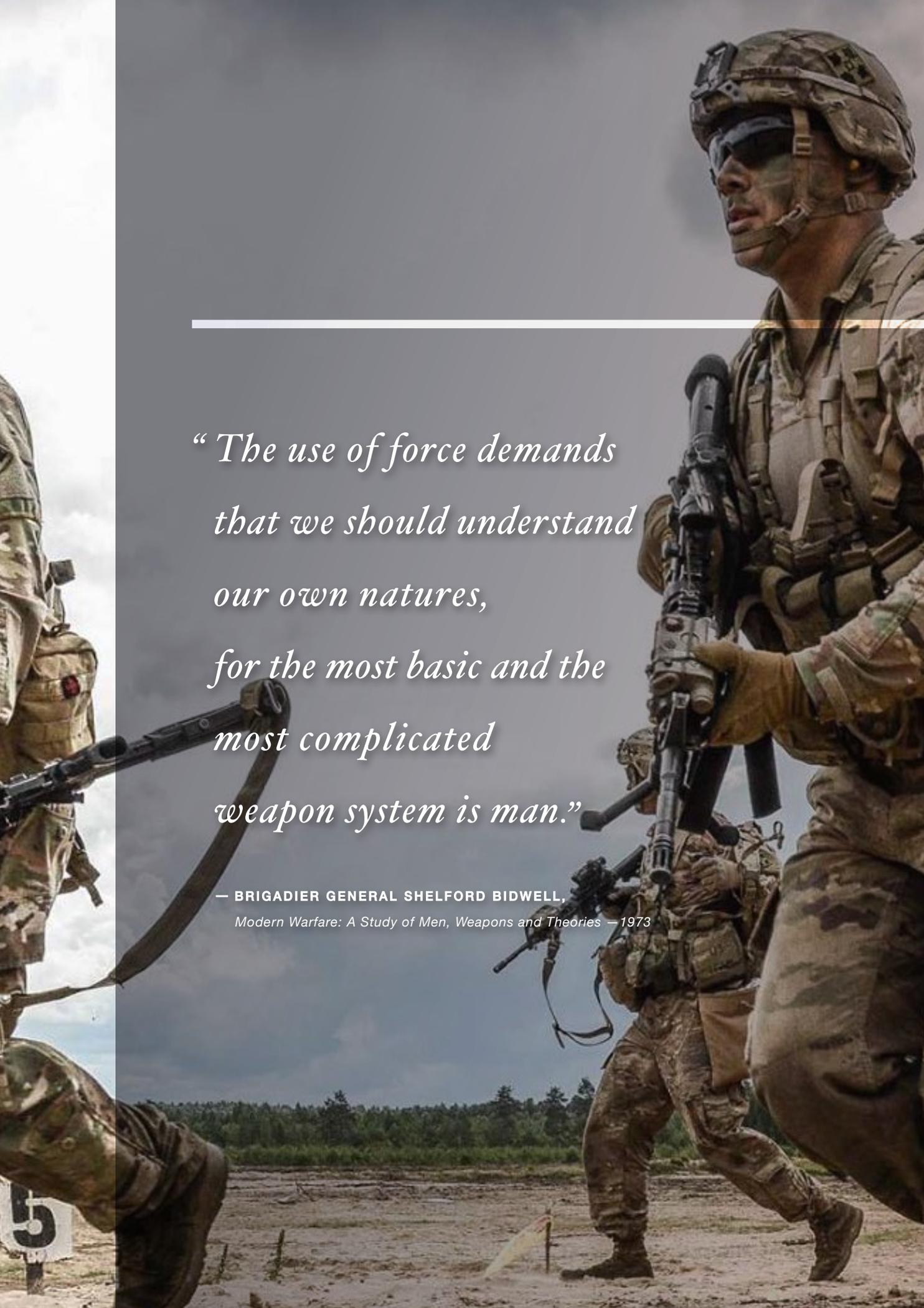


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RETURNING TO  
THE HUMAN  
FUNDAMENTALS  
OF WAR



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*“The use of force demands  
that we should understand  
our own natures,  
for the most basic and the  
most complicated  
weapon system is man.”*

— BRIGADIER GENERAL SHELFORD BIDWELL,  
*Modern Warfare: A Study of Men, Weapons and Theories* — 1973



# WILL TO FIGHT

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IN 2018, RAND PUBLISHED TWO REPORTS FOR THE U.S. ARMY DESCRIBING WILL TO FIGHT. **ARGUABLY, WILL TO FIGHT IS THE SINGLE MOST IMPORTANT FACTOR IN WAR.** WILL TO FIGHT IS THE DISPOSITION AND DECISION TO FIGHT, TO KEEP FIGHTING, AND TO WIN. THE BEST TECHNOLOGY IN THE WORLD IS USELESS WITHOUT THE FORCE OF WILL TO USE IT AND TO KEEP USING IT EVEN AS CASUALTIES MOUNT AND UNEXPECTED CALAMITIES ARISE. **WILL TO FIGHT REPRESENTS THE INDELIBLY HUMAN NATURE OF WARFARE.**

With very few exceptions, all wars and almost all battles are decided by matters of human will: Breaking the enemy's will to fight while sustaining one's own will to fight is the key to success in battle. But as focus on technology increases, the essentially human nature of war is all but ignored. Lack of focus on will to fight has created a dangerous gap in American military practice.

