1

KNOW THE WAR YOU'RE IN

> The first, the supreme, the most far-reaching act of judgment that the statesman and commander have to make is to establish the kind of war on which they are embarking.
>
> —Carl von Clausewitz

> It seems unfathomable now, but by directive, at that time we weren't even allowed to use the term "insurgency" or "insurgents," even though everyone knew that's what we were facing every day. . . . It was very frustrating for soldiers operating in these conditions because they rarely saw the enemy but were constantly reacting to the variety of methods they employed to attack them. This was the reality we were settling into after a month or so on the ground.
>
> —Colonel Brynt Parmeter, USA, Retired, on soldiers trained for a big conventional war finding themselves facing an asymmetric one, in Iraq in 2004

0630 hrs 6 June 2004, Tikrit, Iraq
1st Infantry Division Headquarters
Forward Operating Base "Danger"

Major General Batiste, commanding general of the U.S. Army 1st Infantry Division, looked with some anticipation into the faces of the thirty-odd staff officers and NCOs filing in for the daily division operations update. Fatigue and stress had etched lines onto nearly all, though most were still young. Those nearing the end of a night shift supporting the division's maneuver elements conducting neighborhood sweeps, manning checkpoints, and other operations could be readily distinguished from those just beginning their day by their weary expressions or by the day's growth of beard on their chins.

The room was incongruously grand. Marble floors reflected the light from a crystal chandelier at the center, while Moorish arches opened onto darkened hallways at the periphery. The 1st Division staff occupied the palace where Saddam Hussein and his entourage used to stay when visiting his hometown of Tikrit—one of many such compounds across Iraq. One adaptation the soldiers had made was to erect crude, stadium-style seating in front of a podium and three large screens. The smell of fresh-cut plywood still permeated the room. The 1st Division members took their seats, many clutching the ubiquitous plastic water bottles with dust-coated hands. Before them hung blank white screens, and next to them maps of the town—a grid of streets with the dark braid of the Tigris River running from north to south. Operational graphics representing the disposition and location of friendly forces, unit boundaries, and other icons were neatly transcribed in fine-tipped Sharpie onto acetate sheets overlaying the maps.

The troops expected the operations update to refer to *this* geography, but when a map was projected on the screen, it showed the gentle curve where the English Channel meets the *coast of France*. This operations update was special: today was 6 June 2004, and the division staff had used computer-aided graphics and satellite imagery to develop an operations update reflecting the 1st Infantry Division's participation in the Allied landings in Normandy exactly sixty years earlier.

0630 hrs 6 June 1944
H-Hour D-Day
1st Infantry Division
Omaha Beach
Normandy, France

Machine-gun fire ripped across the deck the moment the ramp dropped from the Higgins amphibious assault vehicle. Bullets wounded or killed many of the lead elements of the U.S. Army 1st Infantry Division's invasion force before their boots touched the sand.

Soon Omaha Beach was soaked in blood. German artillery fire rained down on the advancing forces. The soldiers who made it past

submerged obstacles and through this gauntlet of fire to reach the crescent-shaped beach had to traverse an additional three hundred meters of fire-swept open ground laced with barbed wire and studded with land mines. Only then did they reach the first available cover at the base of the bluffs.

A number of the soldiers storming the beach on that historic morning were seasoned veterans of multiple campaigns. The 1st Infantry Division had initially seen combat in North Africa in 1942, then fought in the invasion of Italy in 1943. Given the extraordinary operations tempo the division had maintained and the major battles and campaigns it participated in early in the war, many believed it would be spared assignment to the first wave of Operation Overlord's invasion force. But the senior leaders developing the invasion plans decided to send this seasoned division in with the initial assault on Normandy. The soldiers were not expecting to land unopposed, but still they were shocked to meet with seemingly impenetrable resistance from German defenders securely dug in and well prepared, including the only full-strength enemy infantry division in France.

The first day, Allied forces suffered approximately ten thousand killed, wounded, or missing in action, and German forces approximately nine thousand, despite their well-prepared and fortified positions. In total, nearly half a million combatants would eventually be killed or wounded in the Normandy campaign. The Allied forces who survived the bloody amphibious assault, secured the beachhead, and made their way inland faced the extraordinary challenge of advancing across occupied France and into the German homeland. Missions of the storied 1st Infantry Division would include employing fire, maneuver, and shock effect to destroy German forces in the field, seize cities and key terrain from German control, and destroy industrial bases and other means of resistance.

The ultimate goal of the 1st Division was to secure the unconditional surrender of Hitler's regime—clearly defined, though by no means easy to achieve. Success on the battlefield was a necessary and nearly sufficient condition to achieve ultimate victory over the Axis Powers.

