
NORTH ATLANTIC TREATY
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AC/323(HFM-361)TP/1211

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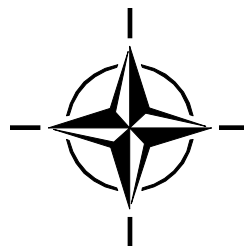
STO MEETING PROCEEDINGS

MP-HFM-361

Mitigating and Responding to Cognitive Warfare

(Atténuer et répondre à la guerre cognitive)

HFM-361 Symposium held on 13 – 14 November, 2023 in Madrid, Spain.



Published April 2024

The NATO Science and Technology Organization

Science & Technology (S&T) in the NATO context is defined as the selective and rigorous generation and application of state-of-the-art, validated knowledge for defence and security purposes. S&T activities embrace scientific research, technology development, transition, application and field-testing, experimentation and a range of related scientific activities that include systems engineering, operational research and analysis, synthesis, integration and validation of knowledge derived through the scientific method.

In NATO, S&T is addressed using different business models, namely a collaborative business model where NATO provides a forum where NATO Nations and partner Nations elect to use their national resources to define, conduct and promote cooperative research and information exchange, and secondly an in-house delivery business model where S&T activities are conducted in a NATO dedicated executive body, having its own personnel, capabilities and infrastructure.

The mission of the NATO Science & Technology Organization (STO) is to help position the Nations' and NATO's S&T investments as a strategic enabler of the knowledge and technology advantage for the defence and security posture of NATO Nations and partner Nations, by conducting and promoting S&T activities that augment and leverage the capabilities and programmes of the Alliance, of the NATO Nations and the partner Nations, in support of NATO's objectives, and contributing to NATO's ability to enable and influence security and defence related capability development and threat mitigation in NATO Nations and partner Nations, in accordance with NATO policies.

The total spectrum of this collaborative effort is addressed by six Technical Panels who manage a wide range of scientific research activities, a Group specialising in modelling and simulation, plus a Committee dedicated to supporting the information management needs of the organization.

- AVT Applied Vehicle Technology Panel
- HFM Human Factors and Medicine Panel
- IST Information Systems Technology Panel
- NMSG NATO Modelling and Simulation Group
- SAS System Analysis and Studies Panel
- SCI Systems Concepts and Integration Panel
- SET Sensors and Electronics Technology Panel

These Panels and Group are the powerhouse of the collaborative model and are made up of national representatives as well as recognised world-class scientists, engineers and information specialists. In addition to providing critical technical oversight, they also provide a communication link to military users and other NATO bodies.

The scientific and technological work is carried out by Technical Teams, created under one or more of these eight bodies, for specific research activities which have a defined duration. These research activities can take a variety of forms, including Task Groups, Workshops, Symposia, Specialists' Meetings, Lecture Series and Technical Courses.

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Published April 2024

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ISBN 978-92-837-2521-3

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Value Differences: A Starting Point for Influence

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ABSTRACT

Cognition happens in the mind involving the ability to think, perceive, and reason. Cognitive Warfare targets our ability to think, make decisions, and ultimately act. Values are individual beliefs that motivate and guide actions. They also inherently affect our cognition. Narratives are a way of transmitting values that are directly dealt with by our cognition. And finally, the information environment is used to broadcast all forms of narratives. While there are inevitably kinetic wars raging, the larger battlefield is in our minds. The narratives that capture the most believers will dominate the world's actions. With these connections made, we hypothesise that there are significant common values that are shared between democratic countries and specifically between NATO nations that lead to a set of common narratives. In contrast, autocratic nations' narratives present differing values (or at least of a different flavour) that are designed to produce a form of cognitive dissonance and affect behaviour. This paper examines the first part of the hypothesis by surveying democratic values. We will examine three case studies to start unravelling the nature of values and their flavours. First, we record the data collection and results from the appreciative inquiry exercise conducted during the IST-195 symposium. Second, we look at far-right extremism through the lens of values; the case of French fachosphere. Finally, we examine the values of countries rated as "top countries to live" (Staff, 2023b). The Schwartz model is used to

categorise, map, and compare the values expressed by each use case. This paper will set the stage for our ability to discover information narratives that support or contradict NATO values and their specific flavours. Such a capacity will provide focus for cognitive warfare, information operations, strategic communications, as well as allow for measures of effectiveness in the information environment.

1.0 INTRODUCTION

Cognition happens in the mind and is the ability to think, perceive, reason, and decide; first order cognitive effects, Figure 1. Cognitive Warfare targets our ability to think, make decisions, and ultimately act. We are interested in researching in the second order cognitive effects bubble, Figure 1, as we are able to have an effect at this level through defensive and proactive measures. In particular, we are interested in exploring values, which are individual beliefs that motivate and guide actions. They also inherently affect our cognition. Narratives are a way of transmitting values that are directly dealt with by our cognition. Narrative sent by our adversaries are not in our sphere of control. Finally, the information environment is used to broadcast all forms of narratives. While there are inevitably kinetic wars raging, the larger battlefield is in our minds. The narratives that capture the most believers will dominate the world’s actions. This paper concentrates on exploring which values could be used to guide military operations in the Information Environment (IE). As values are a largely conceptual, they act on our cognition and hence play a significant role in cognitive warfare.