## **WE MUST IMPROVE OUR UNDERSTANDING OF WILL TO FIGHT.**

On the surface, the American military officially adopts the view of war as a contest of opposing, independent, and irreconcilable wills. But when it comes to practice—planning for and fighting wars—these theories often amount to little more than lip service. The integration of will to fight concepts into military education, training, planning, assessments, international engagement, and operations is glaringly sparse. In most cases, American and allied military professionals view war through the lens of technology and physical effects.

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War is a human endeavor—a fundamentally human clash of wills often fought among populations. It is not a mechanical process that can be controlled precisely, or even mostly, by machines, statistics, or laws that cover operations in carefully controlled and predictable environments. Fundamentally, all war is about changing human behavior.

— U.S. Army, Army Doctrine Publication (ADP)  
3-0, 2017



# GAPS IN MILITARY DOCTRINE

## THE U.S. JOINT CHIEFS OF STAFF RECOGNIZED THIS GAP.

In 2016 the U.S. Joint Staff identified a yawning gap in the understanding of partner and adversary will to fight:

Recent failure to translate military gains into strategic success reflects, to some extent, the Joint Force's tendency to focus primarily on affecting the material capabilities—including hardware and personnel—of adversaries and friends, rather than their will to develop and employ capabilities. . . . A failure to grasp human aspects can, and often will, result in a prolonged struggle and an inability to achieve strategic goals.

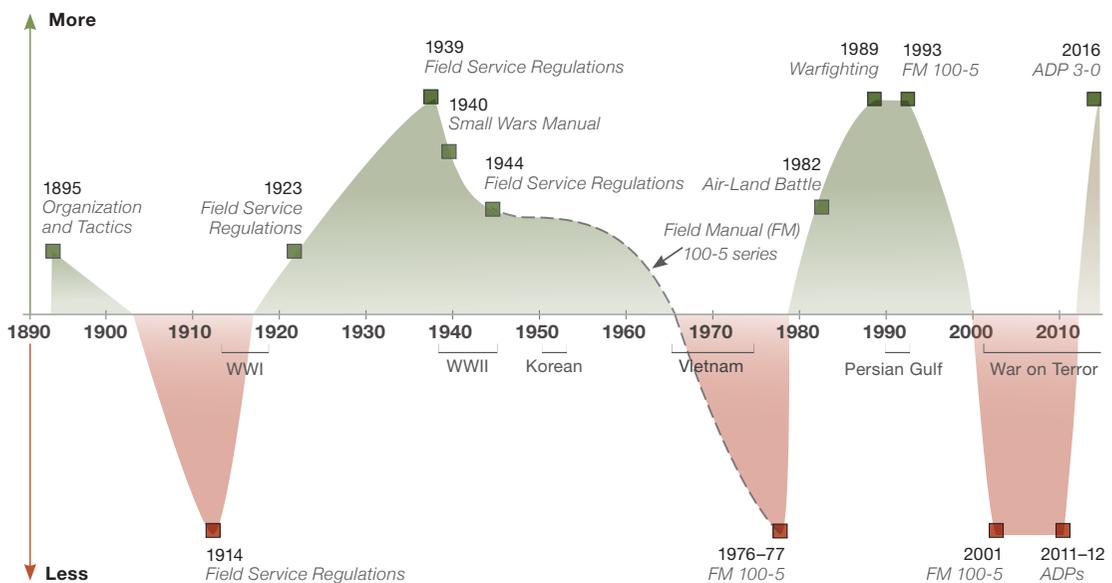
Improving understanding of will to fight might not be a panacea; war is not won by silver bullets. But if will to fight is the most important factor in war—or just a very important factor that is routinely overlooked or misunderstood—then improvement is absolutely necessary. Ignoring will to fight can contribute to tactical or even strategic defeat.

### THE EBB AND FLOW OF WILL TO FIGHT

There is a pattern in the wavering emphasis on will to fight in military doctrine.

- Will to fight is most or very important
- Effectively no inclusion of will to fight

- A major war occurs and Western militaries slowly incorporate some aspects of will to fight into doctrine, while some aspects are completely ignored.
- Gradually, the most painful lessons of war fade as combat veterans retire.
- A new war erupts, painful lessons are briefly and only partly relearned, and then are again gradually forgotten.