In this war, state capacity was readily translated into success on the battlefield. Allied forces would eventually prevail because the

industrial base of the United States, once mobilized by the fully supportive political leadership and committed American public, enabled them to produce the massive amount of war matériel required to turn the tide. Bombing raids over Germany increased and Allied infantry forces progressed rapidly across France and into Germany itself. In April 1945, less than ten months after the assault on the Normandy coast, U.S. and British forces linked up with the Soviet Red Army and secured Germany's unconditional surrender.

Major General Batiste turned off the projections and raised the lights. He brought the formal ceremony to its culmination: "Commanders, present your soldiers the shoulder sleeve insignia of the 1st Infantry Division on this day, sixty years after our forefathers landed on the beaches of Normandy."

All of the 1st Infantry Division members now carried the striking image of the division's "Big Red 1" insignia on both shoulders, the left and now the right. In the U.S. Army, soldiers wear the patch of the current unit on their left shoulder. By tradition, they wear the insignia of units they have served with in combat on their right and are authorized to wear them there for the rest of their time in service. Save for a handful of senior noncommissioned officers and officers who had served in Desert Storm or in the Panama invasion over a decade earlier, this was the first time the division's soldiers earned this privilege and distinction.

Major General Batiste recited the 1st Infantry Division's World War I motto: *No mission too difficult, no sacrifice too great, duty first.*

This story was told to us by Colonel Brynt Parmeter, USA, Retired. At the time, he was Chief of Operations ("CHOPS") in charge of a critical section of the 1st Infantry Division operation staff responsible for the current and near-term operations of the division. Among his many duties were morning updates and evening radio net calls, to ensure a common understanding of current and future activities among commanders and staff.

Prior to deployment, the 1st Division had trained in much the same way that U.S. Army units based in Germany had done throughout the

Cold War, maneuvering combat units to engage and destroy a conventional enemy. A number of the division's members were veterans of the first Gulf War. Ground fighting there had lasted just ninety-six hours and resulted in an overwhelming victory for the U.S. and Coalition forces over the Iraqi military. This had seemed a validation of the U.S. military's approach to defeating its foes through technological dominance of the battlefield from air, sea, and land. Aside from the recent peacekeeping missions in Bosnia and Kosovo, the unit had little experience with insurgency.

Unfortunately, neither the train-up nor the experience in the first Gulf War did much to prepare the 1st Division's leaders and soldiers for what they found in Iraq: roadside bombs, assassinations of village leaders friendly to the Coalition, and the destruction of bridges and other infrastructure. "Vehicle-borne explosives starting to pop up," Parmeter explained, "and you had small arms fire attacks just randomly through urban areas and land mines placed to hit our forces."

Though the 1st was suffering nowhere near the casualties seen on D-Day or throughout World War II, it was not uncommon to experience more than fifty enemy attacks a day across the division's area of operations, and there were casualties every day. These were not clustered around any front—attacks could happen at any moment, anywhere U.S. forces were deployed across the increasingly restive country.

Major General Batiste's purpose in reminding his soldiers of the 1st Division's powerful history at Normandy was to give them an additional source of support and stability to draw on during those challenging times. But his reminder also highlighted what a different tactical challenge the division faced and how, in essence, they were better prepared for battles like Normandy than for Tikrit. In Iraq, the 1st Division soldiers had a steep advantage over the enemy—unprecedented firepower, vehicles, and technology—but they rarely had the opportunity to use these against the elusive and seemingly invisible insurgents. Even the most advanced surveillance systems had a difficult time confirming whether an individual was the enemy and whether the people surrounding him were combatants or civilians.

Fortunately, Major General Batiste and most of the senior leaders quickly recognized that this fight was unlike the first Gulf War and

more like the "small" subnational wars in Bosnia and Kosovo, where the U.S. military had played a peacekeeping role. Both the 2nd and 3rd Brigades had spent time in Kosovo, where they had encountered a similar, though much less violent, insurgency. Batiste knew that the 1st Division needed to conduct *precision* actions: raids and other operations to find and capture or kill the insurgent groups and individuals responsible for the violence. To do this, they first had to learn to engage with the local population, gain their trust, glean fragments of information from them, and piece these together into a coherent intelligence estimate. Each step in this process represented a major challenge.