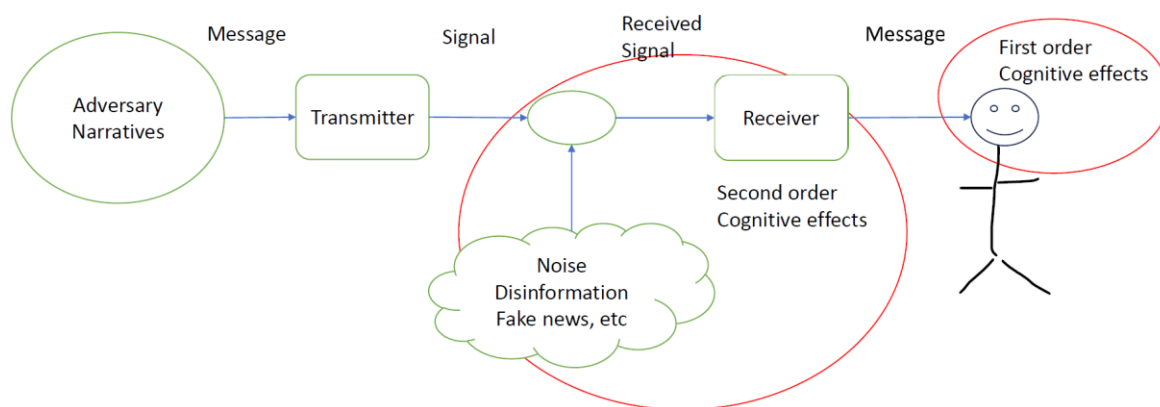


Figure 1: Radius of Cognitive Effects overlaid on Shannon’s *Theory of Communication* (Shannon, 1948).

The information environment is complex, chaotic, and is undeniably being exploited by non-democratic states, and internally within countries by fringe groups, to interfere, influence, and misinform. Make no mistake, the IE, and especially contemporary media (mostly social media but also includes online news and informational websites), is an active battlespace where democratic nations have very few ‘boots on the ground’. It is in this battlespace where much of the cognitive warfare fight will occur, especially against civilian populations. In the IE, messages, narratives, and stories are the ‘weapons’ that are used to influence, persuade, and divide opinion affecting our cognition through numerous biases and dissonance. These IE weapons must be exposed to be effective. They come in many forms, and ultimately can be detached from individuals. On closer inspection, these narrative-weapons inherently reveal specific values that are being espoused. Values are a universal psychological construct that can be applied to characterise anything and everything. We can analyse our own

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actions to discover what we value; I go to the gym because I value my health. This concept has high face validity, but can it be used as a guide for military IE operations?

Why are values important to research and understand? At the end of the day, when diplomatic and economic means fail to solve disputes between countries, NATO military power will be used to defend democratic values. We go to war to defend our common values. Particularly when the values of the “adherence to the rule of law” and “freedom” are attacked. It so happens that values are a well-researched social construct with empirical studies linking directly to behaviour in the physical world (Roccas & Sagiv, 2017). The Schwartz model (Schwartz, 2012) has been used for empirical studies across 82 countries that include highly diverse geographic, cultural, linguistic, religious, age, gender, and occupational groups. All value items in this model have demonstrated near-equivalence of meaning across cultures and have been shown to explain the motivational bases of attitudes and behaviour. However, values have *flavours*. If we think about what freedom means to us and compare our meaning to someone in an autocratic state, there are likely meaningful differences but also a large overlap in interpretation and enactment. It is the differences that are of interest for deep understanding and the resolution of issues. This paper is the start of a research journey to understand the extent to which values can be understood, applied for situational awareness, and exploited for mission success.

A military application for this understanding of values could be in strategic and operational actions within the IE. Starting with aggregated contemporary media feeds, clustering machine learning is used to identify narratives of interest to NATO. These narratives and the contributing messages are then analysed for manifest and latent values. The resulting values are then compared to NATO/democratic/mission values. Narratives that have common values and flavours can be proactively supported while narratives that display autocratic values could be influenced with factual data and well-researched information. When other network characteristics like emotional content and speed of message transmission are considered, we can start to understand which democratic countries around the world are being negatively influenced. Ultimately NATO cooperation will be used to defend our shared values such as the democratic ideal, the concept of peace, order and good government, and the strength to be drawn from diversity.

1.1 A Framework for Intelligence and Operations in the Information Environment

Autocracies and dictatorships have closed their social media platforms to the rest of the world while democratic states are mainly free and open. This puts our adversaries seemingly at great advantage. However, we argue that we have the greater advantage and need to focus our efforts within democratic rather than in non-democratic countries. The following three-prong framework (Forrester, 2023) has been developed to guide research, but could also be used for military intelligence and operations:

- **Defensive activities:** in the IE focus on detection, identification, classification, analysis, monitoring, and countering adversarial exploitations of the information space such as manipulation, propaganda, deception, and influence. As well, analysis, monitoring, and measuring the effectiveness of our own strategic and operational narratives.
- **Proactive Manoeuvres:** enhanced techniques and methods for promoting and implementing narratives that promote beneficial attributes of social behaviour such as Ethics and Privacy, Trust, and Assurance. By way of these attributes, ethically sound narratives in the IE can help build trusted and reliable sources of information for public use. If perceived as trusted and reliable by the public, these information sources can maintain and improve the trust in and credibility of information in the overall IE. Confidence and assurance in information help build robustness and resiliency against disinformation in and between populations. In particular, proactive manoeuvres for militaries encompass outward-

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oriented, attributed communications and information activities in the IE that include Strategic Communications, Public Affairs and various other Information Operations.

- Partnerships: The sheer size, complexity, and volume of the IE necessitate partnerships with other government departments, industry, academia, and ideally all democratic nations, to build an IE ecosystem capable of rising to the challenges brought about by those who would like to see the decline of western liberal democracy.

