

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

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1. REPORT DATE (DD-MM-YYYY) 08-05-2017		2. REPORT TYPE Master's Thesis		3. DATES COVERED (From - To) SEP 2016 - MAY 2017		
4. TITLE AND SUBTITLE The Lessons of Mogadishu and Their Application to the Future of Warfare.				5a. CONTRACT NUMBER N/A		
				5b. GRANT NUMBER N/A		
				5c. PROGRAM ELEMENT NUMBER N/A		
6. AUTHOR(S) Montagna, Joseph, D., Major, USMC				5d. PROJECT NUMBER N/A		
				5e. TASK NUMBER N/A		
				5f. WORK UNIT NUMBER N/A		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) USMC Command and Staff College Marine Corps University 2076 South Street				8. PERFORMING ORGANIZATION REPORT NUMBER N/A		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Same as #7				10. SPONSOR/MONITOR'S ACRONYM(S) None		
				11. SPONSOR/MONITOR'S REPORT NUMBER(S) N/A		
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release, distribution unlimited.						
13. SUPPLEMENTARY NOTES None						
14. ABSTRACT The lessons learned from the US military involvement in Mogadishu, Somalia in the early 1990s prove that technologically outmatched adversaries are capable of exploiting US critical vulnerabilities through tactical actions to achieve strategic victories, and this lesson should be kept in mind while pursuing and third offset strategy. As technology becomes cheaper and more available on a global scale, MUM-T capabilities will be easily achievable by non-state adversaries of the US military, and they will be able to leverage these capabilities to increase their ability to negatively impact American campaigns.						
15. SUBJECT TERMS Mogadishu; MUM-T; Non-state Adversary; A2AD; Third Offset Strategy; Urban; Littoral; Marine Corps						
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES 80	19a. NAME OF RESPONSIBLE PERSON USMC Command and Staff College	
a. REPORT Unclass	b. ABSTRACT Unclass	c. THIS PAGE Unclass			19b. TELEPHONE NUMBER (Include area code) (703) 784-3330 (Admin Office)	

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Command and Staff College
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2076 South Street
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Quantico, Virginia 22134-5068*

MASTER OF MILITARY STUDIES

TITLE:

THE LESSONS OF MOGADISHU AND THEIR APPLICATION TO THE FUTURE OF
WARFARE

SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF MILITARY STUDIES

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Executive Summary

Title: The Lessons of Mogadishu and their Application to the Future of Warfare

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Thesis: The fighting which occurred between the US military and the Somali people of Mogadishu from 1991-1994 represents a situation likely to be seen in the future, wherein a non-state adversary operating in the urban littorals will use low-end technology in a way that circumvents greater US military tactical sophistication to achieve strategic gains.

Discussion: The purpose of this study is to contribute to the ongoing discussion about the future of Manned-Unmanned Teaming (MUM-T) in the military, and provide an element to the discussion that assesses what capabilities non-state adversaries in the urban littorals may possess, how they may impose some level of Anti-Access and Area Denial (A2AD), and how they may exploit US critical vulnerabilities and attack centers of gravity. Advanced technology is becoming smaller, cheaper, more available to a wider global market, and easier to use. Militarily outmatched adversaries will increasingly be able to use technology to increase their ability to perform all the various warfighting functions as well as to conduct information operations.

The US military's involvement in Mogadishu, Somalia, from 1991-1994, presents a case wherein a technologically inferior, non-state adversary adapted its techniques to create opportunities, exploit vulnerabilities, and shape the battlefield to such an extent that it achieved strategic victories from tactical actions.

Using this case as a backdrop, the following Operational Decision Game presents a future war under similar circumstances. Several professional military officers played the game from the perspective of the non-state adversary commander, and the scenario afforded them several modern and emerging tools to use against the US military. An analysis of the game's results revealed several trends and unique ideas that were synthesized to create a future concept. The future concept reveals how a non-state adversary of the US military could produce an effective MUM-T capability that could impose a level of anti-access and area denial upon the US military.

Conclusion: MUM-T is less about platforms than it is about creating relationships between people to increase information sharing. As the US military pursues a third offset strategy that leverages technology to gain battlefield advantages, it is important to remember the basic concept of MUM-T: the machine is simply used to connect people to one another. Too many forecasts of future conflict predict that US military actions will occur in the world's urban, littoral landscape against non-state adversaries, for a third offset strategy to focus solely on how to create overmatch against another industrialized military. If the third offset strategy does not account for the full spectrum of conflict and the threats therein, adversaries using low-end technology will defeat the US military by using tactics and equipment which allow them to maneuver more effectively, despite costing far less.