About a month after the D-Day commemoration, an insurgent dressed in police uniform detonated a car bomb at a building occupied by 1st Division soldiers and Iraqi policemen, killing many of both in Samarra, a city forty miles from Tikrit. This marked the beginning of a period of intense insurgent activity: every patrol entering Samarra met some combination of small arms fire, rocket-propelled grenades, improvised explosive devices, and indirect fire. Later in the summer, the 1st Division and other units pushed into the city and drove out most of the insurgents. Afterward, 1st Battalion, 26th Infantry stayed to conduct "hold-and-build operations" while the other units withdrew. Parmeter described the variety of activities this entailed:

> On one day, patrolmen would go out and meet with a group of primary school teachers to figure out how we could set up an education program in a town. On the next patrol two hours later, we would try to set up a terrain-denial patrol around a known mortar-firing location. Two hours after that we would go and meet with the mayor and his city infrastructure team (which may or may not even have existed) to try to figure out how we could fix an electrical problem or water problem in the town. And then our last patrol would be to go to secure a police recruiting drive to protect the individuals that might want to sign up to attend a training academy—which we had to set up—to be future policemen. All of this was part of Major General Batiste's directive to conduct intelligence-driven operations and protect the population from the insurgents. This

made the population more likely to provide information on bad actors when they had it, which helped us interdict planned attacks and successfully target insurgents.

The months that followed the initiation of combat operations in Samarra were trying, with numerous attacks suffered, and a strong effort by the insurgents to push Coalition forces out. Parmeter described their strategy:

> It was during this stage that every one of the U.S. soldiers in Samarra realized that we gained very little through violence in the form of kinetic responses. They were often the worst response especially in urban and other areas with a high risk of collateral damage. In fact, we suspected that for every Iraqi killed or injured by U.S. forces, we were essentially creating more new insurgents. On the contrary, for every non-kinetic action where we were assisting the population, like helping with the hospitals, schools, critical infrastructure, and other similar activities, we were taking the power away from the insurgents and encouraging greater support and collaboration from among the population.

According to Parmeter, the 1st Infantry Division realized that they were in a war fought for the support and cooperation of the local population—a population who could provide information—completely different from the war their forefathers waged in 1944 and 1945 or that they themselves had fought in Kuwait and Iraq in 1991. It would be two years before Lieutenant General David Petraeus and Major General James Mattis would compile the lessons Parmeter and his fellow soldiers were learning into FM 3-24—the U.S. Army-Marine Corps counterinsurgency manual—the first resource of its kind since the Vietnam War era.

TWO TYPES OF WAR

One legendary division, two very different wars. There are innumerable technological and political differences from one conflict to another sixty years later. However, when it comes to theories of war and paths

to victory, many of the starkest differences between those wars come down to one important dichotomy: symmetric versus asymmetric.

Symmetric wars include international contests such as the two world wars. The victor is generally the side with superior weapons and larger armies. They also include civil (or "subnational") wars where protagonists of roughly equal capacity fight primarily over territorial control. In the later stages of the Vietnam War, for instance, combatants from North and South Vietnam fought along well-defined fronts as in international wars, with victory secured by a combination of superior weaponry, numbers, and strategy. Civilians matter in these conflicts, of course, but mostly because they provide soldiers and resources to the battlefield.

Asymmetric wars, by contrast, are contests where one side enjoys a heavy matériel and capabilities advantage. These include the post-9/11 U.S. engagements in Iraq and Afghanistan, as well as numerous historical examples. In Napoleon's struggle to control the Iberian Peninsula, he didn't face one central opponent but instead fought many "little wars," the origin of the term "guerrilla." Nearly a century later, after Spain ceded the Philippines to American control, the United States waged a three-year war within this newly acquired territory against multiple semi-independent insurgent groups. It ended officially in victory in 1902 but saw sporadic violence for years afterward. On the Eastern Front in World War II, Hitler's army struggled to root out insurgencies, notably the Yugoslav Partisans and Polish Underground State, but also the Ukrainian Insurgent Army, who would go on to fight the Soviet Union until 1949, long after that war had slipped from public view.

In symmetric wars, the struggle is primarily over territory. Information plays an important role, to be sure, but it is not decisive in the same way. Both the D-Day landing in Normandy and the 1991 U.S. invasion of Kuwait involved deception campaigns designed to make the enemy think the main attack would be in a different location than it was. But the value of a given piece of information in symmetric conflicts can vary greatly. Knowing who the opposing commander is or where he is, for example, is of little value if he is in a well-protected bunker too far behind enemy lines to be targeted with available means.

In asymmetric wars, the struggle is fundamentally not over territory but over *people*—because the people hold critical information (which is true to a greater extent than in symmetric conflicts[1]), because the ability of the stronger side to take advantage of any given piece of information is always very high, and because holding territory is not enough to secure victory. The stronger party in asymmetric conflicts can physically seize territory for a short time whenever it chooses to do so. But holding and administering that territory is another thing altogether—as so many would-be conquerors have learned. If the stronger side knows the location of a commander, hideout, or arsenal it can remove that threat, but if it does not, then there is no well-defined front on which to push and the weaker side will continue to be able to operate. Put more simply, asymmetric conflicts are *information-centric*. We will use that term in the chapters to come to refer to asymmetric conflicts and specifically to discuss the role played by tips passed from civilians to the government or dominant combatant.

