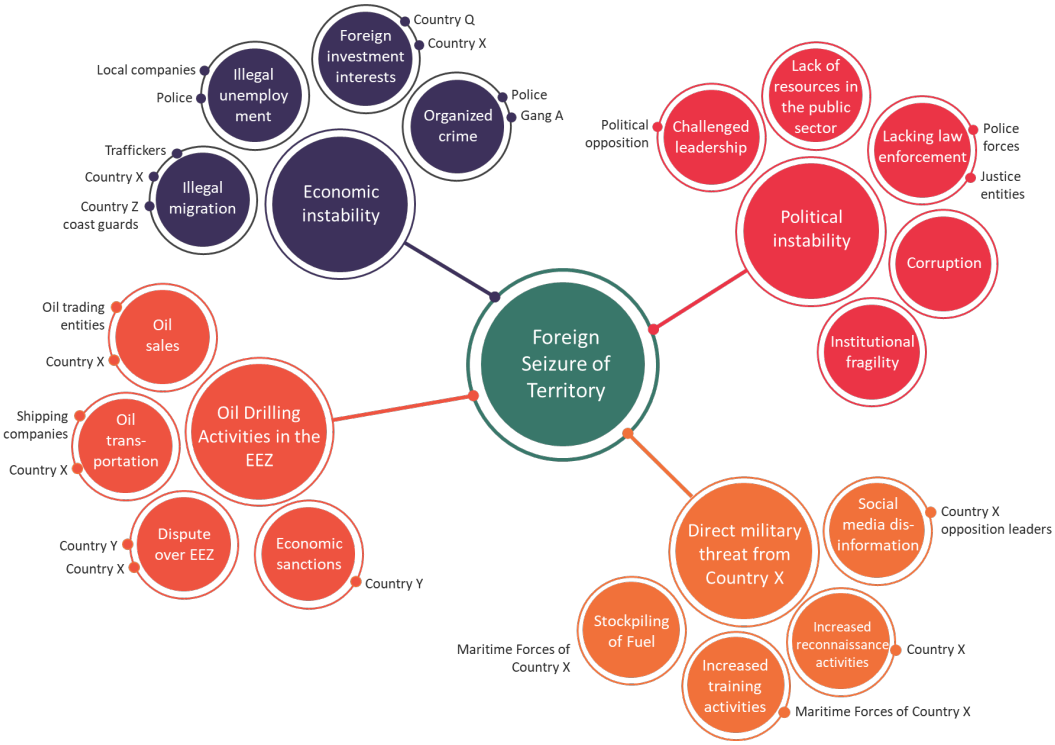

Figure 19: An example of the Problem Space Map

The analysis of a complex system within which the TA's behavior is displayed may require analysts to make assumptions along the way, some of which may be influenced by individual or group bias. It is important to record assumptions, revise and challenge them every time new information is acquired. This process strengthens the PSM by staying close to the factual situation.

The added value of the PSM is that it encourages out-of-box thinking, and when conducted with a diverse group of experts, may yield an extensive, comprehensive, and

visual representation of the interactions between the TA and the system.[176] The PSM helps to identify confounding factors and actors whose removal from the system may influence the ability of the TA to perform undesirable behavior. Findings from the PSM directly feed into the identification of capabilities, opportunities, and motivators of actors during step 5 of actor analysis, the Influence Assessment.

3.3.3 Target Audience Analysis

The Target Audience Analysis (TAA) is the third of the actor analysis cycle. Whereas the previous steps of analysis examined the connections between the TA and other actors and the influence of the system on the TA's behavior, this step studies the understanding of within-group processes: attitudes, perceptions, self-beliefs, norms, decision-making, needs, and wills. These aspects contribute to the understanding of pre-intent factors leading to the formation of intended behavior (recall the simplified behavior model in Figure 16). This step specifically supports the emic perspective analysis, where issues and environment are understood 'from within' the perspective of the TA. The aim of performing TAA is to improve the ability to anticipate and to influence human behavior.

To provide an example, Fisher has previously highlighted the role of mental processes in the formation of violent behavior. In light of our previous discussion of intent vs. behavior, this example underlines the relevance of the pre-intent factors to understanding behavior:

> less visible, mental processes: the feelings, attitudes and values that people hold. These are not violent in themselves but can easily become the source of violence, or at least allow violent behavior and violent structures to operate.[177]

Theories and methods of how to conduct TAA are dispersed and inconsistent. Due to its widespread use by the Dutch armed forces, we draw from the BDM which defines the aim of TAA as "to identify the most appropriate and effective method of communicating with and influencing the TA(s)".[178] The BDM presents the following 44 parameters to analyze target audiences (see Figure 20). These range from descriptive parameters that provide an overview of the TA's existing characteristics, prognostic parameters that improve the understanding of behavior and motivations, to transformative parameters that study the best ways to influence the TA's behavior.

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[176] Ralph MacNulty, "Method for Minimizing the Negative Consequences of Nth Order Effects in Strategic Communication Actions and Inactions," 105.
[177] Fisher, *Working with Conflict*, 9.
[178] Emic Consulting, "The Behavioural Dynamics Methodology For Strategic Communication And Behaviour Change," 236.

Descriptive	Prognostic	Transformative
AUDIENCE STATISTICS	BELIEFS	ABILITY
CHANNEL CREDIBILITY	FRAGILITY/RESISTANCE	ATTITUDES
CHANNEL EXPOSURE	IDEOLOGY	BINARY OPPOSITION
CURRENT BEHAVIOUR	INFLUENCEABILITY	COMMON ENEMIES
FINANCING	INFORMATIONAL RELIANCE	DECISION PATH
GROUP COMPOSITION	INSTRUMENTAL BEHAVIOUR	EXPECTANCY
GROUP MEMBERSHIP	INTENT	FEARS
HISTORIC CONTEXT	LOCUS OF CONTROL	FILTERS
LANGUAGE	MOTIVATIONS	INITIATING SETS
LEADERSHIP STRUCTURE	NORMATIVE AFFILIATION	MESSAGE APPEALS
LITERACY	POLARISING MOTIVATING PROPENSITY	NOISE
MISSION	POWER STRUCTURES	REWARD STRUCTURES
NEEDS	PROPENSITY FOR CHANGE	RITUALS
RELEVANT ISSUES	SKILL	SOURCE CREDIBILITY
SIZE		
VALUES		

Figure 20: An overview of Target Audience Analysis parameters[179]

The above-mentioned parameters provide a guiding template to TAA. However, at the core of the analysis are investigative questions. Selected examples of TAA questions inspired by the UK Joint Doctrine 1/09 include:

- "How does the group describe its history and where it came from? What are the key formative events in the group's history, and what is their importance?"
- "How does the group perceive current and past events?"
- "What are the important rituals that the group uses?"
- "Does ethnicity play a role [in the way the group is organized]?"
- "What are the key attitudes and motivations of individual members?"
- "What are the principal means of achieving their objectives?"
- "How do people become members of the group?"
- "What political influence does the group have?"
- "What are the critical internal relationships within the group?"

Answering questions related to pre-intent factors of the target group (or individual) helps in advancing the perception of ways in which members of the group think and consequently how they act. It furthermore advances the understanding of 'why' certain behavior is (or is not) displayed. Given this analysis, the military may adjust its maneuvering techniques to target the underlying causes of behavior as well as to avoid intensifying hostile behavior. Factors analysis, especially findings from the SCAF (recall Section 3.2.2.2), should be incorporated to yield more insightful answers to TAA.

[179] Emic Consulting, "The Behavioural Dynamics Methodology For Strategic Communication And Behaviour Change," 9.

Insights from TAA are critical to improve situational awareness, anticipate behaviors, and avoid the creation of undesirable effects on the behavior and minds of relevant actors.

3.3.4 Channels of communication

Part of the actor analysis is identifying channels of communication, or put simply, ways in which the TA receives and sends information. This is a standard procedure in military circles and often forms a part of TAA. This analysis helps to understand, on one hand, what type of information is acquired by the TA and through which media, and on the other hand, what type of information is sent by the TA and through which media.[180] We decide to separate the analysis of channels of communication into a distinct step to highlight the possibility of aligning with the 7-layers model (recall Figure 5). This step aids the selection of effective channels by which the TA may be influenced.

As Manuel Castells argues, "the battle for the human mind is largely fought in the processes of communication".[181] Tatham and Rowland further highlight that the emergence of the virtual dimension has fundamentally changed how communication previously was an exclusive power of the few to communicate with the many, while today, communication is massively available, and many can communicate with many simultaneously.[182] Failure to understand the shifts in communication styles and principles can undermine an effective human-centric operation.

The 7-layers model divides the operational environment into seven distinct layers in which effects can be achieved (as explained in Section 2.1.3). In our opinion, the 7-layers model provides a useful reference to analyze occurring communication. Even though communication never exists only in one layer – it always occurs in a few layers simultaneously – it helps to be aware of all different forms in which communication is exhibited. For example, an email message as a form of communication requires a sender and a receiver (social layer), an email account (virtual persona layer), a platform through which the email is sent (logistical layer), and a long-range of other requirements in the physical layer that enable the message to be transferred. The only exception is the cognitive layer, which is intangible. Whereas a message crystallizes in the cognitive dimension, it requires an intermediary (thing or person) to transmit a message. Therefore, the cognitive layer is not a channel of communication itself. This analysis additionally exposes which channels may be leveraged to influence communication or to communicate.

The following are examples of questions related to the 7-layers:

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[180] Gamboa Herraiz, "El Ámbito Cognitivo," 7.
[181] Rowland and Tatham, *Strategic Communication & Influence Operations*, 5.
[182] Rowland and Tatham, 5.

1. **Social layer**: Which actors are key communicators? Do actors interact face-to-face? Does information flow from the top to the bottom of the hierarchy or is decentralized? What language is used to communicate?
2. [Cognitive layer: omitted][183]
3. **Virtual Persona layer**: What are the digital identities of relevant actors? Is an actor an 'online influencer' or a 'salient observer'? Which other online entities do relevant actors follow? Do actors use public (e.g. social media) or private (e.g. messenger) online communication channels?
4. **Logic layer**: What digital resources are actors exposed to (e.g. social media, national media websites, YouTube videos)? Are actors exposed to tv? What online platforms are used to exchange communication? What kind of (combat net) radios are used?
5. **Physical network layer**: What is the available infrastructure for actors' communication (e.g. servers, cables, telephone poles, tv broadcasting stations, routers)?
6. **Physical layer**: What is the physical level of proximity between actors (and does it influence their ability to communicate)? What is the environment in which actors interact and how does it influence their interaction (e.g. urban vs rural)? What physical spaces are available for actors to meet in?
7. **Geographical layer**: Are there any environmental obstacles that worsen/improve communication between actors (e.g. a river, a mountain, a bridge, a railway)? Do local weather conditions influence actors' communication?