The U.S. Army and Marine Corps—the ground combat forces of the American military—have alternatively embraced and ignored the concept of will to fight for over a century. It has no stable, central place in doctrine or practice, and it is often defined in vague and impractical terms. **The consequences of this erratic ebb and flow stand testament to the pressing need to improve and normalize the study of will to fight in American military practice and to make its lessons useful.**

# WILL TO FIGHT IN HISTORY

## IMPACT OF WILL-TO-FIGHT ASSESSMENT AND ANALYSIS FAILURES

Whatever the cause—from the lack of credible assessment methods or even a widely agreed-on definition of will to fight—the military, political, economic, and social costs of a dissonance between accepted will-to-fight theory and practice have been extraordinary. The RAND reports on both the military and national will to fight offer historical cases that demonstrate the impact of will-to-fight misjudgment. A few historical examples:

- Failed assessment of Arab will to fight leading up to the 1973 Yom Kippur War resulted in strategic surprise, nearly leading to Israel's defeat and pushing the United States and the Soviet Union to the brink of war.
- The Central Intelligence Agency's analyses of Vietnamese will to fight—on both sides—from 1954 to 1974 were often accurate but essentially ignored by policymakers. The United States failed to break the Democratic Republic of Vietnam's (DRV's) will to fight, lost its own political will to fight, and withdrew from Vietnam having lost nearly 60,000 Americans.
- Failure to understand potential vulnerabilities in the Iraqi Army's will to fight in 2011 contributed to its defeat at the hands of the Islamic State in 2014, after which the U.S. Secretary of Defense stated, "*The Iraqi forces just showed no will to fight.*"

The chart below provides examples stretching from World War I to the present in which failure to accurately assess will to fight had serious consequences:

CONFLICT (DATE)	ASSESSMENT	REALITY	CONSEQUENCE
<b>WW I</b> (1916)	The French will break under fire at Verdun	The French continued to fight	France helped defeat Germany in 1918
<b>WW II</b> (1941)	Germany's Operation Barbarossa will destroy the Red Army	The Soviets retreated to Moscow but continued to fight	The Allies defeated Nazi Germany in 1945
<b>First Indochina War</b> (1946–1954)	The Viet Minh have a limit and will surrender	The Viet Minh mobilized tens of thousands from the population to help surround the French in Dien Bien Phu	The Viet Minh defeated France in 1954
<b>Korean War</b> (1950–1953)	The United States will liberate North Korea	North Korean and Chinese forces fought hard in the Third Phase Offensive at 38th Parallel	Stalemate between North and South Korea
<b>India-Pakistan War</b> (1965)	Indian soldiers will quickly retreat and reopen negotiations for Kashmir	India expanded the war	International actors forced a return to the pre-war status quo
<b>Vietnam War</b> (1965–1975)	The Democratic Republic of Vietnam (North) will break in 1967	The DRV persisted	The DRV won in 1975, and the United States was strategically defeated
<b>First Chechen War</b> (1994–1996)	Russian forces will take Grozny	Chechen rebels continued resistance	Stalemate between Russia and Chechen rebels through 1999
<b>Islamic State incursions</b> (2011–2014)	The Iraqi Army is ready to fight	The Islamic State defeated the Iraqi Army	A U.S. partner was soundly defeated; U.S. troops still deployed
<b>Afghanistan conflict</b> (2009–present)	The Taliban can be broken by 2011	The Taliban persisted against the Afghan government	U.S. forces remain in Afghanistan in 2019
<b>Yemen Civil War</b> (2015–present)	The Yemeni government can defend Sana'a	Houthi rebels defeated the Yemeni government	A U.S. partner was defeated

## WILL-TO-FIGHT CASE STUDY: VIETNAM WAR

The case of the Vietnam War shows that even accurate intelligence analyses of will to fight are meaningless if they are ignored by decisionmakers.

CIA-provided assessments of the Democratic Republic of Vietnam (DRV):

▶ **1970** Hanoi still considers that it has the will and basic strengths to prevail. . . . Despite Hanoi's obvious concerns with its problems, the Communists almost certainly believe that they enjoy some basic strengths and advantages which will ultimately prove to be decisive.

▶ **1974** Hanoi continues to demonstrate its determination to impose Communist control on the South. There has been no apparent curtailment in Hanoi's support for [the war]. . . . Finally, even if there is not a major offensive during the next year, it is clear that at some point Hanoi will shift back to major warfare in its effort to gain control of South Vietnam.

Despite the straightforward analytic conclusions that the DRV had a deep reservoir of will to fight, without a definition or model of will to fight the CIA assessments came across as subjective. As a result—despite persistent warning to policymakers—the United States and General William Westmoreland sought to break the will of DRV leaders through measured escalation and by inflicting casualties.

By 1968, U.S. troop levels began to plummet—from ~520,000 to only ~200 advisers by 1972—and the DRV conquered the Republic of Vietnam (South) by 1975.



Jul 7, 1965, 28 B-52s dropped over 540 tons of 750 and 1,000-pound bombs on a Viet Cong staging and training area known as Zone "D."



*“The life or death of a hundred, a thousand, tens of thousands of human beings, even our compatriots, means little. . . . Westmoreland was wrong to count on his superior firepower to grind us down.”*

— PRESIDENT HO CHI MINH,  
Democratic Republic of Vietnam — 1969

# HOW CAN WE ANALYZE WILL TO FIGHT?

***Understanding will to fight at any level is hard, but much can be done.***

- ▶ Why does an individual soldier, a military unit, a military organization, a national leader, or an entire nation fight or not fight?
- ▶ What is the value of will in comparison to the quantity and quality of military equipment, or the application of tactics or strategy?