Consider the 1st Division in Iraq: they and their Iraqi allies had massively superior conventional military capacity. Insurgent strategy depended on being able to blend into the civilian population. If insurgents could enlist the support of the population, they could move forces, acquire weapons, and conduct attacks using roadside bombs and other improvised devices, thereby preventing the Iraqi government from consolidating control. On the other hand, if insurgents were identified and their movements reported, it was relatively easy for the Coalition and Iraqi government to suppress them, using advanced weaponry and skilled regular or special operations forces. The battle was not over territory. Victory required a flow of accurate information, mostly provided by civilians.

Globally, asymmetric civil wars have become the prevalent form of conflict since World War II. By one calculation, asymmetric subnational conflicts made up a majority (54 percent) of all subnational conflicts between 1944 and 2004, and were especially prevalent during the Cold War (66 percent).[2]

Understanding asymmetric warfare is especially important today from a Western strategic standpoint. For example, every major war

the United States has fought since Korea, except for the first Gulf War and the first few weeks of the second, has been an asymmetric subnational conflict. As figure 1.1 illustrates, the United States and NATO launched new interventions in asymmetric conflicts almost year every between 1975 and 2005.

This trend will likely continue for the foreseeable future. Partly this is because geopolitics have generated a large number of fragile countries. Also, as drones, missiles, surveillance, and other weapons technologies applicable to subnational conflicts have improved, becoming more lethal, specialized, and expensive, the gap between the haves and have-nots is widening in terms of conventional war aimed at capturing territory. The weaker side is increasingly unlikely to survive when it tries to fight a conventional war, as ISIS's fate in Iraq and Syria so clearly demonstrates. With the United States as the last remaining military superpower, when it or NATO enters with their weapons technology, the conflict increasingly becomes asymmetric, even if only the local ally deploys forces on the ground. And when the weak side strategically switches to insurgency tactics (e.g., ambushes and improvised explosive devices [IEDs]), rather than fielding troops along some front in an attempt to control territory, the resources and technology advantage of the strong side are no longer enough to win the war, for reasons we will explain in a few chapters.[3]

In this book, we will examine the crucial role information plays in today's wars, particularly those the United States has fought since 9/11—and is still fighting and can expect to fight. We argue that taking a conventional approach, based on a symmetric warfare doctrine, will waste lives and resources, and risk defeat. However, taking a smarter approach can improve strategy and make dramatic gains in efficiency. Two major new tools enable this smart approach: research methods that were unavailable just fifteen years ago and data science, including the analysis of "big data." Our use of these tools has already yielded an important central finding: in information-centric warfare, small-scale efforts can have large-scale effects. Larger efforts may be neutral at best and counterproductive at worst. If this more nuanced view can guide policy, lives and money could be saved.

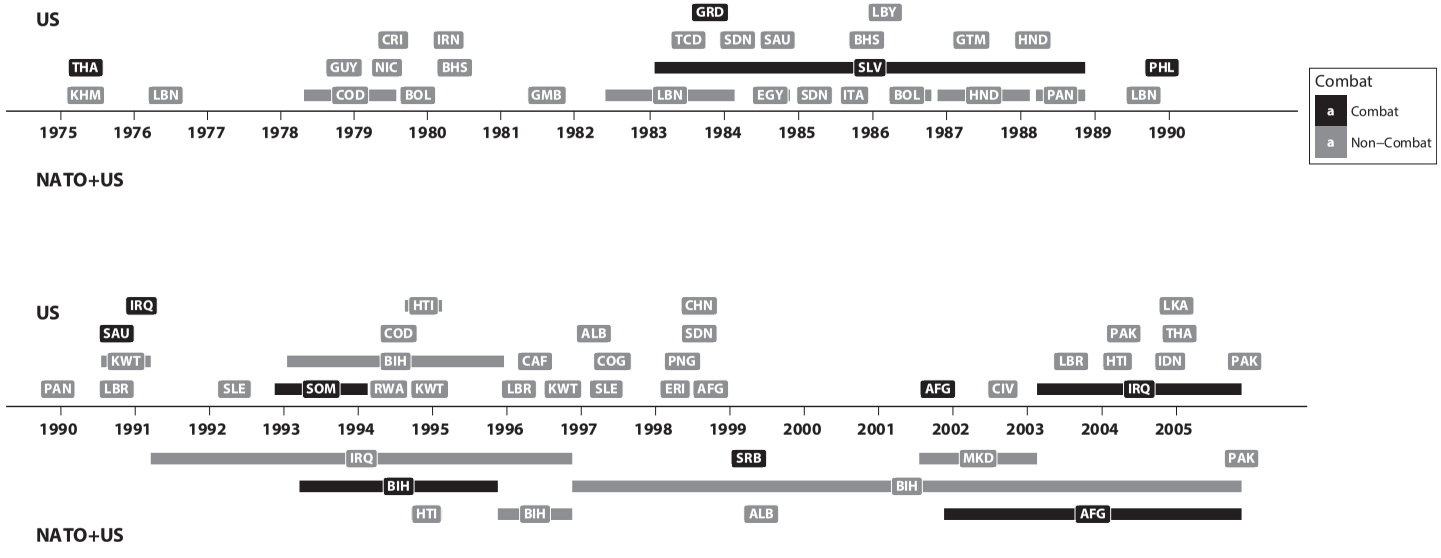

FIGURE 1.1. U.S. and NATO Interventions, 1975–2005.