Beyond the communication of the TA, analyzing the operational environment through channels of communication yields important insights into social cohesion. Social cohesion is defined as the level of connectedness and solidary amongst members of a group. Communication barriers, thus, may weaken social cohesion. For example, a lack of wireless internet connection in certain neighborhoods (physical network layer) may impede the ability of members of a group to communicate. Looking at the physical layer, connectedness is challenged if there are no available public spaces for people to gather. For example, a neighborhood in which a public school is being closed increases barriers to communication and consequently weaken social cohesion. It is particularly important to analyze social cohesion, as scholars show that weakened connectedness of group members may lead to polarization, weakened social resilience, and deviant behavior.[184]

Additionally, it is necessary to assess the credibility and frequency of information.[185] This assessment must be made from an emic perspective. For instance, the TA may be exposed to television with local news, however, understanding that local media channels are controlled by a central government may diminish the credibility of this

[183] The cognitive layer is omitted intentionally, as it may be used to interpret but not to transmit information.

[184] Fonseca, Lukosch, and Brazier, "Social Cohesion Revisited."

[185] Paul, *Improving C2 and Situational Awareness for Operations in and through the Information Environment*, 35-36.

source in the TA's perspective. They may be more influenced by information received from their peers which they consider more credible.

Working with both the conflict map and analysis of channels of communication, the military gains a better understanding of the network of actors and how they influence the behavior of the TA, on one hand, and identifies effective ways to exert their influence, on the other hand. Findings from this step of analysis provide an overview of the most effective ways in which strategic communication can be transmitted. Additionally, it aids the understanding of the TA's capabilities and resources that feed into the following step of the Influence Assessment.

3.3.5 Influence Assessment

The last step of the actor analysis requires a meaningful synthesis of gathered information to improve the ability to design effective maneuvering techniques that influence the TA's behavior. The objective is to distill critical information that indicates what interventions would influence and/or shape new behavioral habits.

We recommend using the Behavioral Change Wheel (BCW) Framework to systematically summarize the key findings. The purpose of the BCW framework is to identify barriers to adopt new behaviors and ways in which these barriers can be eliminated to introduce behavior change. This method was developed at the University College London and as a result of extensive reviews of sociological, anthropological, psychological, and economic theories.[186]

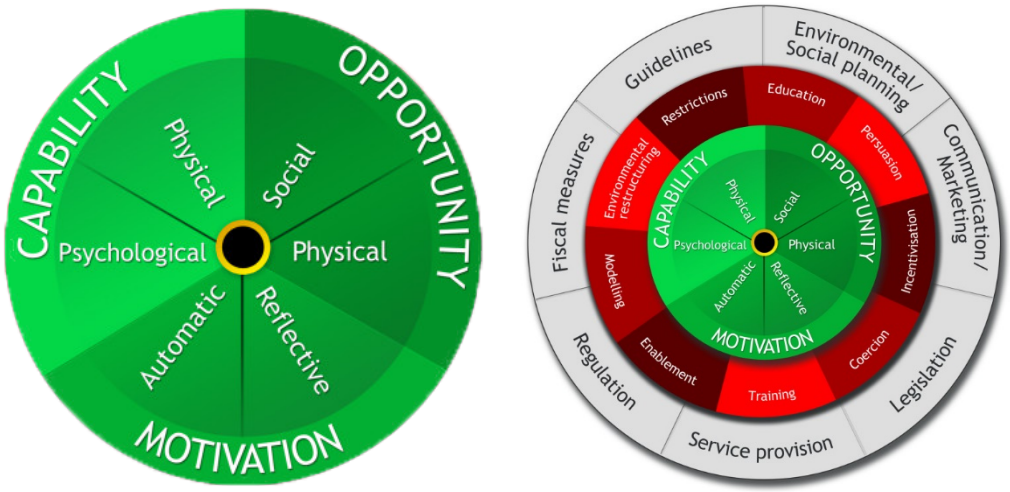

Figure 21: The COM-B Model (left) and the Behavioral Change Wheel Framework (right)

To identify what impedes TA to change their behavior, the first 'core' layer of the BCW framework is employed. Here, the 'behavior system' is analyzed, which involves three

[186] Michie, van Stralen, and West, "The Behaviour Change Wheel."

essential conditions: Capability, Opportunity, and Motivation. These three conditions together form the COM-B model (see Figure 21).[187]

- **Capability** – refers to the capacity of the TA to engage in desired behavior. This includes having the psychological (i.e. knowledge, reasoning) and physical capabilities (i.e. skills). The TAA is a process that yields insights into the TA's capabilities.
- **Opportunity** – refers to external factors that impede or enable desired behavior. Opportunities can be social (i.e. norms, laws) and physical (i.e. financial resources, infrastructure). The PSM, the conflict map, and the analysis of channels of communication contribute to the understanding of the TA's opportunities.
- **Motivation** – refers to the intention to engage in desired behavior. This includes both automatic (i.e. habits, emotions) and reflective motivations (i.e. conscious decisions). This refers to the affective landscape of the TA, which is susceptible to change. The TAA is a process that aids the understanding of TA's motivations.

The COM-B model assists the military in identifying the extent to which the TA is susceptible to influence. For example, the TA whose attitude (motivation) towards desirable behavior is positive but lacks adequate financial resources (opportunity) to engage in it may be more adequately influenced through economic means rather than force. An example of the COM-B model's application to a conflict situation is included in Figure 22 below.

The core added value of the BCW framework is the next step of the analysis, which links barriers of behavior change to intervention functions (see the last column in Figure 22). The intervention functions suggest the best (combinations of) techniques that allow shaping new behaviors. These techniques are not necessarily information-oriented but provide a valuable list of actions that can effectively influence behavior. With this comprehensive understanding of both the TA's behavior and the barriers to desired change in behavior, the military is ready to move into the design of adequate intervention techniques and implementation of planned actions, a discussion of which will follow in Chapter 4 (see page 66).

[187] Michie, van Stralen, and West.

COM-B COMPONENTS	IDENTIFIED BARRIERS TO NON-VIOLENT BEHAVIOR		INTERVENTION FUNCTIONS
CAPABILITY	Psychological (cognitive ability, interpersonal skills, mental strength)	• Cognitive preparedness to fight	Education Training Enablement
	Physical (physical capability, skill, strength)	• No legal consequences of violent behavior • Possession of weapons • Physical strength	Training Enablement
OPPORTUNITY	Physical (time, resources, locations, finances, etc.)	• Access to weapons' supply • Lack of legal citizenship rights • Lack of legal employment	Training Restriction Enablement Env. Restruct.
	Social (social networks and their perceptions/support)	• A lack of role models of non-violent behavior • Discrimination by local population and authorities • Acceptance of and endorsement of violent behavior by authorities	Restriction Enablement Env. Restruct. Modelling
MOTIVATION	Reflective (goals, intentions, needs, plans)	• Beliefs that "violence is the only solution" • Unwillingness to reside in/go back to the country of origin	Education Persuasion Incentivization Coercion
	Automatic (reactions, emotions, desires, impulses)	• Violent habits • Addictions	Training Persuasion Incentivization Coercion Enablement Env. Restruct. Modelling

Figure 22: Sample application of the COM-B model

3.4 Data collection and interpretation

Previous sections discussed the relevance and methodology of factors' and actors' analyses. This Section moves to discuss requirements to strengthen the ability of the organization as a whole and military personnel in particular to collect and interpret the human environment. This Section focuses on the needs of the military headquarters regarding:

1. access to information,
2. integration of information,
3. interpretation of information, and
4. continuity of assessment.

First, the military should seek access to information that improves the understanding of trends in society and more specifically 'why' certain behavior is occurring. Besides one's databases, the military may additionally tap into external databases of NGOs, governmental entities, and other nations in the operational environment. Quantitative data may further be collected through desk-based research from news items, websites, social media et cetera. To develop an additional layer of understanding of human perceptions, opinions, and emotions, it is beneficial to use sentiment analysis techniques and qualitative research (i.e., interviews) to get closest to the social circles of the TA and improve the understanding of their emic perspective.[188] The military may principally gather such information using soldiers to gather human intelligence

[188] The difference in the level of engagement has been referred to as Tier 1 representing the target audience presenting direct view; Tier 2 representing the second-hand information of target audience perspectives; and Tier 3 representing a wider circle of sources that may provide insights into target audience.

(HUMINT), by searching through narratives in open-source intelligence (OSINT), using electronic warfare assets to tap communications (SIGINT) or drones to monitor people's movements (IMINT). Already in the pre-conflict phase, the military may explore assets outside the area of operations by contacting local diaspora and non-governmental organizations with previous experience in the area. Additionally, the military should not underestimate the value of utilizing existing databases, such as those of a higher military level, of a local organization/company, or of digital services companies with big data analytics capabilities. Access to information should be equally ensured at the lower tactical level units, whose need to analyze local actors (e.g. a mayor, a militiaman, or a church priest) requires access to granular local information. For the military to realize these goals, it is important to adapt existing legal frameworks to allow acceptable access to data by the military analysts, especially in the pre-conflict phase.

BOX 1. The Dutch forces have demonstrated the added value of collaborating with non-governmental agents to improve the understanding of local actors and dynamics during the mission in Uruzgan, Afghanistan. The Dutch embassy established a partnership with a local Afghan NGO, the Tribal Liaison Office (TLO), "to conduct ethnographic field research".[189] This partnership resulted in a detailed contextual analysis of the environment, dynamics within and between tribes, identification of power-holders, and enhanced the awareness of the sources of conflict.[190] This process was supported by appointing a civilian tribal adviser, who assisted in integrating local knowledge into military planning.[191]

Second, to maximize the value of collected information and find meaning in 'noisy' volumes of data, it is necessary to ensure that data is "mutually intelligible and transferable between systems".[192] All kinds of information across the board should be integrated and visualized in a clear presentation. Combining or grouping data across different PMESII categories into a single visualization can be useful to view and analyze trends together. The ability to combine indicators provides an in-depth analysis of the real complexities and enhances situational awareness. Additionally, this form of integrated representation of data helps to avoid cherry-picking, where data is selectively understood to suit a subjective worldview or standpoint. However, a caveat must be made. Analyzing trends in conjunction must be undertaken with caution to avoid making assumptions about a causal relationship between trends that appear to follow the same path.