Moreover, using democratic values as an ethically sound basis, narratives can be proactively used in justifiable ways to diminish or pre-empt the effects of anti-democratic influence and disinformation campaigns. NATO operations and STRACOM can identify local groups and organisations with democratic values to engage with in unstable democracies. Research is being conducted to enable NATO tactics that build, back, boost, and bridge (Beskow & Carley, 2019) such communities allowing war torn countries to heal from the inside.

1.2 Hypothesis

We hypothesise that there are significant common values that exist between democratic countries and specifically within NATO nations that tend towards Universalism from the Schwartz model (Schwartz, 2012).

This paper examines the first part of the hypothesis by surveying democratic values. We will examine three case studies to start unravelling the nature of values and their flavours. First, we record the data collection and results from the appreciative inquiry exercise conducted during the IST-195 symposium. Second, we look at far-right extremism through the lens of values; the case of French fachosphere. Finally, we examine the values of countries rated as “top countries to live”(Staff, 2023b). The Schwartz model is used to categorise, map, and compare the values expressed by each use case. But first, we will examine the complex environment in which this research is situated.

2.0 LITERATURE REVIEW

2.1 The Magnitude of Information Operations

The IE impacts on the three dimensions (physical, virtual, cognitive) and encompasses several techniques: propaganda; (dis)information, influence, and psychological operations; deception and electronic deception; electronic and cyber warfare, and the emerging concept of cognitive warfare (Marsili, 2021, 2023).

The virtual realm encompasses electronic warfare (EW), electromagnetic spectrum operations (EMSO), cyberspace operations (CO), information warfare (IW), psychological operations (PSYOP), now better known as military information support operations (MISO), information operations (InfoOps or IO), also known as influence operations, strategic communications (STRATCOM), military deception (MILDEC), computer network operations (CNO), operations security (OPSEC), perception management (PM), public information (PI), public diplomacy (PD), and cognitive warfare (CogWar) (Marsili, 2021, 2023).

Joint Publication 3-13, which provides doctrine and guiding principles for the U.S. Armed Forces, characterises IO as intended “to influence, deceive, disrupt, corrupt, or usurp the decision making” (JCS, 2012). A 2018 U.S. Army pamphlet drafted by the Training and Doctrine Command (TRADOC, 2018) proposes the following definition of IW: “Employing information capabilities in a deliberate disinformation campaign supported by actions of the intelligence organisations designed to confuse the enemy and achieve

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strategic objectives at minimal cost”. The publication highlights the relevance of information environment operations (IEO)¹ and the convergence between the physical, virtual, and cognitive dimensions. The focus of the military tends to be on information and cognition (Reilly, 2022).

The NATO Warfighting Capstone Concept (NWCC), approved by the Allied Command Transformation (ACT) in 2021, states that future warfighting will be conducted in multi-dimensional (physical, virtual, and cognitive) and multi-domain operating environment. Cognitive superiority – understanding the operating environment and potential adversaries relative to the Alliance’s own capabilities, capacities, and objectives – is one of the five Warfare Development Imperatives (WDI).

The NATO STO publication *Science & Technology Trends: 2023-2043* (Reding et al., 2023), which provides an assessment of Science & Technology (S&T) trends and their potential impact on NATO military operations, defence capabilities, enterprise functions, and political decision space, concludes that emerging technology-enabled capabilities will increase the Alliance’s operational and organisational effectiveness by enabling the NWCC WDI, including cognitive superiority. Alliance’s defence S&T community finds that innovative technologies, nevertheless whether they are conceived for military or civil applications (dual-use technologies) may create entirely new operational domains (e.g., air, cyber & space) or reinvigorate old ones (land, sea & cognitive). The first edition of the report (Reding & Eaton, 2020) had already included “synthetic realities” – new cognitive or physical realities based on the integration of psycho-sociotechnical systems – among the emerging and disruptive (EDTs) technologies. In fact, CogWar is supported by artificial intelligence (AI) and, more broadly, by EDTs. Technological development and digitalization will give rise to increasingly extreme technologies that will impact the cognitive and moral domain of the human component, even in the military sphere. Ultimately, EDTs, rather than enhancing cognitive operations, enable them.

In a world that is characterised by the widespread use of mobile digital communications and media which operate in largely ungoverned digital spaces, the use of such tactics, aimed at targeting political institutions and influencing public opinion, is facilitated by rapid technological advances that reach a broad audience and which therefore boosts their impact (Marsili, 2021, 2023). CogWar deeply interconnects the human mind to the electronic environment of global multimedia platforms (i.e. social media) enabled by the digital transformation (Marsili, 2023). A U.S. Marine Corps booklet published in 2022 introduces a conceptual framework on the ever-changing IE in all warfighting domains, and highlights that information is “the foundation of all human interaction”, accelerated and expanded by technologies “with a tempo and scale previously unimaginable”.

The intersection of the information, physical and cognitive/social domains (Marsili, 2021), empowered by the digital ecosystem – the Internet, social media, and communication applications – creates the conditions for cognitive operations. As human cognition is highly susceptible to manipulation and deception, the human-machine interaction is a fundamental component of CogWar, which aims to influence thinking processes, such as perceptions, decision making and behaviour, and plays a central and crucial role, due to the way our perception and judgement are affected, thus making it an unprecedented challenge (Marsili, 2023). Recognising and dispelling misinformation and disinformation requires critical thinking skills to identify untrustworthy information sources, and to understand how one’s own potential cognitive biases may increase one’s susceptibility to manipulation or influence (USMC, 2022).

¹ This concept refers to an adversary’s actions by the Russian doctrinal term information warfare and friendly actions by the term information environment operations (see TRADOC. (2018). *The U.S. Army in Multi-Domain Operations 2028*. In TRADOC (Ed.): U.S. Training and Doctrine Command , note 19 p. 10).