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Acknowledgements

Throughout my military career, the concept of “turning the map around” and viewing my position from the enemy’s perspective has been reinforced many times. As a young lieutenant at The Basic School, I learned this exact concept for designing tactical actions. Later, as a major at Command and Staff College, I learned the “four ways of seeing” which was meant to expand my critical thinking repertoire and prepare me for planning at the operational level. The Marine Corps’ emphasis on planning for encounters with a thinking and evolving enemy is what led me to the path of writing this paper. I could easily have committed myself to examining how the United States’ joint military force could conduct future wars with modern technology, but not only would that have been lost in a litany of other works completed by better writers, it would not have let me imagine and explore ways that our adversaries may well indeed try to use modern technology as a tool and weapon against us.

I would be remiss if I did not take a moment to recognize my wife for her unwavering encouragement. Whether it involves professional or personal endeavors, she is in my corner, pushing me to be my best. I must also recognize my family and friends for their support over the years. Their influence in every facet of my life has been instrumental in shaping me into the man I am today. The Marine Corps’ Command and Staff College is a wonderful institution that has emphasized the power of knowledge and continuing education. My mentors throughout the last year have challenged me to think in new and unique ways, and my teammates in the Advanced Study Program have helped me to imagine new ways that people may fight wars. Thank you to all.

Introduction

The purpose of this study is to contribute to the ongoing discussion about the future of Manned-Unmanned Teaming (MUM-T) in the military, and provide an element to the discussion that assesses what capabilities non-state adversaries in the urban littorals may possess, how they may impose some level of Anti-Access and Area Denial (A2AD), and how they may exploit US critical vulnerabilities and attack centers of gravity. After carefully considering several past military conflicts it seemed prudent to focus the case study in this paper on Mogadishu, and the United States' involvement there from 1991-1994, since it parallels so many of the forecast descriptions of future warfare that the US military may be involved in. Once complete, the case study was used to design an Operational Decision Game (ODG) that embodies a fictitious future scenario in which a non-state adversary, with several future technology concepts, is embattled against the US military for control of a city. After several military professionals played this ODG, the results were analyzed and used to synthesize a future concept on how a non-state adversary may attempt use future machines and technology to fight the US military.

Compared to the technology available to the Somalis on the Mogadishu battlefield in the early 1990s, today's advanced technology is smaller, cheaper, more available to a wider global market, and easier to use. Video and audio interfaces largely negate the need for literacy and are no longer limited to industrialized militaries. Militarily outmatched adversaries will increasingly be able to use technology to increase their ability to perform all the various warfighting functions as well as to conduct information operations. Additionally, modern technology will invariably bring a broader array of inexpensive, but effective, weapon systems onto the battlefield, which will increase the ability of non-professional militaries to conduct intelligence, fires, and maneuver operations. By offsetting a clear technological disadvantage, they will be able to

influence the United States' strategic policy at a faster rate than the tactical situation can adapt, and thus shape the operating environment on their terms.

The events surrounding the United States' involvement in Somalia, and more specifically in the capital city of Mogadishu in 1991-1994, were examples of what so many recently published military documentsⁱ claim will be the future of warfare for the United States. The US military conducted operations in a dense urban center along the littorals rife with civil war, amongst an impoverished population whose central government had collapsed and been replaced by warring non-state actors, and against fighters with arms and equipment originally from first rate militaries. An additional similarity seen in Mogadishu that will be present in the future was an observant, thinking, and adapting enemy who sought to use what resources it had available to gain whatever advantage it could. The Somalis learned tactics and techniques from foreign fighters who had recent experience fighting first rate militaries. Perhaps most importantly, however, the leadership in Somalia understood not only the United States' tactical, but also their strategic, centers of gravity and found ways to exploit them.

As US policy makers and military strategists wrestle with how to implement and realize the benefits of a third offset strategy to counter technological gains made by near-peer adversaries, experiences from Mogadishu should not be lost. Effective area denial capabilities

ⁱ The *Marine Corps Operating Concept*, published in September 2016, defines predicted future battlespaces in section three- The Future Security Environment, Key Drivers of Change. It states commanders will be confronted by "crowded, poorly governed, or lawless areas, particularly in and around the world's littorals."

The *US Army Operating Concept, 2020-2040*, published in 2014, also states that future conflict will emanate from "dense and weakly governed urban areas."