Data are from the IMI data set. Jeffrey Pickering and Emizet F. Kisangani, "The International Military Intervention Dataset: An Updated Resource for Conflict Scholars," *Journal of Peace Research* 46, no. 4 (2009): 589–99.

Colonel Parmeter's story of the 1st Division being caught unprepared for an asymmetric conflict has analogues throughout the U.S. military and NATO and, more importantly, among aid and development agencies as well, both inside and outside government. In the next chapter, we describe our first contacts with development professionals in Kabul, who echoed the same theme: being caught unprepared, without a doctrine. More generally, the World Bank estimates that 1.5 billion people live in countries affected by fragility, conflict, or violence.[4] Because many of those are asymmetric conflict zones that lack front lines or forces in uniform, fragility means that people and property are unsafe. Those conditions, now familiar to conflict researchers, imply that many of the conventional approaches to addressing poverty through development programs may be ineffective and could even worsen violence.

BIG DATA

The first trend motivating our book is that small wars and their tragic costs are here to stay; the second is that society is increasingly using data to understand our world. Talk of "big data" is ubiquitous, but what professionals mean by the term is not so much that there's more data available—which of course there is—but that we have a growing set of computational and analytical tools to learn from it. The currently proliferating Internet of Things, for example, is already sending data from previously unconnected objects, like watches, toys, thermostats, pacemakers, and pet collars, back for analysis, informing decisions by doctors, government, manufacturers, and service providers. That should target products to suit our tastes and habits, save energy, and make us safer. Real-time analysis of high-precision weather data may save billions of dollars by allowing governments to ease traffic congestion, monitor pollution, and coordinate emergency services, for example.[5] And of course your every mouse movement and keyboard click online can be analyzed to figure out how companies like Google and Amazon can improve search results or induce you to click on ads.

Applications of big data from mobile phones are particularly promising for development and poverty reduction, as a large percentage of

the population in poor countries are digitally connected, despite the lack of other infrastructure. After the 2010 earthquake in Haiti, for instance, researchers showed that call detail records predicted population movements, information that could be used to coordinate relief efforts in future disasters.[6] Analyzing mobile data in Côte d'Ivoire has given researchers insights into determinants of HIV transmission[7] and how cholera spreads.[8] A model combining Twitter and Google searches with environmental sensor data predicted the number of asthma emergency room visits with about 70 percent precision.[9] Additionally, an effort to use big data to identify biomarkers of Alzheimer's disease may be a step toward a cure.[10]

But what, specifically, do big data methods have to offer conflict studies? A lot, in two main areas.

First, big data allows us to measure things we never could before.

In Iraq and Afghanistan, the U.S. military recorded every "significant activity" involving U.S. forces with a precise time and location stamp (accurate to about one minute of time and ten meters in terms of location), including details such as the time and place of insurgent attacks, the type of attacks, and select outcomes. We managed to secure the declassification of certain fields from the resulting SIGACT-III database, which we could then match to economic and program data, making it possible to analyze the effects of economics and military interventions in asymmetric conflicts at an unprecedented granularity of detail. For example, some of our colleagues combined these data with records of cell-phone calls to show how violence displaced business activity.[11] Those kinds of analyses serve as a foundation for this book's empirics.

Innovation in data collection in theater has reshaped military practice as well as scholarship. In Afghanistan, the Joint Command of the NATO International Security Assistance Force (ISAF), which was responsible for the tactical side of the war, created an assessments cell to crunch through the massive amounts of information being collected. The cell conducted a wide range of analyses, from predicting IED attack patterns to measuring the effect of deploying persistent surveillance over major roads. Also in Afghanistan, the Defense Advanced Research Projects Agency (DARPA) funded the Nexus 7

project, which used data from a wide range of systems to support decision making at ISAF. One of the authors of this book worked on a Nexus 7 effort to use commercial satellite imagery to measure activity in rural markets in order to assess whether ISAF deployments were improving security from the population's point of view, reasoning that more people would go to market if they thought roads were secure.