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The fact that most cognitive activities occur primarily in the virtual domain does not mean that they have no effects in the real world (Marsili, 2023). We can distinguish between two types of information disruption. The first is cognitive disruption, which includes any action (e.g., disinformation and propaganda) that directly targets individuals. The second is a functional disruption (e.g., cyberspace and electromagnetic attack) that directly targets systems and facilities (e.g., computers, weapons, vehicles) (USMC, 2022).

What is most concerning about the effects of CogWar in peacetime is not its impact on the battlefield but the political and social consequences. CogWar can be defined as a form of propaganda spread through manipulated media or social media for political or military purposes and aimed at fostering and instilling biased and conflicting narratives among targeted individuals, so as to make them behave accordingly by clouding their judgement (Marsili, 2023). CogWar impacts on brain, mind, and behaviour.

A NATO Allied Command Transformation (ACT) team of experts defines CogWar as “the convergence of ‘Cyber-Psychology’, ‘Weaponization of Neurosciences’, and ‘Cyber-Influence’ for a provoked alteration of the perception of the world and its rational analysis by the military, politicians, and other actors and decision-makers, to alter their decision or action, for obtaining strategic superiority at all levels of tactical intervention concerning individual or collective natural intelligence, as well as artificial or augmented intelligence in hybrid systems” (Marsili, 2023). The Alliance is taking the necessary action against “weaponized information” in modern warfare.

The cognitive dimension is a crucial component of hybrid warfare and can determine the success of operations in physical domains. Cognitive operations are located in the competition continuum, below armed conflict (Joint Doctrine Note 1-19), in a context between the physical and the virtual. Conflicts are increasingly fought through the full-spectrum of operations,² that is in the continuum conflict-competition. It means that future conflicts will be characterized by operations below the threshold of armed conflict, such as cognitive operations, enabled by technological progress and innovative methodologies (Marsili, 2023). In the future, operations will be conducted in time and space with synchronisation of all domains (full-spectrum operations), described by TRADOC as a mix of “unconventional and information warfare (social media, false narratives, cyber-attacks)”, and will produce effects on the cognitive, moral and physical dimensions. To such extent, cognitive operations can be defined as “weapons of *cultural* disruption” (Marsili, 2021).

2.2 The Nationalist Discourse in the Russian Narrative³

The ongoing Russia-West confrontation is also a war of narratives – false or true – aimed to gain popular support. One of the main opponents to Western values, the Russian Federation (RF) makes an extensive use of (dis)information techniques as a strategy to undermine the trust in Western institutions and to disrupt the process of integration into the latter of the countries once included into the Soviet Union’s sphere of influence (Marsili, 2021).

The Russian *Information Security Doctrine* (2000) discusses, *inter alia*, how to strengthen national identity and preserve the cultural heritage to develop shared moral values, patriotism for the sake of the motherland. Accordingly, the Kremlin uses national identity as a propaganda tool to promote the Russian-speaking

² Currently called “full-spectrum dominance” (JCS, 2017 #747), also known as “multi-domain operations” (Field Manual 3-0 [FM 3-0], ed. 2022, §§ 1-9, 1-14), this doctrinal concept was firstly introduced by the U.S. Army as “full-spectrum operations” (FM 3-0, *Operations*, 2001), and then termed “full-spectrum superiority” (*Department of Defense Dictionary of Military and Associated Terms*, JP 1-02, 8 November 2010 [updated 15 February 2016], p. 95-96.).

³ This contribution relies on the publication *The Russian Influence Strategy in Its Contested Neighborhood*. (Marsili, 2021), https://doi.org/10.1007/978-3-030-73955-3_8.

minorities in neighboring countries and to undermine the local institutions (e.g., Estonia 2007, Lithuania 2008, Georgia 2008, Kyrgyzstan 2009, Ukraine 2014-present, Poland 2023-present).

The concept of Russian identity is multi-ethnic and international, and the so-called “compatriots’ policy” supports all Russian-speaking people outside the motherland, thus emphasizing on language rather than ethnicity. The complaint that the ethnic Russian population in neighboring countries are not completely satisfied with their treatment by the local government and are discriminated serves as excuse for a “fair and just” intervention to protect the Russian compatriots living in these countries (South Ossetia and Abkhazia, 2008, and Ukraine, 2014-present).

InfoOps targeting extra-territorial Russian-speaking population, whether they are a component of the Russian hybrid warfare that includes kinetic attacks or simply operations below the threshold of armed conflict, are successful only where there is a strong pro-Russia sentiment.

For such purpose, the Russian Federation developed a narrative that links the Empire of the Tzar to the current Federation, through the “glorious” Soviet past, thus creating a *fil rouge* that supports the common historical narrative of the Russian nation-state. In the post-Soviet linguistic tradition, the term “nation”, as well as its derivative concept “national identity”, has strong ethnic connotations.

The name *Novorossiya* (New Russia), an historical region of the Russian Empire which identified (2014-2022) a confederation of the self-proclaimed Donetsk People’s Republic and Luhansk People’s Republic, before their incorporation into the RF, reveals the nationalism that underlies the ongoing conflict with Ukraine. Indeed, to legitimize the Russian intervention in the Donbas, propagandists sought to characterize the participation in the conflict in terms of language, culture, history, as a support to protect the just claims of the ethnic Russian separatists.

Future conflicts, whether above or below the threshold of armed conflict, will make an extensive use of cognitive operations as “battles of narratives”.