The *Joint Operating Environment, 2035*, in defining the future security environment and the context of future conflict makes it clear that weak and failing states will be plagued by civil war for various reasons.

will not just emerge from rival states as super-technological innovations. The *Joint Operating Environment 2035* dually states, “placing too much emphasis on contested norms – particularly those high-tech and expensive capabilities to contain or disrupt an expansionist state power – may discount potentially disruptive low-end threats, which have demonstrated a troubling tendency to fester and emerge as surprise or strategic shock for the United States.”¹ Mogadishu matters because what happened there in the early 1990s forecasts a likely scenario to be seen again: a mix of non-state actors embroiled in civil war who were technologically outmatched but fought decisively enough to strategically influence a withdrawal of US forces. They used a mix of weapons and communication methods that effectively denied the US military access to the city. Looking at this case through the Somali perspective produces a better understanding of how similar forces may aim to integrate technology in the future.

The idea of looking at this experience from the adversary perspective and not from a friendly forces perspective came from a series of concepts emphasized by the Marine Corps. A basic concept that Marine Corps lieutenants learn at The Basis School is to “turn the map around” when designing their tactical actions. This learning point means to instruct the young officers to not only see the tactical battle space from their perspective but also from the enemy’s. Additionally, the Marine Corps places a heavy emphasis on the works of the late Colonel John Boyd, USAF. His concept, the OODA Loop (Observe, Orient, Decide, Act), stresses that one’s orientation shapes their observations, and that without analysis and synthesis across a “variety of domains or across a variety of competing/independent channels we cannot evolve new repertoires to deal with unfamiliar phenomenon or unforeseen change.”² To build a tempo of actions that will defeat an enemy morally, physically, and spiritually, decisions and actions must be based on an orientation to reality. To achieve this, it is essential to consume outside

information and be aware of unfolding circumstances. Additionally, a synthesis of observations and previous experiences will prevent an adversary who can adapt to changing circumstances more quickly and more consistently over time from achieving victory.³ Evolving technology could increase battlefield tempo and refine the OODA Loop process.

MUM-T

In order to contribute to the discussion about the future of MUM-T in the US military, it is important to understand its basic definitions and background. Then, once it is understood how the US military sees its development of MUM-T technology shaping future tactics, “turning the map around” will provide more clarity regarding how non-state actors may employ their forces. The term, “MUM-T”, has garnered an expanding level of attention in recent years, especially after the US Deputy Secretary of Defense Robert Work announced the military’s pursuit⁴ of a “Third Offset Strategy,” in which an increasing reliance on technology is adopted to counter the expanding network of A2AD capabilities. The term itself, in very simple linguistic ways, actually means very little. An alarm clock is “unmanned” and requires “manned” teaming to set the time and program an alarm to achieve the human objective of rising from bed at the correct time. The opposing, and equally radical concept, of MUM-T reduces the need for human interaction at all through adoption of robotics and automated intelligence. Nestled somewhere in the middle of the two preceding extremes, and displaying a perceived misunderstanding of the OODA Loop, some are even apt to think that MUM-T means using machines to take the responsibility of conducting Observation and Orientation away from the commander, relying solely on machines for situational awareness, and thus rendering man to just do “the DA part”⁵. The US Department of Defense’s publication, *Unmanned Systems Integrated Roadmap FY2013-2038*, provides the

most comprehensive and authoritative definition of how MUM-T should be used in the context of US military application, and it is much more moderate in its interpretation:

MUM teaming refers to the relationships established between manned and unmanned systems personnel prosecuting a common mission as an integrated team. More specifically, MUM teaming is the overarching term used to describe platform interoperability and shared asset control to achieve a common operational mission objective. This term also includes concepts of “loyal wingman” for air combat missions and segments of missions such as MUM air refueling. This capability is especially vital for missions such as target cueing and handoff between manned and unmanned systems, where the operators not only require direct voice communications between the participants, but also a high degree of geospatial fidelity to accurately depict each team member’s location with regard to the object being monitored.⁶

Fundamentally this definition establishes a human to human relationship, simply through the medium of a remotely controlled device of some sort. The focus on the human and its involvement is the key aspect since warfare is fundamentally a human endeavor. Considering that, the United States has been increasingly leveraging technology to project military power since the 1950s, while attempting to decrease the level of direct involvement required of soldiers.