Third, the value of collected data rests with the ability to interpret it accordingly. As Schmidt argues, "war demands a qualitative mindset because war is a social phenomenon".[193] As he further explains, besides preferred "techno-scientific,

[189] Kitzen, "Close Encounters of the Tribal Kind," 721.
[190] Kitzen, 721.
[191] Kitzen, 722.
[192] Reynolds and Watling, "Integrating Information Manoeuvre."
[193] Schmidt, "War As Political Work: Using Social Science for Strategic Success," 51.

quantitative, and predictive" methods, the military should further incorporate soft sciences' perspectives.[194] It requires the engagement in an empathetic analysis of other actors, which "lies not only in reaching out to an audience but also understanding them, in a way that is both active and iterative."[195] For example, seeing that the unemployment rates rise does not give sufficient depth to understand ways in which it changes local populations' labor activities or emotions it generates in the social sphere. Although an empathetic analysis of relevant actors may at times be an uncomfortable effort to imagine the feelings, perspectives, and thoughts of actors with whom the military officials are engaging in hostilities, it does not necessarily require condoning such acts as much as it "provides useful insights into the root causes of their actions".[196]

The need for an interpretation that reflects the emic perspective points to internal and external needs. Internally, the military is challenged to select and train military personnel such that preserves diversity and fosters the ability to look at conflict 'through someone else's eyes'. Externally, it needs to collaborate with psychologists, sociologists, anthropologists, SME's, and cultural advisors to explore diverse perspectives. Michael Stevens highlights the added value of working with local activists to gain sufficient depth of understanding.[197] The military should continuously seek to engage with the local population, regularly visit places populated by them, if the security situation permits, and engage with the diaspora at home or in neighboring countries to gain an actor-centric perspective. Indisputably, working with actors that perceive conflict from different perspectives significantly enhances the ability of the military to understand and anticipate actors' behavior and to plan adequate interventions while minimizing second-order effects.

Fourth, the military headquarters should ensure that the entire process, from the collection and analysis to the interpretation of data, is performed in a continuous matter. Often, the continuity in assessment is challenged by the rotations amongst the military personnel, as a result of which the objectives are reiterated, baseline assessments lost or redone, and interpretations are misunderstood.[198] With a lack of fundamental knowledge and understanding of the area of operation, the personnel rotating may scrap the efforts of its predecessors, resulting in a repetition of tasks, waste of resources and delays in efforts.[199] Such challenges were present, for example, during the All-Sources Information Fusion Unit (ASIFU) peacekeeping intelligence efforts in MINUSMA.[200] It is recommended to consider establishing longer rotation periods (similarly to the diplomatic corps) to support continuous assessment and application of behavior-oriented activities.[201] Alternatively, especially in cases where longer

[194] Schmidt, "War As Political Work: Using Social Science for Strategic Success."
[195] Yorke, "The Significance and Limitations of Empathy in Strategic Communications," 138.
[196] Yorke, 152–53.
[197] Stevens, "Blood Between Us: Psychological Occupation and Resistance in Mosul," 5.
[198] Paul, *Assessing and Evaluating Department of Defense Efforts to Inform, Influence, and Persuade*, 9–10.
[199] Rietjens, de Waard, and van Fenema, "Employing Comprehensive Intelligence," 325.
[200] Rietjens, de Waard, and van Fenema, 325.
[201] Stevens, "Blood Between Us: Psychological Occupation and Resistance in Mosul," 5.

deployment is not possible, it is recommended to conduct the assessment of the operational environment from a reach back facility to centralize data gathering and analysis. In this way, analysts can stay on the task for longer periods while being deployed for short field research in the area of operation. A reach back facility may additionally employ methods to provide 24/7 capacity to layer information and ensure integration across all levels of operation.

3.5 Recommendations

The importance of mapping the human environment for military planning should not be underestimated. To a great extent, the ability of the military to collect, synthesize, share, analyze, and finally interpret data to determine ways in which it acts. By incorporating methods that analyze the operational environment through an actor-centric perspective, the military significantly enhances situational understanding and awareness. More than that, behavior-oriented methods of information gathering allow the military to intelligently maneuver in the operational environment conscious of the ways that interventions influence actors' perceptions and behavior.

In this Chapter, we discussed the methods that strengthen the ability of the military to understand relevant actors' behavior. Firstly, the enhancement of the PMESII framework highlights that the military should be sensitive to the context wherein messages and actions are given meaning. To this end, the analysis of the political, military, economic, social, informational, and infrastructural factors has to be actor-centric. Secondly, the analysis of actors further underlines that anticipating actors' behavior requires an understanding of ways in which they interact with others, the system influences them, and how their beliefs, wills, attitudes, and perceptions drive their decision-making. Actor analysis presented in this note is not definite nor the only available method, but it provides a steppingstone to developing further insights into ways that humans and the dynamics between them can be understood. Lastly, this Chapter provided a valuable analysis of ways in which the process of data collection and interpretation may be adapted to improve current practices.

Given the context of this study and the emerging trends, we recommend the RNLA to:

- **Promote** the practice of forming the commander's intent by defining (un)desirable behavior of actors;
- **Endorse** the use of an enhanced PMESII framework in information gathering, especially the analysis of in-depth qualitative and quantitative questions using the SCAF, to ensure adequate and comprehensive analysis of human-related factors and enhanced situational awareness;
- **Improve** the practice of analyzing actors in the operational environment, especially the use of problem space mapping in order to connect trends observed in quantitative and qualitative data;
- **Educate** analysts in the intelligence branches in assessing the influenceability of human behavior by military actions, by assessing barriers to behavior change and identifying potential functions of influence;
- **Invest** in adequate resources, personnel, and capabilities to collect, visualize, interpret, and analyze information (e.g. the resources to conduct qualitative research, dashboards). Ensure that access to these resources is provided at all levels of operations;
- **Collaborate** with external SME's, cultural advisors, psychologists, anthropologists, and individuals with local knowledge during the analysis and interpretation of data to improve situational awareness;
- **Ensure** that the entire process, from collection and analysis to the interpretation and application of data facilitates a continuous and aggregated development of knowledge, not hampered by rotation-based deployments.

4. Maneuvering in a behavior-oriented approach

Human behavior is a complex phenomenon. Influencing human behavior requires a combination of art and science, honed by hands-on experience. Behavior-oriented operations aim to influence the TA to "behave in conformity with our wishes".[202] The ubiquitous spread of information through digital media has significantly improved the potential of the military to directly target specific actor's perceptions, wills, attitudes, and therein, behavior. From the use of force to 'soft power', there is a wide range of techniques at the disposal of the military to influence and shape the behavior of relevant actors. Context-specific application is key to achieving desired effects.

Earlier in this report, we highlighted the utility of military maneuvering to influence the behavior of actors. In this Chapter, we complete our analysis by providing a brief overview (Section 4.1), an overview of key principles (Section 4.2), and a discussion of effects, techniques, and resources (Section 4.3) of operations to strengthen the application of a behavior-oriented approach to operations. We additionally consider ways in which the military as an organization may strive to improve the integration of a behavior-oriented mindset (Section 4.4). We close this Chapter with a synthesized recommendations list (Section 4.5).

4.1 Behavior-oriented operations: a brief introduction

Behavior-oriented operations focus on creating desirable effects on the behavior of relevant actors. The term, as conceptualized in this report, refers to an integrated approach that incorporates a wide range of techniques across all levels of operation, and inflicts both short- and long-term impacts in pre-conflict, conflict, and post-conflict settings. This implies that a behavior-oriented approach, rather than referring to a specific type of operations, represents a military mindset that, if applied correctly, strengthens military planning and decision-making capabilities to achieve military objectives. Related techniques focused on 'conveying a message' in behavior-oriented operations include STRATCOM, INFOOPS, PSYOPS, and Public Affairs and/or Civil Affairs.

A key characteristic of the behavior-oriented approach is that it carries significant uncertainty in terms of achievable effects. Due to lack of data (or, at times, due to data overload that obscures what is pertinent), planning assumptions must be made about relevant actors. In this process, analysts must begin to create a baseline of the observed environment. Information about relevant actors, including the PMESII factors and patterns of behavior, will facilitate future measurement of effects. Even after having gained extensive knowledge, human reactions to planned interventions may be contrary to expectations. It is therefore important to plan, test, and evaluate hypotheses

[202] Gamboa Herraiz, "El Ámbito Cognitivo," 7.

BOX 2. Let us describe two types of aerial attacks to highlight the difference between force- and behavior-oriented operations. The first type is the strategic bombing which aims to destroy places or buildings of strategic importance, such as industries, railways, or harbors. Strategic bombings are focused on destroying the capabilities of an adversary, thus exemplifying the force-oriented approach. The second type is the saturation bombing, of which the primary objective of attack is a population. An example is the policy of "area attack" implemented by the U.K. Royal Air Force during World War II, which aimed at attacking the morale of the enemy's civil population, in particular the industrial workers.[203] Such attacks may undermine the adversary's will to fight and influence the behavior of the population. This type of saturation bombings, even though they use force, are executed in a behavior-oriented approach.

through small-scale interventions (trial and error process), and observe their impact on actors' behavior, to the extent possible. This may be a time-consuming process given that desired effects may not always be immediately visible in the observed behavior of actors.[204] With time, the understanding of the human environment is enriched, leading to better insight and foresight capabilities. This process should be conducted in an iterative matter in order to escalate interventions following observed effects, and to adjust interventions based on the influence of external factors on actors' behavior. We align this iterative process of behavior-oriented operations along the OODA loop (see Figure 23), since it is a well-known evaluation model in the military circles.[205] The decision-making cycle should permit sufficient time and space for trial and error in order to witness behavioral changes of relevant actors and adjust techniques.

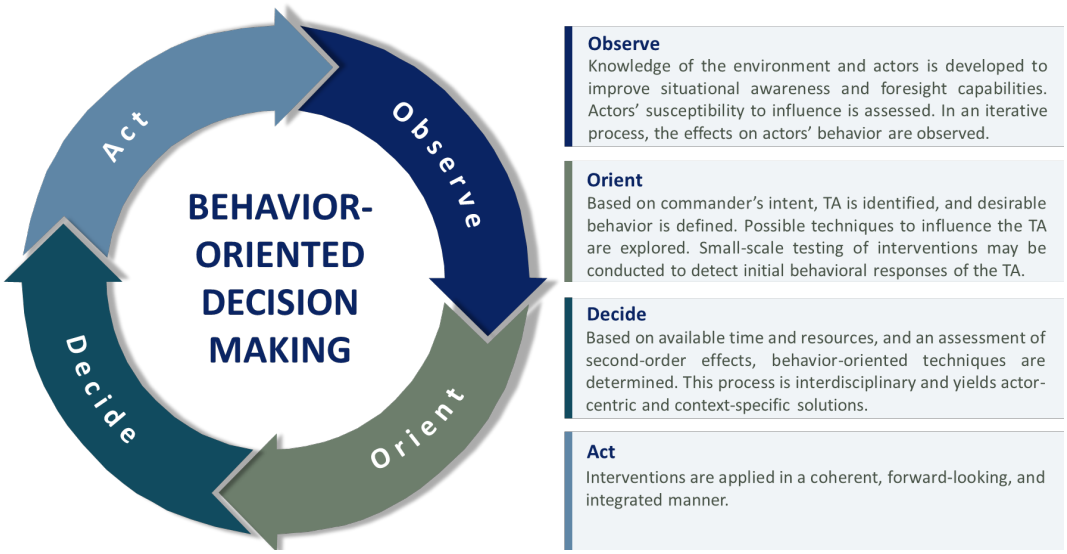

Figure 23: The OODA loop for behavior-oriented operations

[203] See, for example, a description of the U.K. Royal Air Force's area attack policy in Hopkins, "The Historiography the Allied ombing Campaign Germany" (2008).
[204] van Esch and Hirst, "How to Operate in the Information Environment: A Practitioner's Perspective from 1 (German/Netherlands) Corps."
[205] The OODA loop refers to a four-step approach to decision-making: Observe, Orient, Decide, Act.