There is no way to accurately quantify will to fight or delineate its precise value. But will to fight can be more clearly understood and practicably applied. RAND's research offers a starting point.

## RAND'S RESEARCH APPROACH:

▶ **A nine-part multimethod effort**

As a first step to understand will to fight, the RAND team undertook a literature review of more than 200 published works, reviewed U.S. and allied military doctrine, conducted 68 subject-matter expert (SME) interviews, and analyzed historical cases, war-gaming, and simulation.

Literature review	Game + simulation literature	Game + simulation analysis
<b>202</b> Scholarly journals, books, histories, memoirs	<b>169</b> Professional articles	<b>77</b> Coded, 20 used as testbed
Coded case studies	Interviews with SMEs	Mil. assessment literature
<b>15</b> Historical cases	<b>68</b> Across fields and disciplines	<b>3</b> Vietnam, Afghanistan, and Iraq
Simulation experiment	Vietnam case study	Russia case study
<b>7,640</b> Simulation runs; 2,640 analyzed	<b>68</b> Red and blue; both tactical and national	<b>3</b> Analyses of national will to flight



The 303rd Psychological Operations Company dropped leaflets in 2013 over Afghanistan in support of operations to defeat insurgency influence in the area.

# RESEARCH STEPS TO FILL THE GAP

*The RAND team found that there is no generally accepted American or allied definition, explanation, or model of will to fight.* This means that the U.S. military and its allies have no central point of reference for understanding what is, according to joint doctrine, the most important factor in warfare.

The team's research took several steps to start the process of filling these gaps.

## STEP 1. ADOPT UNIVERSAL DEFINITIONS

Definitions don't necessarily solve problems, but they are a useful and necessary starting point for mutual understanding. RAND offers definitions for both military and national will to fight.

### MILITARY UNIT AND ORGANIZATIONAL WILL TO FIGHT:

Soldiers and the units they form develop the disposition to fight or not fight, and to act or not to act, when fearing death. Disposition is essentially *likelihood*: Soldiers are more or less likely to fight or run, to fight aggressively or passively, to follow orders or break, run, or surrender. Influenced by this disposition, soldiers make critical decisions on the frontline, or even while far removed from the battlefield, where dedication to the mission can be in question.

Military unit and organizational will to fight is defined as:

▸ **the *disposition and decision* to fight, act, or persevere as needed**

The purposes of the military will to fight report and the military unit-organizational model are to improve understanding of disposition to fight. While we cannot predict human behavior or decisions, we can significantly improve our understanding of will to fight by assessing and analyzing disposition, which allows for an estimation of overall military unit effectiveness and forecasting of behavior.

### NATIONAL DECISIONMAKER WILL TO FIGHT:

Wars rarely end simply because one military destroys another. Government leaders determine how and when wars end, and they may have to decide many times during a conflict whether their country should continue enduring risk and sacrifice or whether it is time to stop fighting. Tangible factors, such as remaining numbers of weapons and troops, are obviously part of the decision calculus, but it is often less-tangible political and economic variables that ultimately determine what might be called national will to fight.

National will to fight is defined in this study as:

**the *determination of a national government* to conduct sustained military and other operations**  
▸ **for some objective, even when the expectation of success decreases or the need for significant political, economic, and military sacrifices increases**

Although the range of actors relevant to national will includes citizens, military leaders, media, and foreign officials, we focused on governments and, in the process, accounted for the interplay of these and other actors. Ultimately, governments make the decisions about war. Their will is reflected in the political decisions they make during a conflict to either continue or stop fighting. At the national level, we define fighting to include not only military force but also the use of all aspects of national power to achieve particular political objectives.

# RESEARCH STEPS TO FILL THE GAP

## STEP 2. MODELING WILL TO FIGHT

### ▸ *Explanatory-exploratory-portable models provide a common starting point*

The nine-part multimethod research effort provided the foundation to develop two will-to-fight models that are explanatory, exploratory, and portable. They can *explain* and help forecast will to fight. They can be used to *explore* various aspects of will to fight, and in turn be improved through new learning. *Portability* means that the models must be applied using a unique approach for each case, providing for flexibility.

The will-to-fight models—described in more depth on pages 10–13—are a starting point to provide military and civilian leaders, planners, advisers, and intelligence analysts with a common starting point for deeper understanding of military and national will to fight. The models are essentially a tool to open the door for better planning, operations, advising, intelligence, wargaming, simulation, and, with further research, improved training and education of U.S. and allied military forces.