2.3 Values and Influence in the Society: Unity, Polarity, Cleavage

The prevailing system of values in any society reflects how individuals relate to other people and underpins how their beliefs and actions are perceived as acceptable, deviant, or extreme and it is a crucial aspect when it comes to mediating social interactions. Intuitively values reflect people’s sense of right and wrong.

Value-talk is first a mediatized expression and, in their immediate response to terrorist attacks, leaders from several western countries (France, Norway, New Zealand) adopted a similar narrative and emphasised that our values are under attack (Bogain, 2019; Ezzati, 2021; Monin, 2020). Regardless of boundaries, this example from public media illustrates how values act as a source of unity against the terrorist, a common, although different, enemy.

On a different scale, several studies have shown that the set of values at stake also affects the willingness of individuals to join groups and to engage in violent actions (Pretus et al., 2018). For example, people are ready to defend their own sacred values, which are often religious values and tend to be highly stable and resistant to social influence. In this case again, the set of values is a source of cohesion, and can serve to both create unity and mobilize action.

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This image of a value-based unity is to be contrasted with another common opinion much repeated in public debate, that there is a value-based cleavage between groups of people. For example, values rhetoric is often used to reify the idea of a fundamental divide between natives and immigrant populations. Moreover, having a different set of values also explains the diversity and divergence of public opinions towards immigration in larger areas, such as Western Europe (Heath et al., 2020).

Beyond those antagonist views placing values as central pieces of societal unity or cleavage, some authors argue that values are also significantly related to polarization within the society. Polarisation in Europe, for instance, is driven by conflicts between communitarian and cosmopolitan values (Pausch, 2021).

If values are critical for social interactions, it is also important to understand which additional factors may lead to specific attitudes and actions. At society level, unfair treatment and perception of unfairness play a pivotal role in various processes of radicalization (Van den Bos, 2020); social exclusion has been shown to encourage loyalty towards and identification with extremist groups (Pfundmair et al., 2022). In addition, individual differences in cognition and information processing style can also predict their ability to endorse violence, and for example, cognitive inflexibility can predict extremist attitudes (Zmigrod et al., 2019). However, the set of values as such is not immutable, it changes following the society itself, and although often threatened by extremist attitudes, it can also be altered under extraordinary circumstances (Rivers, 2018).

2.4 Schwartz Values Model

Schwartz (2012) derived a theory of basic individual values, Figure 2. This model has been empirically tested across many different populations and cultures. Values are cognitive representations of basic motivations. Values are inherently positive, representing what people consider worthy or important. Important for this research is that values are a powerful motivator for behaviour (Roccas & Sagiv, 2017).

In this initial foray, two of the basic values are considered:

- **Benevolence:** Preserving and enhancing the welfare of those with whom one is in frequent personal contact. Represented by the following value words: Helpful, forgiving, honest, meaningful life, mature love, loyal, responsible, true friendship, a spiritual life.
- **Universalism:** Understanding, appreciation, tolerance, and protection for the welfare for all people and for nature. Represented by the following value words: equality, a world of beauty, a world of peace, social justice, unity with nature, broadmindedness, wisdom, protecting the environment, and inner harmony.

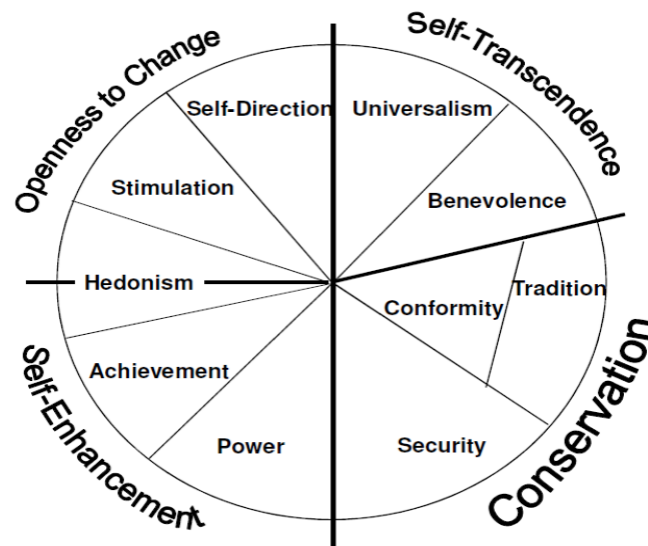


Figure 2: An overview of the Schwartz *Theory of Basic Values* (Schwartz, 2012).

2.5 Values and Behaviour

One of the future goals of this research is to understand how aggregated expression of values online translates into real world action; what is the relation between values and behaviour. While beyond the scope of this paper, links between individual behaviour and values is discussed in *Values and Behavior* (Roccas & Sagiv, 2017). In particular, this book discusses individual values and behaviour. We are interested in predicting group or societal behaviour based on values expressed through aggregated social media posts.

2.6 Values Flavours

Many values tend to have slightly different meanings between people. For example, searching “freedom as a value” on google returns hundreds of subtle and not-so-subtle meanings. Some refer to freedom of thought, autonomy, free from oversight, freedom to choose lifestyle, any many more. When talking about freedom as a value, it is likely that people could agree to a large extent on what is included in the meaning of freedom. However, there will also exist personal understanding of freedom that differs, or value flavour. So perhaps we are all fairly close on our understanding of most values, but there are differences where we draw the line on what is acceptable and what is not. Does freedom mean 100% individual freedom of action regardless of how it affects others; or does it mean individual freedom up to the point where it affects others. It is these subtle differences that cause friction between people and societies. Can we discover these differences in online discourse?