Another project analyzed the movement patterns of ISAF units using the Blue Force Tracking (BFT) system that records the GPS locations of all U.S. combat vehicles.[12] The study found that while units in one regional command had an effective system for randomizing their departure times from base, which made it hard for insurgents to plan attacks, their return times were clearly scheduled, and thus they were being attacked routinely as they returned. After the study, new procedures were implemented to make sure that patrols were not returning to base at such predictable intervals. Further analysis with BFT data showed that the introduction of heavily armored vehicles that had trouble traveling off road led to shifts in patrol patterns away from remote areas, motivating investments in programs to develop lighter armor.

Years later, in another conflict, one of us worked with the researchers from the World Bank and Chris Elvidge's team at the National Oceanographic and Atmospheric Association to use nighttime satellite imagery to estimate IS oil revenue in Iraq and Syria.[13] The question had great relevance to world policy, since determining the groups' financial viability was essential to driving them out of the territory they had captured.

At its height in 2015, IS had seized 42 oil production sites in both Syria and Iraq. A reliable estimate of output at these sites before they fell under IS control put output at 70,000 barrels per day (BPD).[14] Based on those calculations, the media reported the group's oil revenues at up to $3 million per day,[15] while the U.S. Treasury put that number at $1 million.[16] After U.S. air strikes began targeting IS oil facilities, reports estimated income at anywhere between $260,000 and $1.5 million per day.[17]

One reason for the wide disparity in estimates was that they were each based on information about a small number of production sites obtained at a few points in time. The team took a new approach: conduct a real-time census of all of the oil production facilities under IS control. They used satellite multispectral imaging to estimate the radiant heat produced by flares at the oil fields. (Methane and other gases released when oil is pumped out of the ground are typically burned off in a constant flame atop a flare stack.) They compared these estimates with prewar data on the output of the oil wells and to output at production sites just outside IS territory. The radiant heat estimates clearly indicated that some fields were in modest productions and others seemed dormant: not only were they not producing heat, satellites didn't even pick up ambient electrical light.

Using these techniques, the team estimated that production levels increased from approximately 29,000 BPD from July to December 2014 to an average of 40,000 BPD throughout 2015 before dropping to approximately 14,000 BPD in 2016. These numbers were much lower than most estimates reported in the press but closely tracked internal numbers maintained by the Islamic State administrators.

These few examples illustrate how satellite imaging and GPS data previously unavailable, and collected at little or no risk, can help us understand economic and military activity in conflict zones.

Second, big data allows us to identify cause-and-effect relationships in ways we never could before.

When a scientist conducts an experiment, she is intervening in the world's normal functioning and measuring the effects. She might give test subjects a drug to see if it lowers their white blood cell count, or she might give poor children free school uniforms to see if that increases enrollment. These aspects of the world as it is—white blood cell count and school enrollment—are the measured outcomes. The interventions—the drug and the offer of school uniforms—are the treatments, sometimes referred to as *independent* variables. The outcome *depends* on how the intervention changes things, so it is sometimes called a *dependent* variable. Randomization of research subjects

into different treatment conditions (different dosages of medication, for example) effectively holds everything but the treatment constant so you can reliably distinguish the effects of treatment from those of other factors.

Trying to determine how conflict works is tricky, first because violence depends on so many things that are out of the researcher's control and second because it's unthinkable to conduct actual experiments that vary real-world conditions in ways that could increase violence. Instead, you need rich data on where and when violent incidents happen so you can find ways to hold everything but one factor constant and see how violence *depends* upon it. As we will see, this is the kind of data Joe developed in the Philippines by convincing military officials to code huge numbers of paper records, and this is also the type of SIGACT data we relied on for analysis in Iraq.

THE WAY AHEAD

Our main contribution is to build a new theory of asymmetric conflict and test it with new sources of data. We will do this by telling a story—one that revolves around information. The simplest version goes like this:

> Information—and more specifically the knowledge citizens possess about insurgent activities—is the key factor determining which side has the upper hand in an asymmetric conflict. If governments have information, they can use their greater power to target insurgents and remove them from the battlefield. If governments lack that information then insurgents can get away with a range of attacks that continue to impose costs on the government, from IEDs and ambushes of government forces to violence against civilians supporting the government.
>
> Civilians will choose to share this information or choose to withhold it, depending on a rational calculation about what will happen to them if one side or the other controls the territory.[18] They will compare costs they will be subjected to if the government is not in control—the violence insurgents wreak in their area—to the ben-

efits the government will provide if it *is* in control—services such as schools, water systems, roads, and so on—all the while weighing these against their political preferences and the risks of retaliation by insurgents if they do inform. The government and rebels will make resource allocation decisions—the government choosing how much to invest in military force and services, the rebels deciding how much violence to attempt—taking into account what civilians will do as a result.