### THE UNIT AND NATIONAL WILL-TO-FIGHT MODELS CAN:

- help explain why a unit or nation is more or less likely to fight, and how it will fight
- identify weak and strong points in a military unit that can be shored up or exploited
- improve military training and education to help reduce risk and improve warfighting

## STEP 3. INTEGRATING WILL TO FIGHT IN SIMULATION

Computer simulation, tabletop exercises, and wargames can help bring clarity to complex issues and concepts, such as will to fight. Results from our analysis of 62 existing wargames and simulations, interviews with designers and program managers, and game and simulation testing showed that will to fight is inadequately represented in official military models. *If will to fight is one of the most important factors in war, and if it is absent or poorly represented in military gaming and simulation, then there is a dangerous gap in existing military games and simulations.*

It is possible that results from official military games and simulations are misleading, and have been for quite some time. Existing commercial examples, experimental models, and the new RAND Arroyo Center model can help fill the gap in short order.

### ADDING WILL TO FIGHT CHANGES COMBAT SIMULATION OUTCOMES

The team integrated the RAND military unit will-to-fight model and a trait-state psychological behavioral model into the U.S. Army's Infantry Warrior Simulation (IWARS) to give the computer simulated "supersoldiers" human traits. Instead of always obeying orders, and never feeling fear, hiding, or running, the supersoldiers now could experience anxiety, anger, and visceral reactions to gunfire.

The results were unsurprising. Sometimes soldiers fought hard, but sometimes they took cover or ran away. Adding will to fight in the simulations changed the odds of combat victory by at least 10%, and by as much as 1,100%. Human behavior went from unfaillingly predictable to uncertain, bringing the simulation one step closer to reality.

▸ **Results from RAND's force-on-force combat simulation experiments suggest that adding a will-to-fight component always, and sometimes significantly, changes outcomes**





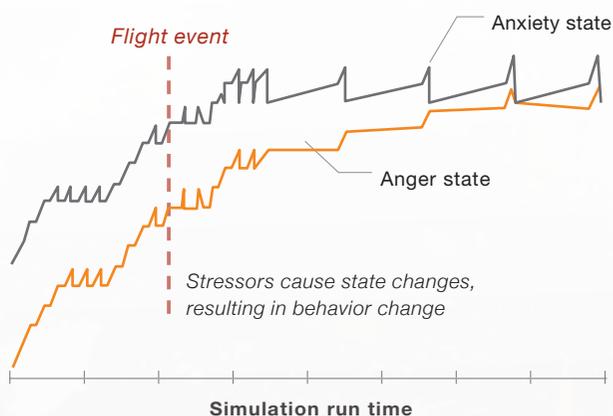
### ***Integrating the Will-to-Fight Model in Simulations***

Using IWARS, a military force-on-force simulation used to model soldier and small unit operations in contested environments, the RAND team was able to integrate the baseline will-to-fight model and use outcomes to help define and improve the model. The simulations also illuminated that any military game or simulation seeking to represent realistic force-on-force combat should include will to fight.

### **THE RAND-IWARS SIMULATION RUNS**

- ▶ 7,840 simulated combat runs showed major changes to outcomes when simulated soldiers, or “agents,” had their also-simulated will to fight put to the test.
- ▶ The graph below is an example simulation run depicting the state changes to a squad leader’s traits when one or more stressors (e.g., continuous indirect fire or reduced visibility) were introduced. Marked increases in anxiety and anger, and fluctuations in stability, collectively resulted in behavioral changes over time.

#### **Squad Leader State Change Triggers Flight**



- ▶ In the below screenshot, two platoons face off in mirror-image skirmish lines. Trait-state behavioral modifications to both sides while under a direct fire stressor were applied. More than 1 in 10 soldiers exhibited flight behavior that would not have appeared in a “supersoldier” simulation.