Following the Second World War and Korean War the American military complex and its armaments industry were unlike anything the country had ever before experienced.⁷ President Eisenhower began the New Look Program with NSC162/2 which reduced the reliance on conventional military manpower requirements by supplementing it with an asymmetrical nuclear strike capability.⁸ But, within two decades the United States no longer reigned supreme with regard to its nuclear capability; the Soviet Union possessed a rapidly growing nuclear arsenal

and had an advantage with a numerically superior and modernized conventional force within the Warsaw Pact. America's military strategy which relied so heavily on technological might had been countered by the Soviets, and so in 1981 US Secretary of Defense Harold Brown announced the Offset Strategy. This strategy he explained would, like its predecessor, rely on superior technology to offset adversarial conventional strength. Two of the Offset Strategy's key tenants were the fielding of improved precision-strike weapons and the application of stealth technology to aircraft.⁹ Both of these tenants relied on the United States' unique ability to produce computer processing power. But, just as the advantages levied by the New Look strategy were eventually nullified by expanding military might elsewhere, Secretary Brown's Offset Strategy has been balanced by a world wide proliferation of computer processing capability that can produce both, precision strike weapons, and A2AD networks which provide a strong counter to the US military's reliance on technology for advantage.

In 2014, a generation after the Offset Strategy, the US Secretary of Defense Chuck Hagel, announced the Defense Innovation Initiative which he expected would lead to a needed third offset strategy. When he announced this initiative in a speech to the Reagan National Defense Forum, the first line of effort that he identified was to increase research and development in the fields of robotics, autonomous systems, miniaturization, big data, and advanced manufacturing.¹⁰ Although, unlike its predecessors, this endeavour for another offset strategy does include lines of effort that focus on human development, like war-gaming and education, its first line of effort is machine and system based. This approach is vitally needed to help counter the symmetrical advances that adversaries are making in A2AD capabilities and is meant to avoid competing in an impractical "fighter for fighter" scenario. But, this investment to avoid a military defeat by an adversary that could pose a fighter for fighter advantage does not

account for the risk posed by non-state adversaries which, though technologically outmatched and forecast to become more prolific in coming years, are just as highly motivated for strategic victory.

Case Study

“When they saw that their hero was dead, the Philistines took to flight.”

--1 Samuel 17: 51

Summary

From 1991-1994, Somalia became a significant area for unwelcome operations by the US military. What started off as a violent civil war with several clans fighting against the government devolved even further when the ruling regime fled into exile. Hundreds of thousands of people died as the remaining clans fought each other for power and mass famine befell the country. General Mohammed Aideed, the leader of the Somalia National Alliance (SNA), was initially focused on ridding his country of a brutal dictator, but later became focused on claiming absolute power for himself and was uninterested in foreign intervention, especially if it meant reducing his claim to power. The US military was successful at imposing stability in Somalia, which allowed those who badly needed food and support to receive proper care. But, despite early successes it ultimately withdrew its military forces from the African country after one critical mission that instantly turned public opinion against the affair.

General Aideed was only interested in placating the demands of foreign governments as long as he benefitted and it placed him in greater positions of power. Once the United Nations Operations in Somalia II (UNOSOM II) began working against and seeking to arrest him in his own country, he diligently set about to defeat the US military, who he saw as the UNOSOM II center of gravity. Using outdated, low-end technology, the SNA militia effectively employed the intelligence function of warfighting to inform and mobilize Somalis to fight against foreign

militaries. Using various forms of media, the SNA also controlled the message that journalists and the press reported by. Additionally, the SNA used relatively unsophisticated weapons to effectively employ fire and maneuver concepts against a better equipped and a better trained adversary. By coordinating efforts, using the terrain, and predicting adversary reactions, the SNA learned how to take the initiative away from the US military and put it on the defensive. Using intelligence to prepare the battle space and then leveraging an extended firefight with effective messaging created a strategic victory for General Aideed on 4 October 1993. Some people argue that the battle was a tactical victory for the US military, but tactical victories mean little if strategic aims are not achieved. Within six months the US military departed Somalia, leaving behind an ineffective UN peace keeping force, and leaving General Aideed to resume his quest for power.

The tactic of pulling a superior military force into channelized terrain or fighting effectively with inferior weapons goes back at least three thousand years when Goliath and David met in the Valley of Elah. The trend that emerged in Mogadishu, Somalia, from 1991-1993, is that the Somalis, though using different equipment and a different type of terrain, nearly repeated the story of the in the first book of Samuel when the Israelites met the invading Philistines for battle. Militarily, the Somalis were technologically outmatched. But, they had RPGs and a slew of heavy weapons which they only brought to bear once their foreign adversaries became channelized in urban terrain, and for intelligence and communications functions they used outmoded means like handhelds, broadcast radio, megaphones, even burning stacks of tires. Since history does tend to repeat itself, future conflict will probably bring to bear similar situations as what was experienced in the 1990s in Mogadishu, only differing substantially by the location and the technologies available on the battlefield.