4.2 Principles of behavior-oriented operations

We identify the following key principles that should guide the planning, application, evaluation, and adjustment of behavior-oriented interventions: (1) actor-centricity, (2) forward-looking perspective, (3) horizontal and vertical coherence, (4) agility, (5) timeliness, and (6) integration. These six principles combined highlight the need for operations to be grounded in an emic understanding of the TA, applied in an integrated and synchronized manner across the organization (and its partners) and overtime. These principles additionally reflect our previous conceptual discussion regarding the relevance of the dimensions model to conducting operations (see Sections 2.1.2 and 2.4). Hence, presented principles strengthen the effects-based approach to operations that at the core observes desirable behavioral changes.

Figure 24: Principles of behavior-oriented operations[206]

4.2.1 Actor-centricity

First and foremost, behavior-oriented operations must be grounded in a comprehensive analysis of the TA and the dynamics of their environment. An emic understanding of actors is central to an effective design of behavioral changes.[207] This is due to the fact that "without exception, audiences always interpret narratives in their terms".[208] It is the ability of the military to tailor suitable actions that resonate with the TA, arouse specific emotions, and move people to act or respond that makes such operations successful.[209] Actor analysis (see Section 3.3), especially when combined with local knowledge and civil-military interactions, significantly improves the understanding of the TA's emotional state. Even though 'emotions' are not part of the traditional military information gathering, it should be carefully analyzed to understand whether planned interventions will be hindered or enabled. For example, targets that were already scared before the intervention are more likely to react with anger rather than sadness.[210] As the example of the American leaflet campaign in the Introduction demonstrates, a failure to understand local dynamics, norms, culturally sensitive symbols, and the TA's emotional state may gravely undermine the success of the operations.

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[206] Icons provided by the Noun Project.
[207] "The Future of Military Deception [Internal Publication]," 21.
[208] Bouwmeester, "Getting Away with Exit: The Role of Strategic Communication," 169.
[209] Yorke, "The Significance and Limitations of Empathy in Strategic Communications," 147.
[210] Schwartz and Weinberger, "Patterns of Emotional Responses to Affective Situations," 148–70.

Well-designed behavior-oriented operations "must recognize the diversity in audiences and their different motivations, interests, and ideas."[211] Every military intervention influences the perceptions, attitudes, and wills of a range of actors aside from the TA. Influencing relevant actors within the immediate network of the TA may, for example, increase social pressure or create disapproval amongst other members of the group. Especially when communicating messages to and recognizing the needs and interests of the TA through publicly accessible media, there is a need to ensure that the message is tailored to the TA and, at the same time, it avoids creating undesirable effects on other actors of the conflict.

4.2.2 Forward-looking perspective

The 'forward-looking' principle refers to the need for interventions to be drafted in a way that anticipates enduring effects on actors' behavior. As the simplified behavior model (recall Figure 16) indicates, interventions may alter behavior in the short-term by creating an external source of motivation, resistor, or environmental factors. Also, interventions may result in alterations of attitudes, wills, and perceptions, which then may lead to behavioral changes in the long-term. For example, the use of deception techniques may change the course of action of the adversary in line with a short-term objective. However, once the actor realizes that they were deceived they may respond with anger and an increased willingness to fight, thereby defying the long-term military objectives. Therefore, a military mindset that evaluates all interventions, including quick and short force or targeting operations, should be evaluated before application to avoid undesirable long-term behavioral effects.

The forward-looking approach additionally highlights that interventions should be consistently applied over time.[212] As mentioned, all interventions generate effects on actors to the conflict. Interventions throughout the mission should be synchronized to ensure that the secondary long-term effects are neither contradictory to the military objectives nor fluctuate with leadership or personnel changes. To this end, behavior-oriented operations should be clearly communicated between rotating units and/or continuity in personnel (including SME's and civilian staffers) should be guaranteed. Longer deployments may contribute not only to an uninterrupted advancement of knowledge but also to maintaining partnerships with local actors. Inconsistencies risk the creation of conflicting attitudes which can lead to a loss of credibility and exploitation by hostile actors.[213]

In an increasingly interconnected world, messages, images, and videos spread with great speed. In this context, military actions may spillover through social media posts, journalist articles, and even on-site videos, shaping perceptions of audiences

[211] Cornish, Lindley-French, and Yorke, "Strategic Communications and National Strategy," 35.
[212] Bouwmeester, "Getting Away with Exit: The Role of Strategic Communication," 169.
[213] Bouwmeester, 169.

worldwide.[214] Actions, such as bombings or killings of civilians, may not easily be erased and may result in changes of perceptions even long after the events. A forward-looking perspective encourages the military to think of ways in which they influence human behavior beyond the direct area of operations to avoid undesirable effects.

4.2.3 Horizontal and vertical coherence

Behavior-oriented operations should be coherently applied, both horizontally, what is said and done within the organization; and vertically, what is said and done across units from strategic headquarters down to the lower tactical headquarters and other departments, ministries, and organizations.

Horizontally, the TA and other relevant actors must be influenced coherently without substantial gaps between messages – what is said - and actions - what is done.[215] As Hutchinson says, "the problem [is] where the actions and their associated explanations either do not make real sense or were emotionally unacceptable".[216] This may be the case, where messages sent by political bodies at home are contradictory to the action of the military in the field. Additionally, this aspect of behavior-oriented operations highlights the relevance of both actions as well as inactions to influencing. President Eisenhower once said: "Everything we say and do, and everything we fail to say and do, will have an impact in other lands. It will affect the minds and the wills of men and women there".[217] To avoid generating contradictory effects, the pursuit of behavior-oriented operations should lie under the guidance of the main planning officer (e.g. G5), the operations officer (e.g. G3), and the commander, and not being 'stove-piped' in a PSYOPS section or similar. In other words, lethal and non-lethal activities should be considered in conjunction and not in two (or more) separate chains. The centrality of behavior-oriented considerations in military planning and decision-making helps to avoid horizontal misapplication of interventions.

Vertically, behavior-oriented operations should be executed consistently in alignment across various military units, commands, and government departments. It is not necessary for all agencies to conduct or support the same interventions; however, the work of others should not create contradicting effects in the perceptions, wills, attitudes, and behavior of relevant actors.[218] The key to successful and coherent operations is to establish a shared comprehension of the human environment. This 'whole-of-government' approach requires a "thoughtful integration of issues of stakeholder perception and response into policy-making, planning, and operations at every level".[219] Where possible, the military should additionally coordinate

[214] Hutchinson, "Influence Operations."
[215] "Joint Doctrine Note 2/19," 37.
[216] Hutchinson, "Influence Operations," 14.
[217] From president Dwight Eisenhower's speech in San Francisco in October 1952, as included in "Joint Doctrine Note 2/19," 1.
[218] Bouwmeester, "Getting Away with Exit: The Role of Strategic Communication," 169.
[219] Bouwmeester, 171; see also: Cornish, Lindley-French, and Yorke, "Strategic Communications and National Strategy."

interventions and desirable effects with non-military partners to promote a 'whole-of-society approach'. The work of the 1st German/Netherlands Corps (1 GNC) is exemplary in this regard, as this Headquarters regularly collaborates with other governmental agents and civil society representatives, including from conflict areas, to improve local understanding and create valuable lasting partnerships. The objective is to integrate military actions with other governmental and non-governmental actions to improve the ability to jointly mitigate complex and dynamic threats. A trust-based partnership provides an opportunity to achieve behavior-oriented effects through other organizations. For a visual representation of the vertical alignment and 'whole-of-society approach', see Figure 25 on page 65.

4.2.4 Agility

Due to the inherent complexities and uncertainties in the way that interventions influence the behavior of the TA, behavior-oriented operations should be agile, which is adaptable and resourceful.[220] This principle highlights the need to (1) keep track of the assumptions made in terms of actors' behavior; (2) hypothesize ways in which actors may respond to interventions; (3) conduct trial and error interventions while carefully observing impacts on the TA and other relevant actors' behavior; (4) adjust assumptions, hypotheses, and interventions based on observed effects.

During missions, inevitably actors and factors in the operational environment create new motivators or resistors that may influence the TA's mind and behavior. Potential external influence factors should be considered when mapping the operational environment and continuously observed during the mission for the interventions to be adapted accordingly.

4.2.5 Timeliness

To achieve military objectives, the behavior of actors must often be influenced before actors decide or act. This is an intuitive conclusion, yet one which implies the need for the military to not only be concerned with influencing but also with shaping behavior. In peacetime, the military should ask themselves: how do we see ourselves and how do others perceive us and our actions?[221] Following the example of the 1 GNC, observing potential actors of conflict and spreading awareness across staff about the influence on others should begin already in peacetime.[222]

Behavior-oriented operations should ideally be formed, adapted, and applied in pre-conflict and early conflict stages to prevent undesirable perceptions of relevant actors.

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[220] For more information see, for example, Larson et al., "Foundations of Effective Influence Operations: A Framework for Enhancing Army Capabilities."
[221] Questions developed by van Esch and Hirst at 1 GNC are 'How do we see ourselves and through what lens do external actors and audiences that matter most to us see us?' And 'how do we bring the outside world in?' See: van Esch and Hirst, "How to Operate in the Information Environment: A Practitioner's Perspective from 1 (German/Netherlands) Corps."
[222] van Esch and Hirst.

This is particularly important in the case of groups and populations to avoid misunderstandings and a "crystallization of attitudes" under the influence of opposing actors.[223] However, the need for such shaping activities often arises outside the confinement of a 'mission' and the associated mandate, rules of engagement, etc. and may be constrained by thereof.

Timeliness – the speed of behavior-oriented operations – may at times be at odds with the principle of coherence. It may be problematic to ensure horizontal and vertical coherence when one needs to act fast within a short window of opportunity. Both principles should be balanced to conduct effective behavior-oriented operations. Therefore, there is a need to ensure minimal bureaucratic procedures, on one hand, and sufficient flexibility within predetermined guidelines (e.g. a behavior-oriented commander's intent), on the other. Whereas the military tends to be comfortable with broad freedom of maneuver for kinetic operations, there is more hesitation to implement any faster procedures for the use of PSYOPS and Public Affairs. This state of affairs impedes the effective implementation thereof.

This is especially the case at lower tactical levels. Currently, the execution of force-oriented operations at lower tactical levels is conducted with minimal approvals, whereas PSYOPS need to go through lengthy approval procedures to the highest levels of command.[224] Due to lengthy procedures, lower tactical levels are constrained in their use of PSYOPS. Lower tactical levels should have the possibility to conduct behavior-oriented operations within the scope of the superior commander's intent without being considerably delayed by higher-level approvals.[225] Commanders should have enough room to maneuver to employ influencing techniques without considerable expanse of time. At the same time, there is a need to ensure that their actions are coherent with higher-level commander's intent and that they do not create undesirable effects on relevant actors contrary to the strategic military objectives. One way to improve coherence without substantially delaying the procedure is for strategic level operations to regularly circulate briefings referring to the intended desirable and undesirable effects on relevant actors. This form of sharing information would ensure that lower tactical level units may conduct their operations in a timely manner, as long as they do not contradict efforts of the strategic level.