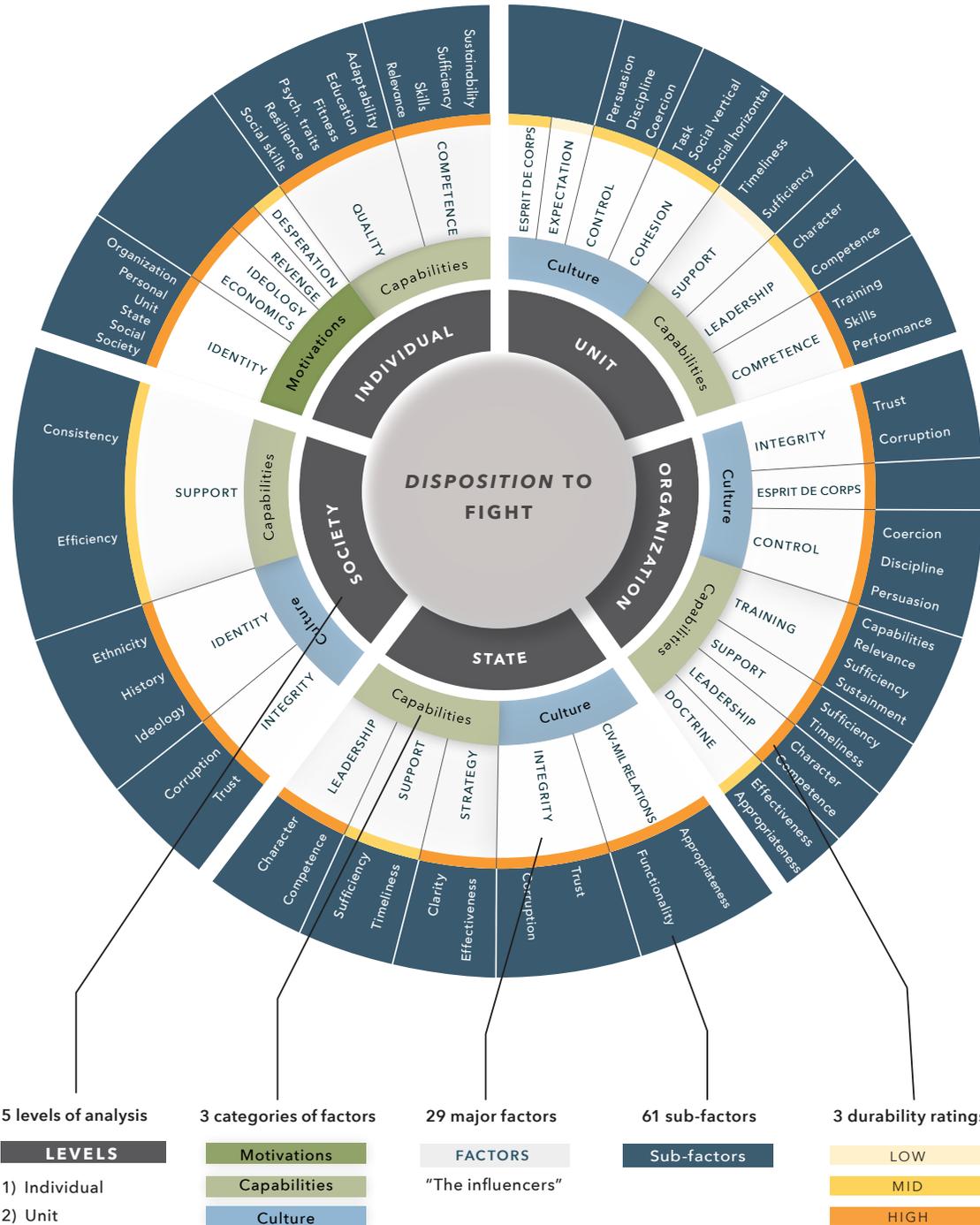
**Soldiers Reacting to Suppression in IWARS**

# WILL-TO-FIGHT MODEL

## MILITARY UNIT ORGANIZATIONAL MODEL

The purpose of the military unit model is to inform understanding of will to fight from the squad through the division-levels.

How can the United States and its allies break adversary will? How can the will to fight of partners be strengthened?



## APPLICATION OF THE MODEL

To understand the *disposition* to fight, analyze the models factors.

The unit-organizational will-to-fight model identifies 29 major factors and 61 sub-factors derived from empirical research. Factors are major influences on will to fight, while sub-factors provide further points of examination for portable assessment and analysis. Applying the model requires each factor and sub-factor to be considered for each case, then either explored in greater detail, set aside for future analysis, or discarded.

The unit will to fight model *factors* are broken down into three categories:

- 1) **Motivations** Motivations are drivers of will to fight that help form individual disposition.
- 2) **Capabilities** Capabilities are the competencies and physical assets available to soldiers and the support they receive from the unit level through the societal level of assessment.
- 3) **Culture** Culture includes behavioral norms, control measures, and influences that affect individual and unit disposition and decisions to fight.

The three *durability* ratings, ranging from low to high, describe the degree to which the factor is likely to change during combat:

- 1) **LOW** Highly vulnerable to change.
- 2) **MID** Vulnerable to change.
- 3) **HIGH** Changes gradually for reasons other than enemy action or immediate impact.

This model is a guide for analysis.

Until there is a broadly accepted physiological, psychological, neurological, and cultural model of humans, the best a model can do is to help reduce uncertainty, improve understanding, and identify strengths and weaknesses, surfaces and gaps.

The model can and should be used as a military analysis tool, whether as a quick-turn application by a military advisor in the field or a year-long intelligence effort by a team of analysts to understand adversary and allied disposition to fight.

## KEY FINDINGS UNIT WILL-TO-FIGHT MODEL

### ► War is a human endeavor, treat it as such

Currently the American military treats war primarily as a contest of opposing gear. War is a fundamentally human endeavor, thus humans should be the central focus of warfare.

### ► Understanding will to fight is hard but possible

There is no calculation or formula that will explain will to fight; we will never have perfect knowledge. But there is ample evidence to show that we can significantly improve our understanding of will to fight.

### ► War simulations require human behavior

Any simulation of force-on-force combat should represent soldiers as humans, not supersoldiers. This is currently a major flaw in American and allied combat simulation, and also wargaming.