2.7 Democratic Values

“The values of freedom, respect for human rights and the principle of holding periodic and genuine elections by universal suffrage are essential elements of democracy”. The United Nations formed a Commission that declared the following as essential elements of democracy (UN, 2002):

Paper Title

- Respect for human rights and fundamental freedoms
- Freedom of association
- Freedom of expression and opinion
- Access to power and its exercise in accordance with the rule of law
- The holding of periodic free and fair elections by universal suffrage and by secret ballot as the expression of the will of the people
- A pluralistic system of political parties and organizations
- The separation of powers
- The independence of the judiciary
- Transparency and accountability in public administration
- Free, independent, and pluralistic media

3.0 VALUES CASES

3.1 Case 1: IST-195 Values Collection

In October 2022, the IST-195 Research Symposium (RSY) entitled “Societal Challenges for Operations in the Information Environment” challenged attendees, through appreciative inquiry (Cooperrider, 2012), to consider what an information environment might look like in an ideal (democratic) world. Through a series of questions, attendees were able to identify values related to their positive online experiences. Such an analysis provides goals or objectives, in the form of values, for our actions. When used in conjunction with the Research, Intelligence, & Operations Framework (Forrester, 2023), consisting of defensive activities, proactive manoeuvring, and partnerships, values provide deep insight into nefarious influence operations as well as providing high level goals for proactive manoeuvring.

First, data was collected from 80 participants, representing all NATO countries, during the NATO IST-195 Symposium. An introductory Positive Inquiry Exercise (Cooperrider, 2012) was conducted to explore what is a “desired state” and the associated values involved in creating a democratic IE. Participants were asked to describe two personal recent positive online experiences. They then circled values from a list of 97 “value words” to identify relevant values they believed characterized their experiences.

These were provided in an anonymous response and quantified. The top four values followed by the number of responses were Connection (19), Knowledge (17), Honesty (17), and Communication (17). Table 1 shows the top values by frequency.

Table 1: Top values of IST-195 survey by frequency mapped to Schwartz model.

Values identified by participants	Values mapped onto the Schwartz model
Connection	Benevolence
Communication	Security

Honest	Benevolence
Knowledge	Achievement
Humour	Stimulation
Entertainment	Hedonism
Friendship	Benevolence
Fun	Hedonism
Relationship	Benevolence
Family	Benevolence

3.2 Case 2: Far-right Extremism through the Lens of Values: The Case of French Fachosphere

This section introduces the case of the French fachosphere and illustrates a content-analysis approach developed to mining extremist content released on social platforms. The goal of the analysis was to capture the set of values and concepts that characterize the French extremists online, as highlighted by the content released by those groups.

Extremist groups have been active in cyberspace since the early days of online forums. The evolution of the Internet (social platforms, alternative media, citizen journalism, and participatory media) gave rise to more complex activities of ultra-right political groups and the creation of an increasingly visible space, called the fachosphere. Although the name is controversial, there is a tacit agreement on the concept, understood as a space for communication, propaganda, recruitment, action, and interaction of extreme right-wing groups. From a sociological perspective, extremism in terms of terrorism, interethnic and inter-religious hatred, left or right-wing political radicalism is essentially related to activities that are not in accordance with written (laws) and non-written (cultural habits) norms of the society. While extremist groups exist and are clearly identified in the social environment, the underpinning question is: what are the critical elements affecting the individual willingness to engage in extremist conflicts and, more specifically, what are the types of values those groups are claiming to defend? To answer this question, an interdisciplinary study was carried out within the frame of the FLYER project, which relies exclusively on the analysis of data streams published online by extremism groups. The experimental study consisted of three stages: 1) Collection of relevant extremist datasets from social platforms; 2) Semi-automatic analysis of data and identification of homogeneous clusters; and 3) In-depth analysis of features (including values) within clusters.

3.3 Collection of Relevant Data Sets

Extremist data sets were collected by using three main features: 1) specific hashtags identified in the French social media as being related to extremist posts, messages, and comments; 2) a set of representative keywords; and 3) several sites and accounts of extremist groups that are active online.

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Data was gathered from December 2019 to December 2020 and included streams from Twitter and discussion forums, all of which were merged. Merging those sets, although provided by distinct sources, allows us to build a homogeneous corpus according to the principle of homophily, stating that users within a certain group setting have a tendency to develop a similar use of language when developing the ideas of the group.

3.4 Semi-automatic Analysis of Data

After collecting rows of online data, several validation and characterization steps were performed on the entire collection to ensure that data sets were relevant and to detect finer categories of extremist content.

First, the initial collection gleaned on social platforms was manually explored by two experts in sociology (one is a senior researcher in education sciences and the other one is a postdoc in sociology with a background in social communication) in order to discard non-relevant content. The initial corpus was further roughly divided into two subsets, having respectively extremist and non-extremist content. This analysis was carried out by the same team of researchers in sociology. They were provided with a set of symbols, hashtags and notions associated with extremist ideologies. Those elements were used as a baseline to decide between extremist and non-extremist content. The team carefully studied the information within the texts and about the texts (namely the source or keywords used to collect the tweet) to infer the category.

Then, extremist, and non-extremist data sets were further semi-automatically explored in the light of sociological knowledge in order to derive specific extremist categories from empirical data. More specifically, the specific tags were collected from 56 information sources (discussion forums and sites) and were used together with statistical tools for textual analysis in order to detect clusters of texts based on internal similarity (lexical similarity estimated by the tool) and external distances (semantic distances estimated by the tool). Keywords and topics that seemed to characterise the content were highlighted and discussed. When textual units corresponded to several categories, each category would be indicated accordingly. When this was not the case, new categories would be proposed inductively. By following this iterative approach, four clusters of extremist content were identified.