Somalia Background

Somalis occupy an environmentally harsh portion of the globe and are descendants of herders that moved into the Horn of Africa two thousand years ago. The common languages are English, Italian, and Arabic, and the common religion is Sunni Islam. The historic population is divided into two major groups: the nomads (Samale) and the cultivators (Sab), from which clan-families are further non-divided, and from which present day clans and linages are derived. Foreigners are frequently frustrated when they attempt to conduct diplomacy within Somalia because individuals view their clan identity as fluid and capable of changing to meet the needs of the moment. A significant non-unit in a man's life is his *Diya*, which is a group sworn to avenge injustice towards one of its members if the involved parties do not agree upon a subsequent exchange of goods.¹¹

Somali political unity above the clan level is recent, and was not very relevant on the world stage until the late nineteenth century when it became the subject of European colonialism. Following Italy's defeat in the Second World War, it fell under solely British rule until the United Nations placed it under a ten-year trusteeship from 1950 to 1960. During this time, the country made large advances in infrastructure and agriculture modernization as well as democratic politics. In 1960, British Somaliland united with Italian Somaliland to form the Somali Republic. Clan politics plagued this new multi-party constitutional democracy, and Somalia became dependent on foreign aid that served only to enrich those in government, while the masses remained in poverty.

In 1969, Major-General Siad Barre seized control of the government in a military coup and established a socialist military dictatorship that aggressively and oppressively dismantled social institutions and marginalized many clans. Throughout the following two decades, rivalry

between the United States and the Soviet Union for influence in the region resulted in a large flow of arms to the Somali Army making it the best-equipped army in black-Africa. Despite an apparent arms advantage, Somalia lost a war with Ethiopia in 1979 and then fell into civil war throughout the 1980s.¹² Several decades of oppressive rule, an external war, and a violent civil war accustomed the Somali people to violence. When the Barre government was forced to flee in 1991, the people of Mogadishu, while fighting each other, also learned how to effectively fight against the more technologically equipped United States.

1991, Operation Eastern Exit

Operation Eastern Exit (OEE) was the name given to the operation conducted by United States Marines on January 5, 1991, to evacuate the United States embassy because of the increasing violence and threat to US citizens in Mogadishu. What happened leading up to and during OEE is valuable because it illustrates the types of weapons, technology, and communications equipment being employed on both sides of the fighting as well as the command and control capabilities of the Somalis at that point in the escalation of violence.

As 1990 ended, General Barre was besieged in Mogadishu with three opposition groups surrounding the city. Probably forecasting that the already bloody civil war would devolve even further when fighting entered the city, Egypt and Italy offered to host peace talks, but the rebel forces encamped around the city declined to participate. In December, fighting entered the city limits,¹³ and it is estimated that within the first month of violence 1,500 Somalis were killed.¹⁴ The most prominent rebel militia was the SNA, led by General Aideed. Though it had a limited artillery capability, the SNA did not have an air force or an armored corps. The government forces had more modern arms, but to a limited extent. Both sides had an array of weapons such as pistols and AK-47s, hand grenades, .50 caliber heavy machine guns, mortar systems, and

rocket propelled grenades. By January, the city's telephone network was down, but a government radio station was still operating as was evidenced by several broadcasts announcing cease-fires. It is clear that both camps lacked an effective command and control structure as neither side would heed the cease-fire agreements brokered by their nominal leaders,¹⁵ and senior Somali officials arrived at the US Embassy drunk, and demanding asylum or else they would kill their families in the street.¹⁶ Certain key leaders within the government possessed hand-held radios, and assumptions can be made that so did those in control of more sophisticated military equipment.

On January 3, the Russians, Germans, and Italians all tried to evacuate their citizens by landing aircraft at the airport, but these attempts were aborted due to a violent and non-permissive environment.ⁱⁱ Then the French attempted to use the port facility to evacuate their citizens by ship, but aborted this mission when a Somali Navy Commander threatened to attack them with combat aircraft for having violated Somalia's territorial waters.¹⁷ On 5 January, the U.S. Marine Corps conducted a successful, multi-wave, helicopter-borne air evacuation of the United States embassy. Arriving from the sea and from over the horizon, the first wave of helicopters landed in the eighty-acre US embassy compound shortly after sunrise at 0620hrs. A US Air Force AC-130 circled high overhead to provide fire support if required. The section of CH-53 helicopters immediately offloaded sixty US Marines and Navy SEALs, and approximately an hour later they departed with evacuees.¹⁸ After the departure of the helicopters, the AC-130 remained on station for three more hours.