[223] Larson et al., "Foundations of Effective Influence Operations: A Framework for Enhancing Army Capabilities," xix.
[224] This is due to the NATO doctrine. Interview 2.0 with a NLD officer with PSYOPS and STRATCOM experience; Interview 7.0 with a military officer with operational military experience in the field of behavior research and analyses.
[225] Stevens arrived to a similar conclusion by pointing out the role of "autonomy" of each military team "within the bounds of the command intent" to maximize the opportunities for intervention. Stevens, "Blood Between Us: Psychological Occupation and Resistance in Mosul," 5.

4.2.6 Integration

Last but certainly not least, behavior-oriented operations must be fully integrated into the military organization. Inspired by the RAND publication, we distinguish three tiers of integration:

1. as an afterthought of physical operations, "considered only to the extent that they can contribute to or support physical capabilities",
2. an embraced military capability that is integrated into the commander's toolbox,
3. a primary approach that determines terms and actions based on the objective to influence actors.[226]

Based on interviews with practitioners, the Dutch military currently is at the initial stages of the first tier of integration. The organization as a whole has not yet integrated a behavior-oriented approach, which is observed in the ways information is gathered and analyzed and operations are planned. The application of behavior-oriented operations in practice remains limited and depends to a great extent on individuals in command. Nonetheless, we have also identified numerous developments in the right direction. Within the organization, there is a growing number of practitioners who recognize the added value of a behavior-oriented approach. They focus on the understanding of their opponents and think in non-traditional ways about engaging with TA. There are also increasing efforts undertaken to improve knowledge of influencing operations, notable examples are the Tactical Information Manoeuvre Team (of the 17th battalion) and the Land Information Manoeuvre Centre.

To further improve the integration of behavior-oriented operations, there is a need to further exchange knowledge amongst current military personnel and to adapt training and education of future personnel. During missions, integration of behavior-oriented operations should take the form of, at least, the following three steps (see Figure 25). First, alignment of mission objectives. A shared understanding of the human environment should be promoted across the military, governmental and non-governmental bodies and/or agencies. Second, in the planning of the operations, all resources and techniques should be considered. This includes governmental diplomatic, economic, or information means, as well as a kinetic and non-kinetic military force. Third, the execution of the military activities should include an integrated kinetic and non-kinetic use of force. Together, this approach shows that the integration of a behavior-oriented approach supports an effects-based lens to conducting operations. Results should be assessed, given the measured baseline. Given the already-mentioned uncertainty of the human environment, the process should be conducted iteratively.

[226] Paul, *Improving C2 and Situational Awareness for Operations in and through the Information Environment*, 24–26.

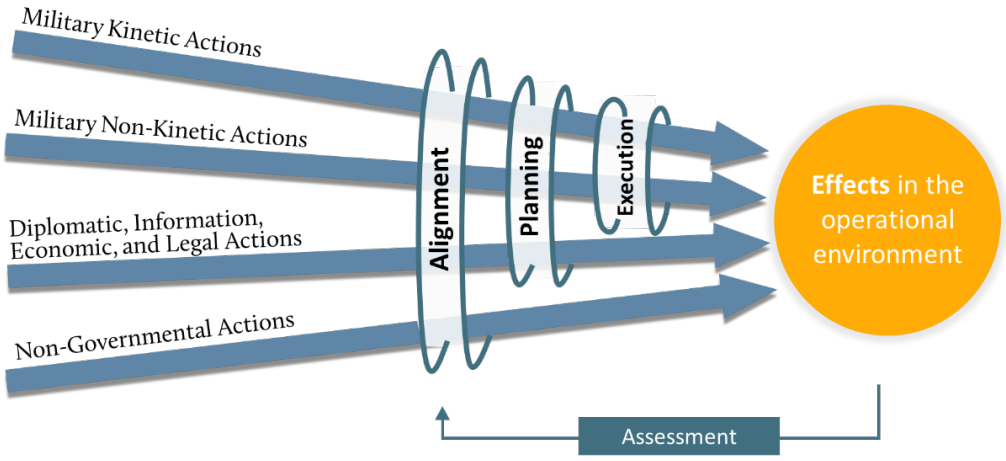

Figure 25: Integrating a behavior-oriented approach to operations [227]

4.3 Designing behavior-oriented interventions

This Section discusses three aspects relevant to the design of behavior-oriented interventions: effects, techniques, and resources. Effects refer to the behavior of actors resulting from interventions. Techniques refer to ways in which the behavior of actors is influenced. Resources refer to tools that may be used in interventions. Designing interventions is a process that requires the military to determine which effects are necessary to achieve the commander's intent, and subsequently to identify which techniques (or actions) to employ based on resources (or means) available to create these effects.

4.3.1 Effects

When designing interventions and conducting operations, desirable effects, or outcomes, that are necessary to achieve the commander's intent are a critical consideration. Effects may be observed in the physical and virtual dimensions, for example in the form of TA behavior, and may occur in the cognitive dimension as non-observable changes in perceptions, beliefs, and attitudes.

It is important to consider the effects on the cognitive dimension, both for lethal and non-lethal operations, since both influence the long-term attitudes, intentions, and ultimately behavior of conflict actors. A military intervention may invoke particular emotions, legitimize preconceived beliefs, create social pressures, intensify anger, influence social dynamics, and much more.[228] However, effects in the cognitive dimension are not easily foreseeable and are (therefore) often neglected in military planning. This may result in ill-prepared interventions that create second to n^{th} order effects in the minds of the adversaries that hinder the achievement of military objectives and escalate conflict tensions. For example, interventions that generate

[227] Inspired by "Integration and Synchronization of Joint Fires," 1.
[228] "The Future of Military Deception [Internal Publication]."

anger, hatred, or happiness may provoke hostile behavior or create conditions for the emergence of new adversary groups contrary to the military objectives.[229]

BOX 3. An example of the application of a behavior-oriented approach is the spread of fear amongst the Iraqi troops by ISIS fighters when entering Mosul (2014) to decrease adversaries' willingness to fight; this effect was achieved by creating an exaggerated view of the number of armed troops approaching the city perceived as "inconceivable giants".[230] In this example, the ISIS operation influenced the attitude and self-beliefs of individual soldiers and was reinforced by social norms (other soldiers lost the will to fight), leading to a change in intention (decreased willingness to fight) which contributed to ISIS' successful seizure of Mosul.

Altogether, this Section highlights the need for military operations to consider the primary effects on behavior as well as the secondary to nth order effects in the cognitive dimension of actors. This can be achieved by continuously improving the understanding of actors and formulating hypotheses to anticipate outcomes.[231] This approach enhances the ability of the military to influence parties of conflict and to employ mitigating or reinforcing measures to achieve desired effects.

4.3.2 Techniques

Techniques are ways by which the military may influence actors. We re-iterate that, since all actions influence conflict actors, behavior-oriented operations are not a separate domain of operations, but an integrated effort of combining techniques. Therefore, techniques include a range of familiar instruments, such as KLE, PSYOPS, Presence / Posture / Profile, Deception, Computer Network Operations (Cyber operations), Electronic Warfare, Public Affairs, Civil-Military Interaction, as well as use or threat of force. However, for these techniques to be deployed according to a behavior-oriented approach, it is necessary to put the human environment at the center of decision-making and to enhance the employment of kinetic and non-kinetic techniques in combination to enhance military capabilities. In modern warfare, there is an abundance of forms to undermine the adversary's superiority other than by lethal force (e.g. disinformation). The choice of techniques should not be only a calculation of best arsenal vis-à-vis weather, terrain, and enemy forces, but also the influenceability of behavior, motivations, attitudes, emotions of the TA.

To determine techniques in a behavior-oriented approach, it is necessary to recall the last stage of the actor analysis, the influence assessment (see Section 3.3.5). In this report, we suggest using the BCW framework to identify whether the TA is capable, motivated, and/or can change their behavior to one that is desirable in light of the

[229] Žilinčík, "Strategy and the Instrumental Role of Emotions"; Fischer et al., "Why We Hate."
[230] Stevens, "Blood Between Us: Psychological Occupation and Resistance in Mosul," 2.
[231] Ralph MacNulty, "Method for Minimizing the Negative Consequences of Nth Order Effects in Strategic Communication Actions and Inactions," 114.

commander's intent. This requires both, the understanding of the current behavior (steps 1-4 of actor analysis) and the assessment of ways in which this behavior can be changed (step 5 of actor analysis). The BCW is a tool that allows combining both the understanding of the TA and the assessment of influence to generate insights into techniques that TA's behavior may be changed. Specifically, the BCW framework (recall Figure 21 on page 50) lists the following techniques: education, persuasion, incentivization, coercion, training, enablement, modeling, environmental restructuring, and restrictions. The choice of techniques is directly related to the barriers to TA's behavior change (recall Figure 22). For a full description of each technique, see

This entry accompanies Section 3.3 and presents a brief description of the Behavioural Dynamics Methodology (BDM). This text of this Appendix is provided by Emic Consulting.

The BDM is a tried-and-tested approach that allows trained practitioners to understand complex behavioral and social problems from multiple perspectives, and design more effective operational and communications plans. The Methodology is a distillation of widely accepted behavioral science theories and social science research methods structured into a practical, flexible and evidence-based tool. This tool allows defense and security organizations firstly to understand key audiences, and - where appropriate - to design and execute plans based on this understanding. The purpose of the BDM is to help operationalize a strategic communication approach within NATO militaries. It is applicable to conflict, public diplomacy, violence reduction, peace maintenance, countering disinformation and understanding the influence of state and non-state actors in the information space – indeed any problem where human behavior is an aspect of the problem or part of the solution.

The BDM was first taught in 2008 and is used by strategic communication, information operations and CIMIC personnel within NATO defense organizations, including the Royal Netherlands Army. The Methodology continues to be updated annually, incorporating the latest knowledge from academia and the field. It has the following features:

1. **A focus on behavior (instead of attitudes)**. A corpus of evidence from social psychology research has shown that attitudes are often poor predictors of behavior. For that reason, research in behavioral dynamics focuses on researching behavior, in contrast to researching attitudes as proxies of behavior (as is typical in communication campaigns). Understanding the drivers of a non-desired behavior or a potential desired behavior lies at the heart of the BDM.
2. **A focus on groups (not individuals)**. Human behavior is inherently social. Evidence from psychology and neuroscience overwhelmingly supports the notion that the human mind and brain are adapted to the social world. To understand and research human behavior it is necessary to take group processes and dynamics into account.

Groups are different entities from individuals and need to be researched in their own right, which the BDM is designed to do.