3.5 In-depth Analysis of Features (Including Values) within Clusters

The last step of the study was dedicated to the characterisation of extremist clusters:

Fundamentalists: this category consists of groups or individuals defending the traditional model of the society. Main values include truth and justice, which are threatened in mixed and intercultural societies. Fundamentalists know where they come from, who they are, and defend their place in a changing world.

Defenders: this category includes groups or individuals that first identify a significant threat and then provide defence against it. Thus, they defend the identity, the culture, or the personal values of a group. Examples of defenders are the survivalists who denounce pollution and environmental degradation, or xenophobes who denounce foreigners and the threat they pose to national identity.

Nostalgic: this category consists of groups and individuals who act in order to defend old-time values, and include royalists, neo-Nazis, and nationalists. The group is driven by nostalgia and the desire to preserve ancient values.

Fighters: the category of fighters includes groups or individuals whose primary goal is to call for action and start the fight. Threats are everywhere in the society (migrants; women, new laws, and regulations); there is no longer

time to talk, to argue, the time is right for action.

Table 2 illustrates the main values identified by mining extremist content and explains their correlation with values of the Schwartz model.

Table 2: Specifies values and features of extremist content in French social media.

Category	Values	Values mapped onto the Schwartz model
Fundamentalists	Identity, tradition, culture, territory	Tradition, security, conformity
Defenders	Family, religion	Benevolence, security, conformity
Nostalgics	History, nation, heritage	Tradition, benevolence
Fighters	Justice, social order, truth	Benevolence

More details on extremist content characterisation are provided in (Alava et al., 2020), where the authors present those categories along with their interactions. In addition, (Dragos et al., 2022) describes differences between extremist and non-extremist content in terms of emotions.

Although extremists reject democracy and are perceived in the society as fully intolerant toward others, the analysis of the content released online shows that this content propagates a set of values that are related to Conservation and Self-Transcendences in the Schwartz values model.

3.6 Case 3: Top Six Best Countries 2023 Values

This third case shows the values of the top six “best countries for 2023” as ranked by the U.S. News Staff (Staff, 2023b). This yearly ranking is in its eight year and uses a well-defined methodology (Staff, 2023a) covering 73 country attributes. Attributes were then grouped into 10 thematic sub rankings that allowed for the overall ranking. The themes are Adventure, Agility, Cultural Influence, Entrepreneurship, Heritage, Movers, Open for Business, Power, Quality of Life and Social Purpose. In greater detail, quality of life includes a good job market, affordable, economically stable, family friendly, income equality, politically stable, safe, well-developed public education system, well-developed public health system.

The values for each “top country” were found by searching the Internet for a reliable source such as a university survey or government website. However, such a source did not exist for all countries included. Table 3 shows the top 6 countries, their top values, and where these values map into the Schwartz model.

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Table 3: Values for the top six countries and how each map into the Schwartz model.

Country	Values	Values mapped onto the Schwartz model
Switzerland	Environment, freedom, sobriety, thrift, tolerance, punctuality, sense of responsibility, neutrality, promotion of worldwide peace. (eDiplomat, 2023)	Universalism, conformity, security
Canada	Fairness, inclusion, democracy, economic security, safety, sustainability, diversity, equity, health. (Canadian Index of Well Being)	Universalism, conformity, security
Sweden	Honesty, responsibility, justice, humour, happiness, togetherness, meaningfulness, involvement, teamwork, adaptability. (Shiple, 2010)	Universalism, conformity, security, benevolence
Australia	Respect for the freedom and dignity of the individual, freedom of religion, commitment to the rule of law, parliamentary democracy, equality of opportunity for all people, mutual respect, tolerance, compassion, English language as the national language. (Australian Values, 2023)	Universalism, conformity, security, benevolence
United States	Freedom (speech, press, religion), democracy, equality, justice, diversity, independence, individualism, self-government, efficient use of time, informality, consumerism, innovation, directness, meritocracy, nationalism. (Difficult Questions - American Values, 2017)	Universalism, conformity, security, self-direction, achievement, benevolence
Japan	Harmony with (people, nature, taste, a flow, universe), belonging, group harmony, collectiveness, age/seniority, group consensus, cooperation, quality. (Uchitani, 2019)	Universalism, conformity, security, benevolence

4.0 DISCUSSION

This research was an initial exploration into values. We hypothesised that there are significant common values that exist between democratic countries and specifically within NATO nations that tend towards Universalism from the Schwartz model (Schwartz, 2012). To test this, three case studies were formulated which gathered values and mapped them onto our chosen model.

From the case studies above, we note that universalism does appear to be a key value of democratic countries, nor for extremist groups (which may be more consistent with autocratic countries). The closely related value of benevolence was present in all three case studies making it unsuitable as a unique differentiator without value flavour delineation. However, due to the small sample size and nature of sources used to derive the values,

further research is required to say with confidence that the null hypothesis is not true.

The case studies do highlight the importance of understanding the context from which the values were derived. The first case study (IST-195-RSY) looked at values related to individual *positive experiences* within the IE. The goal here was to start the conversation around how an ideal IE state might look; What values are present when people are happy and have positive experiences online. Here the values mapped mainly to Benevolence and Hedonism and Universalism was not present. The context of the French fachosphere case was understanding values related to extremist views. Here the values mapped to Tradition, Security, Conformity. Note that Universalism was not present. The values in the Top Countries all included Universalism, Conformity, Security, with Benevolence appearing in two thirds of the results.