ⁱⁱ Many of these people were later evacuated by the United States, or fled to disparate parts of the region where they could evacuate under less hostile conditions.

Throughout the day conditions around the city worsened and the embassy received sporadic .50cal machine gun and RPG fire, some of which was intended for the embassy and some of which was just stray fire from fighting in the streets.¹⁹ The remainder of the air evacuation effort did not come until after sunset when four waves of five CH-46 helicopters landed sequentially within the embassy compound. As the helicopters and AC-130 gunship were inbound, they detected an active radar from a soviet procured SA-2 anti-aircraft missile battery.ⁱⁱⁱ This sophisticated threat system forced the AC-130 to remain over the water, preventing it from being able to provide fire support.²⁰ Major Sayed, a Somali police official, arrived outside of the embassy shortly after the first wave landed. He had a radio in his hand and threatened to have the next helicopter that took off shot down since his government had not authorized US flight operations in Somali airspace. A cash payoff by Ambassador Bishop changed the major's mind and allowed the ambassador to obtain the major's radio. Then, within minutes all remaining evacuees boarded and the helicopters departed.²¹

After the CH-53 flights in the morning, the Somalis had had all day to prepare for subsequent waves of aircraft which would had to arrive to evacuate the large number of Americans who remained in the embassy compound. The battery's decision to become active was presumably in response to visual or audible indications of the inbound CH-46 flights in the evening. It is unlikely that it was in response to the inbound AC-130 because had the Somalis had the ability to detect the high-flying gunship at night they would have targeted the morning sortie that remained on station for more than three hours during the day. Additionally, it can be

ⁱⁱⁱ Based on the report, "Escape from Mogadishu, 1991," by Ambassador Bishop, this SA-2 battery was located at the airport.

assumed that the radio which Major Sayed let the ambassador have is the same radio he would have used to enforce his threat of ordering the shoot down of the helicopters.^{iv}

1992-1993, Operation Restore Hope

Operation Restore Hope (ORH) was a United States led task force called Unified Task Force (UNITAF) in response to the humanitarian crisis that befell Somalia in the years following the evacuation of the United States embassy. By April 1991, the Barre regime was overthrown and it fled into exile. Victory by the rebel factions did not bring peace to Somalia, but instead caused the two predominant factions under the leadership of Ali Mahdi Mohamed and General Mohamed Farah Aideed to turn on each other as each sought control of the country. Nearly two more years of fighting plunged Somalia, not just Mogadishu, into a state of anarchy ripe with slaughter, rape, murder, torture, and the destruction of the country's crop and water supplies.²² The ensuing famine added another 300,000 deaths simply from starvation by the close of 1992.²³

A tactic used by many of the warring clans was to deny their rivals access to food brought into the country by humanitarian relief organizations (HRO). Their weapons still largely consisted of those that had been so prevalent in the streets in 1991, but they also had access to the arms left behind by the Barre regime. The prevalent chaos made maintenance of armor and aircraft left behind by the Barre regime problematic, so many of the militias stripped what they could from those systems and attached them to pick-up trucks, which came to be known as "technical."²⁴ The city's telephone system, let alone any of its municipal works, continued to be

^{iv} The police officer probably did not understand that the SA-2 would likely be incapable of acquiring, tracking, or targeting low flying helicopters in urban terrain.

inoperable since the urban fighting began two years earlier.²⁵ Broadcast radio was, however, still working and controlled by General Aideed and the SNA.²⁶