3. **Behavioral science at its core**. The BDM uses 44 'Parameters' to assist in understanding the behavioral dynamics within key audience groups through its Actor and Audience Analysis phase. The theory that underpins them has been the subject of empirical and theoretical investigation over many years and they have been established as critical factors in behavioral dynamics.
4. **An evidence-based approach** built through diagnostic research. The BDM teaches how to analyze these Parameters through qualitative and quantitative social science research. The research approach for BDM emphasizes the need for high ethical standards in the conduct of all research and is diagnostic rather than descriptive - meaning it seeks to identify causes of behavior rather than merely describe its manifestation. These research approaches are not unique to the BDM, but they are tailored for the unique operating environments and problem sets encountered by defense practitioners.
5. **Designed as a practical tool**. Whilst the BDM is grounded in behavioral and social science, the BDM is designed explicitly as an accessible, sequential and practical instrument for military decision making and planning. Measurement of effectiveness is integrated into the BDM process at all stages.

Five separate phases comprise the Methodology. Each phase is a modular component of the entire process:

Phase 1 – Strategic Campaign Planning (SCP). SCP is the process that begins with an exploration of the problem and the rearticulation of objectives into measurable terms. This stage is based on secondary research, SME interviews and, where possible, some field research. The aim of the SCP phase is the selection of the audience within which a behavior change or strategic communication campaign might be effective, thereby setting the conditions for further Actor and Audience Analysis (AAA). Problem Space Mapping is the cornerstone of the BDM SCP Phase (see Section 3.3.2 of this report).

Phase 2 – Actor and Audience Analysis (AAA). During AAA, qualitative and quantitative research methods are used to develop an in-depth understanding of the behavioral dynamics within a relevant audience group identified in the SCP phase. We believe the best, if not only, way to study seemingly intractable behavioral problems is to adopt an emic perspective during AAA research and to understand the internal logic of the audiences involved. To do so, we employ behavioral Parameters that form the core of the BDM. These Parameters comprise 44 theories/concepts drawn from across the body of academic and applied research in the social, psychological and behavioral sciences (see Figure 20 of this report). In addition to their theoretical grounding, the Parameters have been further tested and selected on their operational effectiveness. The Parameters ensure that the qualitative and quantitative data collected is relevant to behavior change, allowing for strategic communication campaigns that are authentic, relevant, resonant, and measurable.

Phase 3 – Campaign Intervention Strategy (CIS). On the basis of the AAA data collected and analyzed in Phase 2, a behavior change theory is transformed into a practical change strategy or intervention strategy. The BDM's CIS model is based on and consistent with the numerous well-established scientific models of social and behavior change. The CIS phase allows for both the conceptualization of a behavioral change strategy and offers insight into the likely effectiveness of the strategy, correlated with the Parameters identified as key and explored in the prior phase of research.

Phase 4 – Implementation (IMP). This phase involves the formulation and delivery of a detailed implementation plan designed on the basis of the strategic communication or behavior change strategy identified in the CIS phase.

Phase 5 – Monitoring, Evaluation and Learning (MEL). This refers to the process of evaluating the effectiveness of a behavior change strategy or strategic communication campaign. MEL is not an afterthought; the evaluative process is integral to the Methodology from beginning to end and is a vital consideration from the problem exploration phase (SCP) onwards.

Appendix II.

BOX 4. Imagine a hypothetical scenario of an isolated and underdeveloped neighborhood. For this example, this neighborhood is within the area of operations. An analysis of the quantitative data in this neighborhood will lead us to observe that there is widespread unemployment with below-average income. There is a lack of access to basic needs. Coupled with desk research and observations we will understand that the vulnerability of this neighborhood is exploited by local gangs leading to increased involvement in criminal activities. Based on this information we may already begin to think of the course of action to prevent local population from joining gang membership. However, without qualitative information from the field, we may easily make the mistake of overlooking ways in which our course of action will influence the cognitive dimension of the TA. For example, interviews with locals or grassroots organizations may reveal that past incidents with the police have left a strong mark in the consciousness of the local population contributing to distrust towards authorities. Such an emic understanding will inform our choice of the course of action. In this example, we want to deliver basic needs to this neighborhood via third parties. Namely, local figures and trusted local partners to prevent a misunderstanding and an escalation of conflict or hostilities. This is, of course, a simplified example that only goes to show the extent to which actor analysis, and the influence assessment, in particular, feed into the choice of techniques.

Second, various academic and governmental publications have stressed the importance of implementing kinetic and non-kinetic forces in conjunction.[232] It is argued that western forces primarily use kinetic force with non-kinetic force playing a "supporting role".[233] Only very recently, the non-kinetic force came to be reappraised and studied in greater detail to strengthen capabilities vis-à-vis modern non-state actors.[234] Ducheine argues that non-kinetic force offers "additional means to conduct operations", taking into account that it may be employed to engage and/or affect "not only opponents, but additional TA, including neutrals and supporters" and that the effects may be "less severe than kinetic targeting".[235]

Our research further shows that kinetic and non-kinetic force may be used in complementary ways, regardless of the type of TA or their susceptibility to influence. Even when the TA exhibits a low susceptibility to influence, non-kinetic force remains of relevance. For example, a non-state actor with a strong ideological cult and in-group cohesion may at the outset not be easily susceptible to influence. Nevertheless, non-kinetic force such as disinformation techniques may be used alongside kinetic fires to disorient the enemy and undermine the effects of their actions. An example of

[232] See, for example, Ducheine, "Non-Kinetic Capabilities: Complementing the Kinetic Prevalence to Targeting"; "Integration and Synchronization of Joint Fires."
[233] Ducheine, "Non-Kinetic Capabilities: Complementing the Kinetic Prevalence to Targeting," 3.
[234] Ducheine, 3.
[235] Ducheine, 4.

integrating efforts to effectively influence the behavior of actors in the area of operations is the concept of the 1 GNC, an integrated approach to targeting (see Figure 26). The integrated targeting approach highlights that it is in the combination of lethal and non-lethal efforts that the adversaries, local population, and other relevant actors are best influenced. In this approach, it is possible to adopt a targeting approach guided by observations of the operational environment and knowledge of the TA. Additionally, to provide the reader with an extensive list of techniques by which the TA may be outmaneuvered, we have compiled a compendium of both kinetic and non-kinetic actions and effects in Appendix III.

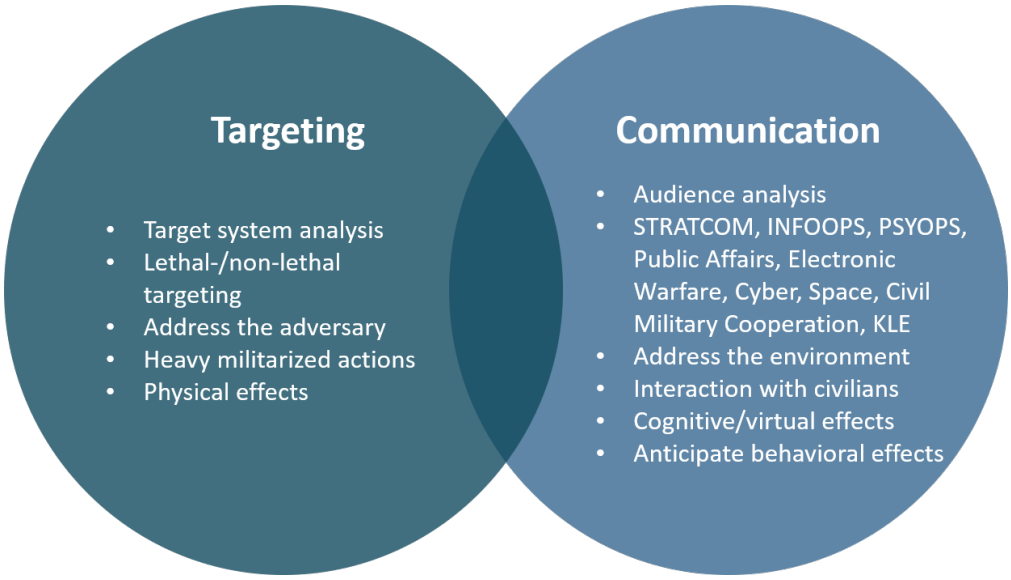

Figure 26: Integrated targeting approach[236]

4.3.3 Resources

For the military to operate in a behavior-oriented approach, it is important to have resources at its disposal that facilitate the application of such interventions. The range of resources that can be used as a tool of influence is very wide. If actors watch television, military headquarters may consider buying broadcasting time on specific TV channels. If actors are present on social media, military headquarters may consider establishing a social media center to influence the social media narrative. If actors visit theatres, cinemas, coffee houses, churches, casinos, local food markets, or others, military headquarters may consider engaging directly in those spaces that they populate (see Box 4). Following this line of thinking, everything a military unit does - even the signing of a contract with a local company or hiring locals to provide services - has to be seen as a potential resource to influence and should thus be adjusted accordingly as part of its military objectives. The military should continue to seek full staff integration to assess all activities, even such as contracting, from a behavior-oriented perspective. Such integration costs time. A military headquarters does not always have the time

[236] Adopted from van Esch and Hirst, "How to Operate in the Information Environment: A Practitioner's Perspective from 1 (German/Netherlands) Corps."

available to assess all the activities. Since the military will always to a certain extent be restricted by resources, it is recommended to collaborate with third partners to expand the possible toolbox of resources.

It follows that military headquarters and units should not be restricted to the traditional military arsenal, and instead should be equipped with or have the mandate and means to acquire non-traditional, non-kinetic tools to conduct behavior-oriented activities, tailored to the activities of actors in the area of operation.

BOX 5. In the early 1970s, the British Military Reaction Force (MRF) was stationed in Belfast, Northern Ireland to conduct covert information-gathering and counter-insurgency operations against the Provision Irish Republican Army (IRA). At the time, the MRF distinctively used (controversially) front companies to gather information: Four Square Laundry, a mobile laundry service, and Gemini Health Studios, a massage studio. These two companies provided invaluable information about the local population, social dynamics, culture, and any divergent behaviors. The use of companies to register local events, people, faces, and customer habits is an unconventional way of gathering information in an operational environment. Although in this example the front companies were used as a source of data collection, one may imagine that contracting or setting up local companies, which provide a platform (physical or virtual) to interact with the local population, may be an equally valuable tool to conduct behavior-oriented operations.

4.4 Forming a behavior-oriented mindset

Behavior-oriented operations require the military to act following an integrated mindset that emphasizes the effects on the minds and behavior of actors. In our research, we found that the current Dutch military forces are not trained to develop a behavior-oriented mindset, and its application is to a large extent dependent upon the individuals deployed. This Section therefore discusses how a behavior-oriented mindset can be formed within the military organization.