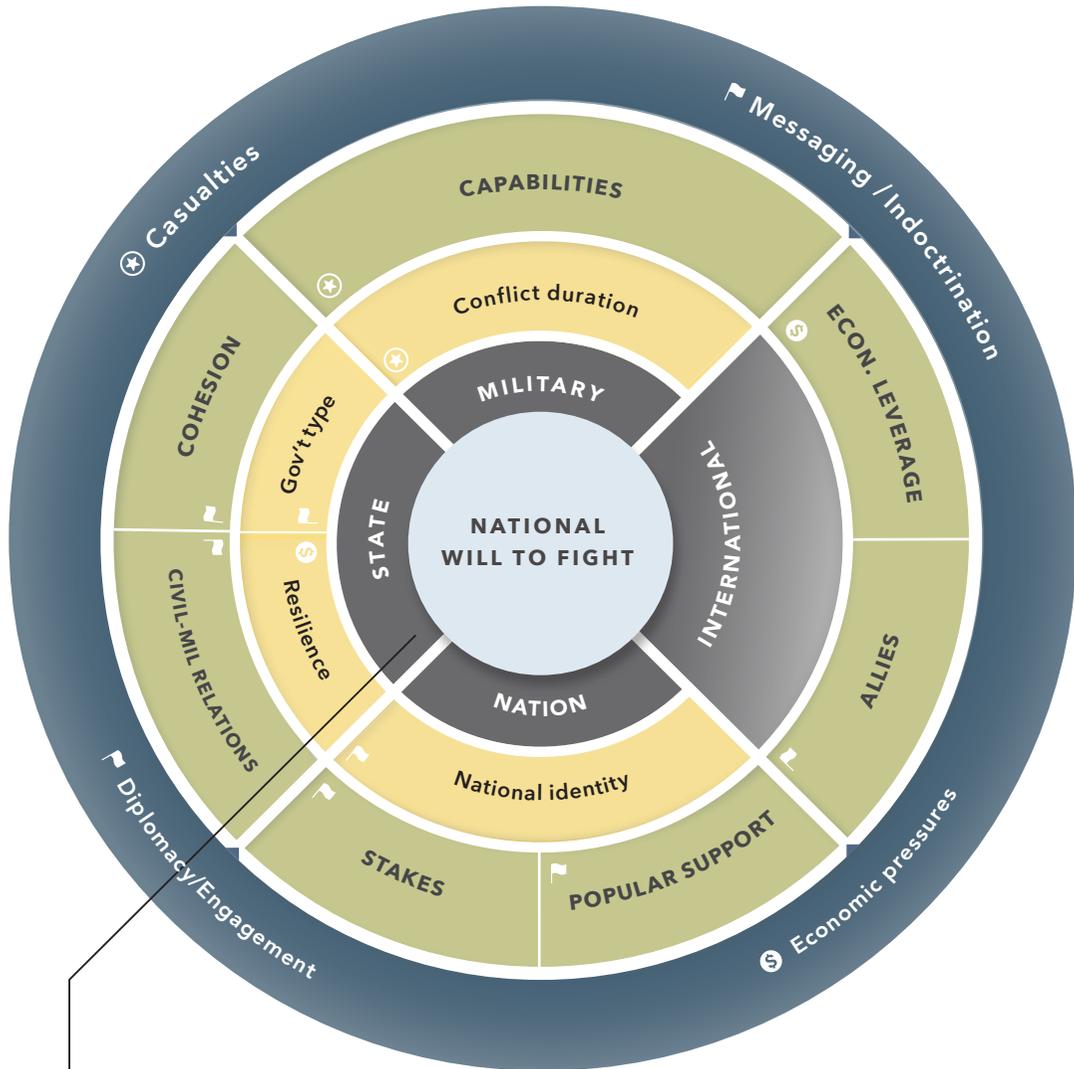
### ► Successful military tactics center on human will

Combat almost always ends when one side quits. Even total annihilation suggests extraordinary will on the part of the defeated foe. Will to fight always matters in combat. Winning at the tactical level hinges on will to fight.

# WILL-TO-FIGHT MODEL

## NATIONAL MODEL

What are the political, economic, and military variables that may strengthen or weaken national will to fight, and which are most important?



### CENTERS OF GRAVITY

The model "focal points" that can be influenced during conflict

#### VARIABLE CATEGORIES:

Each variable is organized under a category

	POLITICAL	ECONOMIC	MILITARY
<b>Factors</b>	Stakes Cohesion Civil-military relations Popular support Allies	Leverage	Capabilities
<b>Contexts</b>	Government type National identity	Resilience	Conflict duration
<b>Mechanisms</b>	Diplomacy/Engagement Indoctrination/Messaging	Pressures	Casualties

## APPLICATION OF THE MODEL

To understand the variables that strengthen or weaken national will to fight, explore the model's factors, contexts, and mechanisms that—in concert—shape a partner or adversary's decisions during conflicts.

### The variables and categories:

There are 15 **variables**—seven factors, four contexts, and four mechanisms— to consider when applying the national will-to-fight model. As with the unit organizational model, there is no single overriding variable that is most important in the national model.