The United Nations passed three resolutions in 1992 authorizing peacekeeping forces to enter Somalia and provide security for the HROs. The first two, called United Nations Operation in Somalia (UNOSOM), failed because the United Nations authorized only 550 and then 3,500 troops, which proved to be insufficient in size and capability. By the end of the year, the United Nations authorized UNITAF, which peaked at 39,000 troops and was fully capable of the entire range of military operations.²⁷ This was ORH, and it commenced on 9 December 1992, when I Marine Expeditionary Force came ashore in Mogadishu. The first to come ashore were Navy SEALs and reconnaissance Marines. The glare of video lights and photo flashes confronted them immediately as throngs of reporters pressed in on them, and viewers around the world watched a live broadcasting of the amphibious operation.²⁸ On 12 December, UNITAF forces received their first hostile fire when three technicals tried in vain to shoot down AH-1 Cobra gunships before being destroyed by the targeted aircraft. UNITAF quickly began heavy and persistent efforts to rid the streets of weapons and by 11 January, as many as sixty to seventy foot patrols were conducted through the city every day. Raids and battles with upwards of 900 Marines and Soldiers with tanks, artillery, and attack aviation quickly subdued opposition forces. These raids and patrols commonly confiscated large quantities of tanks, artillery pieces, technicals, mortars, armored personnel carriers, and five-ton truck loads of small arms and munitions. The overwhelming force and capability that UNITAF operated with actually brought much needed peace to the city and allowed humanitarian aid to flow more freely to the people in need. Change took place at a rapid rate as Somali leaders met with each other and were committing to a peace process and reconciliation.

Despite the momentum building behind a movement for peace, there was still a lot of danger on the streets. Somali snipers killed and wounded several US Marines, sailors, and soldiers. Successful Somali attacks against UNITFAF forces always occurred while the UNITAF personnel were away from their bases and deep inside the city on foot patrols. Further crack downs reduced the ability of Somalis to carry weapons, so the violence evolved into a heavier use of hand grenades. When street demonstrations broke out, as they sometimes did, road blocks consisting of burning piles of tires and large orchestrated crowds of protestors were the norm.²⁹ A predominant observation emerging from ORH, however, was that the Somali factions clearly avoided sustained confrontations against the superior UNITAF.³⁰ By the spring of 1993, it was evident that UNITAF had brought about a level of stability and peace from which a renewed nation building effort could emerge.

1993-1994, United Nations Operation in Somalia II

United Nations Operation in Somalia II (UNOSOM II) was a United Nations led task force which took over operations within Somalia from UNITAF in the spring of 1993. UNOSOM II comprised a much larger tapestry of foreign militaries and started with a peacekeeping mission across the whole of Somalia. This effort aimed at fostering conditions that would lead to the rebuilding of the entire nation, but it devolved into a manhunt and combat operations largely focused within Mogadishu. On October 3, 1993, a raid conducted by US Army Rangers went awry and resulted in a massive, day-long fire fight throughout the city. The press coverage and images of dead Rangers being drug through the streets of Mogadishu ultimately influenced the American people to order the withdrawal of its forces participating in UNOSOM II. By the spring of 1994, UNOSOM II was no longer supported by the US military.

This resulted in a less proactive military presence in Mogadishu, and the city returned to the control of warlords and chaos.

The unraveling of the UNOSOM II mission is traced to a particular event on 5 June 1993, when the SNA ambushed two Pakistani units conducting routine missions within the city. General Aideed had become fearful that UNOSOM II was attempting to undermine his legitimacy, so he coordinated a deadly series of ambushes against the Pakistani patrols. The first attack occurred in conjunction with a routine inspection of an authorized weapon storage site, and the second attack occurred in front of a food distribution site that the Pakistanis were guarding that day. The resulting death of twenty-four Pakistanis and wounding of fifty-six others led UNOSOM II to shift its mission away from peacekeeping to a more myopic concentration on arresting General Aideed and dismantling the SNA.³¹

At both ambush sites the Somalis used similar weapons and tactics, and the total effort was well coordinated. The SNA militia used small arms, heavy machine guns, and RPGs to deliver a significant amount of hostile fire during the fight. The Pakistani unit on patrol became trapped by hasty barricades erected immediately before the attack, and at the food distribution point Somali fighters used assembled groups of women and children as human shields. Intentional road blocks and fires impeded UNOSOM II quick reaction forces and delayed rescue attempts by several hours. Then, following the firefights General Aideed took full advantage of his control over Radio Mogadishu to proclaim the firefights as a victory of the Somali people against unjustified attacks by UNOSOM II forces against peaceful civilians.³² Violence and offensive operations escalated quite quickly in the following days and weeks.