First, the military needs to secure diverse military personnel. Interpreting and contextualizing data requires military staffers to analyze an emic perspective (see more in Section 3.4). This actor-centric analysis benefits from diverse perspectives, an array of varying background experiences, and the ability to be empathetic - what is colloquially referred to as being able to 'put oneself in someone else's shoes'. To improve the diversity of perspective, the core military personnel is recommended to collaborate closely with civilian staffers (e.g. cultural advisers, diaspora members, university professors, SME's, and diplomats).[237] Additionally, to employ behavior-oriented operations, a team should ideally have a diverse range of capabilities: negotiation skills,

[237] Kitzen, "Close Encounters of the Tribal Kind," 722.

language capabilities, knowledge of journalism, video-making, or marketing to implement a broad range of influencing techniques.[238]

Additionally, to support diverse skills within the military organization, it is recommended to design (online) education and/or training programs. These should be capable of providing ad-hoc demand-based knowledge to improve skills and support the constant growth of analysts, planners, and commanders. These courses can range from psychology, analysis techniques, cultural awareness to entrepreneurship and computer programming. The creation of such courses may be relatively low-cost and is likely to have an added value to facilitate the improvement of methods and formation of a behavior-oriented mindset.

Second, it is important to train a behavior-oriented mindset amongst all key military personnel. It is not enough for (human terrain or other) analysts to be trained in the actor-centric analysis if the rest of the intelligence branch, the planners and the commander undervalues or altogether neglects the utility of these insights in the decision-making process. Similarly, the irresponsible use of social media by our soldiers may undermine the achievement of the military objectives. Training programs and exercises should be adjusted to represent hybrid threats and the complexity of physical, virtual, and cognitive dimensions. Conducting behavior-oriented operations "requires sufficient time for training and an environment in which it is 'safe' to experiment and fail against live adversaries".[239] An example is the exercise 'Xenon Sword' conducted by 1 GNC in 2019, which "included a displaced population clogging up lines of communication, the lack of basic needs for the civilian populace, and the enemy's use of propaganda on exercise social media accounts".[240] In this exercise, the training audiences (a German Division, a Dutch Brigade, and a Norwegian Brigade) were provided with the opportunity to address threats comprehensively and use non-traditional non-kinetic methods to combat the enemy. It is critical to design training and exercises in a way that fits the purpose of building a behavior-oriented mindset. This entails strengthening the ability of military personnel to work together using all available tools (including non-lethal) and exploiting complexities of hybrid battlefields while integrating the understanding of the human environment in planning and execution.

[238] Stevens, "Blood Between Us: Psychological Occupation and Resistance in Mosul," 5.
[239] "The Future of Military Deception [Internal Publication]," 2.
[240] van Esch and Hirst, "How to Operate in the Information Environment: A Practitioner's Perspective from 1 (German/Netherlands) Corps."

BOX 6. The relevance of training military personnel to recognize the utility of behavior-oriented operations became evident during the deployment of the Dutch forces in Uruzgan, Afghanistan. Even after having gained an extensive understanding of the local population and sub-tribal conflicts, the military for a long time focused on 'kinetic' operations only against the Taliban while the "societal context remained largely unexploited".[241] Almost three years into the mission, deployed staff members began to shift their approach which was a result of increased collaboration with cultural advisers and local tribal leaders, and began to appreciate the use and effectiveness of non-kinetic operations that were designed to influence local populations.[242]

Third, it is relevant to consider ways in which own military personnel is incentivized (or influenced) to act. One of our interviewees noted that in the Dutch military there seems to be an unspoken division of independent career paths for those with knowledge and experiences in the use of kinetic and for those with knowledge and experiences in the use of non-kinetic force.[243] Adopting new incentives or rewarding schemes to promote a behavior-oriented approach to warfighting may be in a long-term effective to improve the recognition of the strength of behavior-oriented decision-making amongst own military personnel. Currently, the officer posts in STRATCOM, Public Affairs, and Civil-Military-Interaction are often filled by reservists, which is different than G3 and G5 planners. Professional career development within the military ranks should be desirable with both kinetic and non-kinetic experiences.

4.5 Recommendations

In this Chapter, we highlighted the need to integrate a behavior-oriented approach to conducting military activities throughout the entire military planning and decision-making process. We have shown that behavior can be influenced by a range of activities and with the use of diverse resources. The differences lie in the enduring effect of the behavioral change, which depends on the action becoming accepted and/or habituated by the TA. The more enduring desirable behavioral effects ought to be, the bigger the need for knowledge and understanding of actors' prior behavior, attitudes, perceptions, culture, external influences, et cetera.

Based on the analysis of the decision-making process and its relation to behavior-oriented operations, we recommend the RNLA to:

- **Employ** a behavior-oriented approach to operations according to the six principles of interventions design: actor-centricity, forward-looking perspective, horizontal and vertical coherence, agility, timeliness, and integration;
- **Incorporate** behavior-oriented considerations in all operations, including short-term force-oriented military interventions to ensure that generated effects on the

[241] Kitzen, "Close Encounters of the Tribal Kind," 721–22.
[242] Kitzen, 722–23.
[243] Interview 9.0 with a military officer with knowledge of the psychological processes.

behavior of actors are desirable in the long-term. This should be enforced through explicit doctrine and Tactics, Techniques, and Procedures (TTPs) that codify a behavior-oriented approach in a practical sense; as well as by infusing the intrinsic urge to do so through education and training;

- **Train** not only analysts but planners and commanders alike to foresee and anticipate second- to n^{th} -order effects of interventions on the minds and behavior of relevant actors;
- **Institute** sufficiently broad mandates to allow the conduct of small-scale activities to test and observe the effectiveness of interventions on actor' behavior, including before the deployment of troops to anticipate and preemptively shape the behavior of relevant actors;
- **Provide** lower tactical levels with sufficiently broad freedom to maneuver to conduct behavior-oriented interventions with a minimal length of approval cycles;
- **Build** lasting partnerships with non-governmental agents in conflict areas and with local knowledge to improve the accuracy of predictions, expand the toolbox of available resources, and design of interventions;
- **Communicate** objectives and utility of behavior-oriented operations within the defense organization, other governmental bodies, and external partners to form 'a-whole-of-society approach' to influencing the behavior of actors of conflict. This can take the form of publications (such as this one) or formal conferences in which the topic is addressed with a variety of stakeholders;
- **Enhance** the capability to influence actors by promoting diversity amongst military personnel. Make sure that diverging interpretations are valued and included in the considerations of assumptions and hypotheses;
- **Recognize** ways in which military personnel is influenced to act and develop programs (e.g. incentives or rewarding schemes) to promote a behavior-oriented mindset;
- **Cooperate** with allied forces to advance the knowledge of a behavior-oriented approach to operations and to collectively develop TTPs applicable to joint operations, for example, through NATO fora or by supporting the efforts of the Dutch 1 CMI to cooperate with their German counterparts.

5. Final remarks

In this report, we discussed how the Dutch army may accurately interpret and effectively influence human behavior to achieve military objectives. We went from outlining the conceptual framework, a step-by-step information gathering and analysis of the operational environment, requirements for a successful data interpretation, to data integration into military planning and decision-making. We combined theories of behavioral sciences, doctrinal concepts, interviews with subject matter experts, and our experimentation to deliver a framework with both theoretical and practical insights. While the study was commissioned by and primarily aimed at the RNLA, findings are applicable for behavior-oriented operations beyond land operations and even beyond the Dutch armed forces.

We observed that in current military thinking and certainly in current military practice, behavior-oriented operations are largely sidelined or misunderstood as a separate sphere of actions, independent from physical capabilities. In stark contrast, our analysis has shown that influencing behavior should be a central element in military planning; not in the least because, whether intended and recognized or not, it is the result of all military activities.

In Chapter 2, we showed that an emerging concept of 'human/cognitive domain' can be represented as a meta-domain that intersects all other domains of warfighting. This representation highlights the integral role of influencing humans through military action throughout all domains. In Chapter 3, we noted that the actors' analysis may not be separated from other efforts of information gathering. The operational environment comprehensively forms the context within which actors interpret messages and form behaviors, and therefore, both factors and actors' analyses should be combined to improve situational awareness. Finally, in Chapter 4, we highlighted that all behavior-oriented operations should be integrated into military planning and decision-making, for operations to always consider ways that relevant actors' behavior is influenced. The pursuit of the behavior-oriented operations should not be stove-piped into an independent department but be fully integrated into military operations and the planning thereof. Similarly, non-kinetic operations to influence behavior should not be seen as a separate effort from kinetic force-oriented operations; instead, both can and should be conducted in parallel to achieve military objectives effectively and consistently. These three perspectives, conceptual (Chapter 2), analytical (Chapter 3), and executive (Chapter 4), all highlight the utility and central role of influencing behavior to military activities.

An emic perspective is crucial to behavior-oriented operations. At the stage of mapping, the emic perspective refers to understanding how relevant actors themselves perceive the world around them and interpret others' actions. It improves situational awareness and contributes significantly to foresight capabilities. At the stage of maneuvering, the understanding of the emic perspective allows to determine our actions based on the

anticipated desirable behavioral response. The ability to look at the conflict through the eyes of others that participate in it requires the military to train its staff to use techniques from social sciences, practice empathy, and, perhaps most importantly, to cooperate closely with cultural advisors, civil partners with local knowledge, and subject matter experts. In this process, the military should acknowledge the effects of their actions on the cognitive dimension and, more importantly, understand the implications for the behavior of actors in the physical and virtual dimensions.

There is an appetite amongst the military forces to improve insight and foresight capabilities. As shown in this report, a solid baseline that maps the human environment is needed to build situational awareness and understanding that is shared and accumulated with rotating personnel. Looking at factors and related statistical data allows identifying trends. To better understand the dynamics in an environment requires a 'contextualization' of trends via the actor analysis. This latter process calls for qualitative research, interaction with local knowledge, and the development of the aforementioned emic perspective. Analyzed together, factors and actors of the operational environment provide an in-depth view of vulnerabilities that, when triggered by external events, may lead to (un)desirable behavioral changes. Human behavior remains a complex phenomenon and, as shown through the analysis of behavior vs. intent discussion, is not easily measurable nor foreseeable. Nonetheless, early results of our experimentation have shown that the methods presented in this report provide a systematic approach to considerably improve the foresight capabilities of the armed forces to anticipate the behavior of groups and populations.

An important consideration for behavior-oriented operations is time. On the one hand, the execution of influencing activities requires a broad understanding of the TA which is a time-consuming factor that may significantly delay or even impede their application. The same is true for achieving coherence across departments and within one's actions, which may require timely approvals. On the other hand, for influencing activities to achieve the maximal effect, it is best to already implement considerations into the earliest stages of the mission, to shape rather than change behaviors in conflict. Also due to the nature of human behavior, there may be a need to quickly adjust to new events in the area of operation. These two sides of the same coin create a conflict between the wish to analyze actors with time and coordinate actions with others and the need to act swiftly. There is no easy answer as to how this conflict should be solved. It requires the organization to be flexible and act based on well-informed or less well-informed assessments, as the military does in force-oriented operations already for centuries.