That basic three-way interaction between citizens, rebels, and government has several implications that we can look for in the historical record and in data from specific conflicts. Two of the most important are these.

First, changes in the communications infrastructure in a society that make it safer for citizens to inform—for example, the expansion of cell-phone coverage—should lead to reductions in insurgent violence. It should also be easy to find evidence that information-sharing by civilians poses serious challenges to the operations of rebels in asymmetric conflicts.

Second, governments can make citizens more willing to share information by doing a better job of delivering services, because doing so demonstrates the value of having government control the space, which will in turn lead to less insurgent violence. This mechanism works best for services whose value depends critically on government remaining in control (i.e., probably more for a clinic, which will close if staff flee when rebels take control, than for roads, which are functional regardless of who controls them) and is enhanced when those services are delivered effectively.

This book proceeds through several more implications of that three-way model, explaining, testing, describing the related literature (by ourselves and others), taking stock, and drawing out practical implications when possible.

Why should we tell this story, and why should leaders—or you for that matter—take interest? Because a detailed understanding of the interactions among citizens, governments, and insurgents provides a new set of tools to reduce violence and increase stability. As we will

see, these tools may provide very cost-effective ways of saving lives and encouraging development. The story we will tell differs from previous analyses of asymmetric war in many ways. We will refute some widely accepted notions: that insurgencies can never be defeated or, alternatively, that counterinsurgency is best conducted with massive use of military force alone. We will show empirically, instead, that service delivery in conjunction with security provision provides a more cost-effective approach. Further, we will provide direct evidence linking the number of civilian casualties to changes in civilian attitudes, a flow of tips from civilians to government, and reduced insurgent violence.

Perhaps most important, you will learn why stronger powers so often seem to "win" locally, in the short term, but then fail to achieve their strategic outcomes nationally, in the longer run. While we will argue that there is an approach that works to win local battles, many of the cases we study also demonstrate that doing so is not enough to end many asymmetric conflicts. Our story is about how to reduce violence and increase stability once conflict has started. How to link those reductions to broader political settlements is a very different question.[19] In some places, those settlements may be out of reach for many years, and so knowing how to reduce violence in the meantime is valuable. In other places, stringing together local victories can lead to broader peace, as we will discuss in the conclusion.

Our central argument—that information flowing from noncombatants is the key resource in asymmetric conflicts—may be simple, but wars fought on city corners and along dusty rural roads, against enemies who are sometimes indistinguishable from allies, are anything *but* simple. To discover the forces causing the behavior of civilians and insurgents, you must examine many facets of economic activity and cultural norms.

Adding further complexity is the fact that conflicts can shift along the symmetric-asymmetric spectrum and that certain wars, like the Syrian civil war, have both symmetric and asymmetric fronts. Many of the traditional assumptions about conflict dynamics fall apart when exposed to the new tools of advanced empirical methods and

data analysis. So we will proceed with care, addressing possible challenges, reviewing the literature, weighing the evidence, and allowing the discussion to take on more complexity. Note also that much of our discussion depends on some knowledge of statistical and economics concepts, and even a little game theory. As we go along, we will try gently to explain those, usually in the context of examples. Experts, of course, can skip these passages.

Although most of our quantitative data come from conflicts involving the United States, we will draw examples from a range of settings to build intuition. Sadly, we can draw evidence from (and crunch the data on) far too many current and historical conflicts—including those in Afghanistan, Algeria, Colombia, India, Nigeria, Pakistan, the Philippines, and Vietnam. That breadth should provide some confidence in the generalizability of the theory. This book is not about wars the United States has fought since 2001; it is about what sets asymmetric conflicts apart in a much broader way and the ways this informs how best to prosecute them.

The structure of this book reflects the three-way interaction of rebels, government, and civilians that we've just summarized. In chapter 2 we will explain who we are, what the Empirical Studies of Conflict research collective is, our approach to understanding conflict, and where we get our data. Because the story is one of scientific discovery by a community extending well beyond our team, we include a brief explanation of the broader empirical revolution that has disrupted the social sciences over the past few decades, and how we judge different types of evidence.[20] Readers not interested in our backgrounds, or in how knowing our biases and expertise will help you weigh evidence we present, can safely skip that part. Similarly, if you are familiar with modern research methods in economics and political science, as well as with how the move to microdata can help us better measure causal relationships, then large parts of chapter 2 will be redundant for you.

In chapter 3 we present the theoretical core of the book: an information-centric way of thinking about insurgency and other forms of asymmetric intrastate conflict. We explain the theory using an extended hypothetical narrative about a civilian who hears insurgents

moving outside his home at night, and faces a series of difficult choices about whether to inform on them or not. This narrative introduces the three-way contest between violent rebels, a government seeking to minimize violence by mixing service provision and coercion, and civilians deciding whether to share information about insurgents.[21] Readers preferring full mathematical details of the models can find them in the original research papers and can skip to the six predictions of the model that we outline at the end of chapter 3.[22] For everyone else the story should provide rich intuition for the strategic logic behind asymmetric conflict and, we hope, provide a feel for the wrenching choices faced by those caught in the middle.