#### Factors

The factors shape will-to-fight policy decisions and are essential to understanding the determination of a national leader to continue to fight in the face of increasing pressures.

#### Contexts

The contexts are existing or emerging conditions that affect will to fight, such as government type, national identity, and conflict duration.

#### Mechanisms

The mechanisms are used by leaders on both sides of a conflict to influence national will to fight.

Each of the factors, contexts, and mechanisms are aligned with 3 variable **categories**: political, economic, and military.

Will to fight is complex, dynamic, and difficult to predict. At the national level, this means that leaders must focus on understanding the variables that drive their wartime decisionmaking and that of their allies and adversaries while also remaining sensitive to war's horrific costs.

The RAND national model is portable and exploratory: Each of the 15 variables can be applied to a wide range of historical and future conflict scenarios. Some variables will be more relevant than others, depending on the particular scenario, and how the variables are tailored for the circumstances will vary, but this model provides a useful starting point for discussion and can drive a much-needed dialogue among analysts conducting threat assessments, contingency plans, wargames, and other efforts requiring conflict evaluation.

## KEY FINDINGS NATIONAL WILL-TO-FIGHT MODEL

### ▶ Will to fight is poorly analyzed and least understood aspect of war

Comprehensive, rigorous analysis is lacking.

### ▶ Context plays an underlying but important role

Fully totalitarian or democratic governments often show the strongest will to fight. National identity can have strong influence but can also be manipulated.

### ▶ Strong will-to-fight factors improve chances of victory

Strengths of factors can vary during conflict. Analysts should evaluate factors at the alliance level (e.g., WWI, WWII).

### ▶ Influence of economic variables on national will depends on alliances and engagement

Supportive alliances and skillful engagement can overcome an adversary's economic pressures.

### ▶ Effective use of engagement and indoctrination/messaging improves chances of victory

Use of these mechanisms can be decisive *before* conflict begins.

### ▶ Capabilities + casualty infliction + will to fight = victory

When will to fight is evenly matched, capabilities and casualties may determine a war's outcome. Casualties may also weaken or strengthen an adversary's national will to fight.

# NEXT STEPS

## RECOMMENDED STEPS FOR THE U.S. ARMY AND JOINT FORCE

Will to fight has across-the-board importance in war. It is essential to building effective military teams, to designing effective tactics and strategies, to planning effective military operations, to assessing and engaging allies, to analyzing adversaries, to reducing risk, and to carrying out successful military operations. It matters most for force-on-force combat, but it also matters for routine military activities and national policy. The human will to fight, to act, and to drive through adversity is the central factor in war.

Recommendations:

- ▶ **Develop and adopt** a universal will-to-fight definition and model.
- ▶ **Modify and use the model** for adviser assessment of partner or allied military forces and for intelligence analyses of adversary forces.
- ▶ **Integrate will to fight into** doctrine and application manuals; holistic estimates of combat effectiveness, and wargames and simulations of combat.

## ONGOING RESEARCH

RAND continues to improve on the foundational will-to-fight reports. Ongoing research for the U.S. military focuses on human behavior modeling, wargaming, simulations, case studies of Vietnam, Iraq, and the Islamic State, and analysis of will to fight in irregular warfare. Building from the models, the RAND team is developing a set of practical assessment tools to help make will to fight a more digestible and useful concept.

**LOOKING AHEAD** In light of growing tensions with countries such as Russia, China, North Korea, and Iran, it seems prudent to open a rigorous dialogue within the United States and with U.S. allies to better understand and influence the human factors in war. Incorporating the concept of will to fight in the analysis of potential future conflicts will help leaders, strategic thinkers, planners, combat advisers, and analysts improve their assessments of what may happen in various conflict scenarios and what to do about it.

The models presented in these reports provide a guide to assessment and analysis, not a mathematical formula. With our models and reports, we hope to stimulate the dialogue necessary to develop the concept of will to fight further and incorporate it into strategic decisionmaking and planning.

This brief describes work done in the RAND Arroyo Center documented in *Will to Fight: Analyzing, Modeling, and Simulating the Will to Fight of Military Units*, by Ben Connable, Michael J. McNerney, William Marcellino, Aaron Frank, Henry Hargrove, Marek N. Posard, S. Rebecca Zimmerman, Natasha Lander, Jasen J. Castillo, and James Sladden, RR2341-A, 2019 (available at [www.rand.org/t/RR2341](http://www.rand.org/t/RR2341)), and *National Will to Fight: Why Some States Keep Fighting and Others Don't*, by Michael J. McNerney, Ben Connable, S. Rebecca Zimmerman, Natasha Lander, Marek N. Posard, Jasen J. Castillo, Dan Madden, Ilana Blum, Aaron Frank, Benjamin J. Fernandes, In Hyo Seol, Christopher Paul, and Andrew Parasiliti, RR-2477-A, 2019 (available at [www.rand.org/t/RR2477](http://www.rand.org/t/RR2477)). To view this brief online, visit [www.rand.org/t/RB10040](http://www.rand.org/t/RB10040). The RAND Corporation is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark.

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