Whereas our research was primarily focused on the conceptual, methodological, and procedural requirements for improving the application of behavior-oriented operations, it emerged from our field research and SME's interviews that there is a need to address the mindset that accompanies the military operations. This refers to the need for military personnel to recognize that the actions of the military as an organization as well as of soldiers individually may influence, in some cases adversely, the behavior

of relevant actors in conflict. This realization has helped to address (in Chapter 4) the need for further training and exchange of knowledge that support the development of behavior-oriented operations in a way that provides added value and utility to military activities.

Finally, in this document, we have codified our current thinking on why and how to influence human behavior in a military context. But conceptual thinking and practical implementation continue to evolve. In that sense, this report is a stepping stone to further debate and critical analysis, rather than a definitive result of the same.

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Appendix I

This entry accompanies Section 3.3 and presents a brief description of the Behavioural Dynamics Methodology (BDM). This text of this Appendix is provided by Emic Consulting.

The BDM is a tried-and-tested approach that allows trained practitioners to understand complex behavioral and social problems from multiple perspectives, and design more effective operational and communications plans. The Methodology is a distillation of widely accepted behavioral science theories and social science research methods structured into a practical, flexible and evidence-based tool. This tool allows defense and security organizations firstly to understand key audiences, and - where appropriate - to design and execute plans based on this understanding. The purpose of the BDM is to help operationalize a strategic communication approach within NATO militaries. It is applicable to conflict, public diplomacy, violence reduction, peace maintenance, countering disinformation and understanding the influence of state and non-state actors in the information space – indeed any problem where human behavior is an aspect of the problem or part of the solution.

The BDM was first taught in 2008 and is used by strategic communication, information operations and CIMIC personnel within NATO defense organizations, including the Royal Netherlands Army. The Methodology continues to be updated annually, incorporating the latest knowledge from academia and the field. It has the following features:

6. **A focus on behavior (instead of attitudes)**. A corpus of evidence from social psychology research has shown that attitudes are often poor predictors of behavior. For that reason, research in behavioral dynamics focuses on researching behavior, in contrast to researching attitudes as proxies of behavior (as is typical in communication campaigns). Understanding the drivers of a non-desired behavior or a potential desired behavior lies at the heart of the BDM.
7. **A focus on groups (not individuals)**. Human behavior is inherently social. Evidence from psychology and neuroscience overwhelmingly supports the notion that the human mind and brain are adapted to the social world. To understand and research human behavior it is necessary to take group processes and dynamics into account. Groups are different entities from individuals and need to be researched in their own right, which the BDM is designed to do.
8. **Behavioral science at its core**. The BDM uses 44 'Parameters' to assist in understanding the behavioral dynamics within key audience groups through its Actor and Audience Analysis phase. The theory that underpins them has been the subject of empirical and theoretical investigation over many years and they have been established as critical factors in behavioral dynamics.
9. **An evidence-based approach** built through diagnostic research. The BDM teaches how to analyze these Parameters through qualitative and quantitative social science

research. The research approach for BDM emphasizes the need for high ethical standards in the conduct of all research and is diagnostic rather than descriptive - meaning it seeks to identify causes of behavior rather than merely describe its manifestation. These research approaches are not unique to the BDM, but they are tailored for the unique operating environments and problem sets encountered by defense practitioners.

10. **Designed as a practical tool**. Whilst the BDM is grounded in behavioral and social science, the BDM is designed explicitly as an accessible, sequential and practical instrument for military decision making and planning. Measurement of effectiveness is integrated into the BDM process at all stages.

Five separate phases comprise the Methodology. Each phase is a modular component of the entire process:

Phase 1 – Strategic Campaign Planning (SCP). SCP is the process that begins with an exploration of the problem and the rearticulation of objectives into measurable terms. This stage is based on secondary research, SME interviews and, where possible, some field research. The aim of the SCP phase is the selection of the audience within which a behavior change or strategic communication campaign might be effective, thereby setting the conditions for further Actor and Audience Analysis (AAA). Problem Space Mapping is the cornerstone of the BDM SCP Phase (see Section 3.3.2 of this report).

Phase 2 – Actor and Audience Analysis (AAA). During AAA, qualitative and quantitative research methods are used to develop an in-depth understanding of the behavioral dynamics within a relevant audience group identified in the SCP phase. We believe the best, if not only, way to study seemingly intractable behavioral problems is to adopt an emic perspective during AAA research and to understand the internal logic of the audiences involved. To do so, we employ behavioral Parameters that form the core of the BDM. These Parameters comprise 44 theories/concepts drawn from across the body of academic and applied research in the social, psychological and behavioral sciences (see Figure 20 of this report). In addition to their theoretical grounding, the Parameters have been further tested and selected on their operational effectiveness. The Parameters ensure that the qualitative and quantitative data collected is relevant to behavior change, allowing for strategic communication campaigns that are authentic, relevant, resonant, and measurable.

Phase 3 – Campaign Intervention Strategy (CIS). On the basis of the AAA data collected and analyzed in Phase 2, a behavior change theory is transformed into a practical change strategy or intervention strategy. The BDM's CIS model is based on and consistent with the numerous well-established scientific models of social and behavior change. The CIS phase allows for both the conceptualization of a behavioral change strategy and offers insight into the likely effectiveness of the strategy, correlated with the Parameters identified as key and explored in the prior phase of research.

Phase 4 – Implementation (IMP). This phase involves the formulation and delivery of a detailed implementation plan designed on the basis of the strategic communication or behavior change strategy identified in the CIS phase.

Phase 5 – Monitoring, Evaluation and Learning (MEL). This refers to the process of evaluating the effectiveness of a behavior change strategy or strategic communication campaign. MEL is not an afterthought; the evaluative process is integral to the Methodology from beginning to end and is a vital consideration from the problem exploration phase (SCP) onwards.

Appendix II

This entry accompanies Section 4.3.1 and presents definitions of each technique to influence behavior adopted from the Behavior Change Wheel Framework.

Intervention function	Definition
(Limited) use of force	Using military means to exercise lethal power
Threat of force	Creating an expectation of force or punishment
Restrictions	Using force to reduce the opportunity to engage in the target behavior
Environmental restructuring	Changing the physical or social context to create or reshape opportunities
Incentivization	Creating an expectation of reward
Enablement	Increasing means/reducing barriers to increase capability (beyond education and training) or opportunity (beyond environmental restructuring)
Education/training	Increasing knowledge or understanding or imparting skills
Modelling	Providing an example for people to aspire to or imitate
Communication (persuasion)	Using communication to convey a message, to induce positive or negative feelings, or to stimulate action

Appendix III

This entry accompanies Section 4.3.1. It shows a compendium of actions and effects from various sources (1 CMI Command, STANAG 2287, UK document based on operations in Afghanistan, UK doctrine, and an HCSS-brainstorm). This list serves as an incentive to think about behavior-oriented operations. It is not meant as a comprehensive overview of all effects and actions.

Effect/action	Description
Align interests	Bring the interests of (an)other actor(s) in line with own interest.
Block	Deny the enemy access to a given area or TA. It may be for a specified time.
Clear	Remove all enemy forces from a specific location, area or zone.
Comfort	Reduce the impact of an opposing actor fear-based influence on a specific actor.
Contain	Cause the enemy to center his activity on a given front (on the physical plane) or against the TA (on the moral plane) and to prevent his use of the resources elsewhere.
Convince	To make the TA feel certain that something is true.
Create civil unrest	Provoke disturbing actions against the rulers in the TA.
Create information overload	Provide an actor such an amount of information that they are unable to distill actionable information and their decision-making process is slowed down.
Deceive	Mislead the TA by providing wrong information.
Degrade	Reduce TA's capability of conducting a specific task from normal state.
Delay	Trade effort and resources in exchange for time and prevents its target from adopting a course of action for a set period of time.
Destabilize	Render unstable.
Destroy	Render an enemy force combat-ineffective unless it is reconstituted.
Deter	Dissuade through action or the threat of action.
Deter	Create the condition, perception, or attitude in which a target will be less likely to undertake a specific action.
Dislocate	Deny the ability to deny strength.
Disrupt	Break apart an enemy's formation and tempo. Interrupts the enemy's timetable, causes premature commitment of forces and/or splinters their attack.
Divert	Draw attention and forces away from the point of the principal operation.

Divide	Attack cohesion and create two conflicting interest groups within a group that was originally united in a common grouping or shared interest.
Empower	Promote confidence or authority in the TA.
Enable	Provide the means or authority to make an action by a TA possible.
Escort	Accompany and protect.
Finance	Offer an actor financial gain to support or to prevent action.
Fix	Prevent the adversary from moving any part of forces from a specific location or to maintain the commitment of his resources to a course of action.
Follow/adopt	An actor changes its behavior and acts now in the same way as another actor.
Foster	Create the condition, perception, or attitude in which a target will be more likely to undertake a specific action.
Harass	Denies a target the possibility to regroup, rest, or reconstitute or to conduct required maintenance or administration.
Highlight	Bring attention to a particular event, fact, or activity.
Improve	Augment a target's capability of conducting a specific task from its normal state.
Inform	Communicate information to the TA.
Interdict	Prevent, hinder, or delay the adversary the use of an area, route or method of influence.
Intimidate	Frighten or threaten an actor, to persuade it to (not) do something.
Isolate	Seal of an enemy from its sources of support to deny an enemy freedom of movement and prevent an enemy from having contact with other enemy forces.
Jam	Disturb communication.
Mentor	Develop capacity through example and/or advice through planning and preparation, execution, and lessons captured.
Mobilize	Create the conditions, perceptions or attitudes that will increase the likelihood that the target will take active part in a conflict. It may generally include a specific faction.
Neutralize	Render enemy personnel or material incapable of interfering with a particular friendly operation.
Obfuscate	Draw attention away from a particular event, fact, or activity.
Occupy	Establish contact with TA, build rapport and shape it for future influence.
Pacify	Create conditions, perceptions or attitudes that will lessen the likelihood of a target taking an active part in a conflict and increasing the likelihood of the target remaining neutral.
Persuade	Convince the TA to (not) perform certain behavior.
Polarize	Inform an actor in such a way that its views become more extreme.

Peer pressure	Inform an actor about the will, intent and/or behavior of its peers to convince it to (not) perform certain behavior.
Prevent	Monitor/ID causes of conflict and to prevent occurrence, escalation, or resumption of hostiles.
Protect	Keep safe.
Provoke	Cause a negative reaction.
Reassure	Restore confidence of dispel fear.
Reduce	Make the TA or its actions smaller.
Retain	Keep equipment and communication channels free of enemy use.
Reward	Provide something in exchange for performing desirable behavior.
Secure	Gain possession of (by direct or indirect means) and to seek to retain.
Seize	Remove the TA from enemy influence and gain it for friendly influence.
Stabilize	Make stable.
Support	Encourage and help the TA in achieving their goals.
Taunt	Enforce the enemy to interrupt his planning to conduct operation without the appropriate level of preparation; or to commit his reserve or initiate counter-moves at a time or place to the prejudice of his interest.
Undermine	Weaken covertly.
Unite	Create one group from two distinct groups who were previously opposed in grouping or diverging interest.