The chapters that follow work from this model and build off each other to examine different aspects of conflict—we don't suggest skipping any of chapters 4–9. Chapter 4 summarizes the most direct evidence we have for what we call the *information mechanism*. Our recent research suggests that manipulating this flow—for instance, by making it safer for civilians to share information—can reduce violence. Chapter 5 focuses on the role of development assistance—aid from the central government or other countries in various forms, from food deliveries to infrastructure projects to welfare payments. We review a large body of evidence suggesting that aid can actually stoke violence rather than ease it, and then we explore that question in greater detail, and discuss how aid can reduce violence. This gives a more detailed picture than previously available of the type of aid that reduces violence (and most likely also achieves its economic or social purpose) and demonstrates why. Chapter 6 examines the role of suppression—efforts on the part of security forces to suppress rebel activity. We will show how the returns to such efforts depend on the information provided by civilians. We will build on chapter 5 by exploring various synergies that our model predicts, particularly between certain kinds of aid and military force. Chapter 7 returns to the relationship between civilians and rebels, examining how the harm insurgents cause correlates with their political standing. One of our most interesting and strategically important discoveries is that providing information to civilians can affect their support for insurgencies.

A good deal of strategy and spending has worked off the assumption that insurgencies pull their recruits from a pool of disaffected, angry young men. In chapter 8 we examine the hypothesis that violence is caused by poverty, examine theoretical and empirical studies that support it, and consider other research that challenges it. We test the theory at the individual level (by using surveys to gauge the preferences of the poor) and then move to the national level (by comparing the rate of civil wars in rich versus poor countries). What we uncover will challenge traditional views and perhaps shed light on reasons behind the disappointing results of reconstruction campaigns that aim to reduce violence by simply raising incomes, without reference to local political conditions. In contrast, we will see that many of the elements at play in our theory of insurgency are common to asymmetric conflicts fought in many developing countries, including Colombia, India, and the Philippines, all of which have highly capable militaries that have fought lengthy campaigns against multiple insurgencies since the end of the Cold War.

In chapter 9 we focus on policies that enable government forces to gain information or generate goodwill. We draw on a wide variety of research from conflict zones and more peaceful regions to show the range of relatively inexpensive things governments can do. Evidence from a wide variety of studies suggests that subtle approaches can help. We then apply that research to our information-centric theory of conflict, showing why some small, targeted action might have large effects.

Chapter 10 concludes by considering what all this means in an era of increasing instability, large refugee flows out of conflict zones, growing militant organizations (including IS and others who practice both insurgency and terrorism), a reluctance among NATO countries to commit ground forces, a need for austerity, and the imperative of working through local allies. From Iraq to Syria to the Sahel and beyond, conditions around the world mean that dealing with insurgency and other asymmetric conflicts will remain a grave policy challenge for the foreseeable future. We will provide evidence for an approach that systematically enables stronger parties to control individual pieces of

territory in even the hardest places. But winning the village is different from winning the war—as the U.S. experiences in Iraq and Afghanistan clearly demonstrate. The latter is a much harder political task. We therefore conclude by outlining how over a decade of research by ESOC and others can guide efforts to meet that challenge as well.

A NOTE ON STYLE

Throughout the book we will mix fairly informal narrative with precise technical language. Our objective is to make the book accessible to a broad set of readers without sacrificing precision when explaining the logic and evidence underlying our claims. In presentations and briefings over the years, that seems to have worked for us. We have also found that stories can help anchor our intuition. Most chapters therefore begin with short vignettes about particular people or moments in history that illustrate key ideas. Chapter 3 relies heavily on narrative, using a detailed *fictional* vignette to explain the logic of the theory. All these choices are designed to make it easy for readers to link the abstract concepts and evidence in the book to very concrete real-world events.

We will also tell the story of how some of these results were discovered. We hope this helps convey to prospective conflict researchers how rewarding this work is. We have enjoyed successful collaboration with superb academic teams, as well as deep engagement with practitioners and the broader policy community. The problems are vast and complex. Making progress requires understanding so many details of how policy is implemented on the ground in conflict zones that a cooperative "lab science" approach is efficient, perhaps even necessary.

Finally, Jake, Joe, and Eli will appear in the narrative. When we do, we'll introduce ourselves and provide a little background and context so that the intellectual journey will make a bit more sense. Knowing our backgrounds, experience, and perspectives will help you assess the biases we might carry and, we hope, better judge how much credence you should give to our arguments.