Using the Schwartz model will likely require greater context given to values (value flavour) to better differentiate between democratic and autocratic narratives. In fact, Schwartz has produced a refined theory of basic values (Shwartz, 2017) that does defines values in terms of its motivational goal. For instance, Universalism is divided into three goals Universalism-nature (preservation of the natural environment), Universalism-concern (commitment to equality, justice, and protection for all people), and Universalism-tolerance (acceptance and understanding of those who are difference from oneself). As well, Benevolence has caring and tolerance as goals. In addition, this research will need to look at how combinations of values such as Power, Security, Conformity can help better differentiate narrative values. Finally, given that the chosen model is based on individual values, research will need to determine how the collection of individual values relates to aggregated values and the effect of societal behaviour.

The Schwartz model was chosen due to its empirical roots and extensive use in experimentation on values. However, there are other models that use different dimensions and values.

The Inglehart–Welzel cultural map of the world (Wikipedia, 2023b) which is a scatter plot based on the world and European values survey. It uses survival values verses self-expression values on the x-axis and Traditional values versus secular-rational values on the y-axis, Figure 3. Interestingly, we see that Russia is highly oriented on survival values combined with secular values. Core NATO counties tend to lean towards self-expression values with an even mix between secular and traditional values.

The Hofstede model (Wikipedia, 2023a), “included six key aspects of national culture country comparison scales, including: the power distance index (PDI), individualism vs. collectivism (IDV), masculinity versus femininity (MAS), uncertainty avoidance index (UAI), long term orientation versus short term normative orientation (LTO), and indulgence versus restraint (IVR)”. It tries to relate values to behaviour. Individualism is high for democratic countries (US, Australia, and UK), whereas autocratic countries (China, Iran, Russia) are more collectivistic. This is similar to the Inglehart-Welzel model. However, the other indexes do not highlight differences to the same extent.

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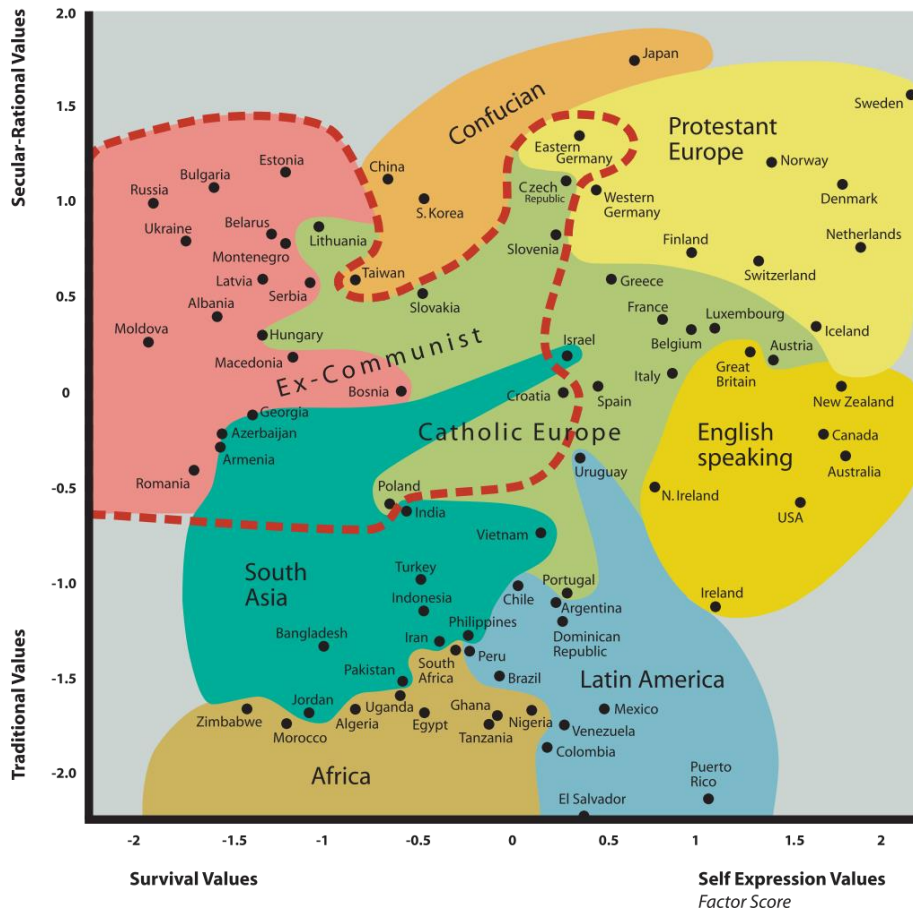


Figure 3: Inglehart-Welzel cultural map (Wikipedia, 2023b)

Ultimately, identifying the underlining values attached to narratives will require data-driven research employing trained and finely tuned machine learning that allows for a high degree of contextual understanding of the clustered messages and posts that relate to the narratives.

5.0 CONCLUSIONS AND FUTURE RESEARCH

This initial exploration into the role of values in determining the nature of narrative use in cognitive warfare (second order effects) is promising. While far from a comprehensive survey, the value of universalism is present in values associated with the top six countries for quality of life and is absent from the French fachosphere. Benevolence was present in all three case studies and hence cannot be used as a differentiator of democratic versus autocratic messaging and narratives. It is likely that use of the Schwartz model will require greater context given to values (value flavour) to better differentiate between democratic and autocratic narratives.

It remains to be seen if values will be easily clustered and identified during data-driven analysis and whether machine learning algorithms will be able to be tuned contextually to differentiate value flavours. In addition, while manifest values will be relatively easy to find, latent values will require special consideration. Certainly, understanding the narratives that are rampant in the information environment, based on the values that they

purport, will allow for greater situational awareness, and provide indicators of importance for both defensive and proactive activities.

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