As UNOSOM II transitioned to offensive operations and increased the level of force it used, General Aideed and the SNA militia responded in kind by using tactics that further stymied

UNOSOM II's relative military superiority. On June 17, UNOSOM II mounted a large raid into Mogadishu in order to dismantle the SNA's command hierarchy and infrastructure. Aideed's intelligence network observed several mission rehearsals, and thus when the raid occurred several ambushes and mobs of angry protestors were in place to counter UNOSOM II operations. The ambushes and mobs intentionally targeted an outer security perimeter with such intensity that the main effort heading towards Aideed's compound had to divert. The SNA militia pushed the fighting to such close quarters that UNOSOM II aerial fire support would not open fire because of the risk posed to friendly forces. As the fighting continued to intensify SNA militia also engaged UNOSOM II targets from a hospital marked with white flags³³ knowing UNOSOM II forces would be hesitant to return fire on such a facility.³⁴ The fighting that day resulted in fifty-one UNSOM II casualties, 150 Somali casualties, and it totally diverted the attention of the press away from a 30,000 Somali strong, pro-UNOSOM II rally which occurred in another part of the city. UNOSOM II's response to the day's fight was to declare mission success, but then cease further operations in Aideed dominated sectors of Mogadishu. Thus, Aideed took the initiative to continue increasing road block, ambush, and land mine operations against UNOSOM II ground forces throughout the summer.³⁵

On 3 October 1993, UNOSOM II operations in Somalia came to their climax during a raid meant to capture two of General Aideed's top lieutenants when they met in a building near the infamous Bakara Market and Olympic Hotel. The raid was confronted with a well-coordinated counterattack, and the ensuing fifteen-hour battle came to be known as, "Black Hawk Down." In the months leading up to this battle the US Army Rangers conducted several raids to capture Aideed's top officials. The Rangers typically relied on surprise as one of their centers of gravity, but SNA witnessed their actions frequently enough that they observed patterns

and learned the Rangers' template for action. Under the leadership of Colonel Sharif Hassan Giumale^v, the SNA's Deputy Commander of the High Commission on Defense, the SNA was studying the Rangers and knew that if they were not stopped, they would eventually capture General Aideed.

In preparation, southern Mogadishu (SNA territory) was divided into eighteen military sectors, each with its own set of duty officers on twenty-four-hour watch and linked together with a crude communications network.³⁶ General Aideed smuggled Islamist fighters from Sudan, that had experience fighting Russian helicopters, into Mogadishu to teach his men how to shoot down helicopters. Aideed's men learned how to modify RPGs with timing fuses so that direct hits were not required, to aim for the tail of the aircraft by waiting until after the helicopter had flown past, and not to shoot from rooftops because the shooters could be easily observed by UNOSOM II aviation assets.³⁷ United Nations sources cited that Aideed had 1,000 militia regulars, but SNA accounts placed that number closer to 12,000. Colonel Giumale knew that one of the Rangers' centers of gravity was their speed and assessed that their critical vulnerability was their helicopters, which a barrage of RPGs could be easily neutralize. After framing the problem, he devised a very simple plan utilizing the battlespace he had created: as rangers and helicopters circled their target building for security while arrests occurred inside, RPGs would shoot down the helicopters, the stranded Rangers would be overcome by sheer numbers and a "swarming persistence," and finally ambushes and barricades would impede any reinforcements.

^v Colonel Sharif Hassan Giumale was a highly-educated military officer who had previously served as an artillery brigade commander for the Barre regime. He was also well-studied in the ways of clan warfare and guerilla insurgencies.

With this operation plan, the SNA militia could wait until the Rangers were on their turf, deep inside the city in channelizing terrain, and avoid superior military assets that UNOSOM II maintained at its bases. This concept of operations is exactly what transpired beginning at 1600hrs on 3 October.³⁸

In the afternoon, as the helicopters approached the objective area, Somalis began igniting tires in the city to signal a call-to-arms.³⁹ The raid, in general, went as planned and several SNA officials were arrested. But this was the sixth such mission⁴⁰ and it occurred during daylight hours which worked to increase the situational awareness of the Somali fighters. The sound of the helicopters hovering overhead and increasing amounts of gunfire brought throngs of people into streets.⁴¹ The surrounding neighborhoods had been organized and were responding to prearranged signals and megaphones. Unarmed children, conducting reconnaissance and acting as spotters, approached the American soldiers who were providing perimeter security. Armed fighters also began approaching from behind women who were being used as shields.⁴² The first helicopter was shot down when the Americans were nearly complete with actions on their objective, and were as dispersed as they were going to be. Up to this point, gunfire on the street had been increasing and the American helicopters had been circling the objective building at slow speeds and firing into crowds of Somalis to keep them away from the American ground forces. A Somali militiaman, armed with an RPG, was hiding out of sight and at approximately 1630hrs when a UH-60 helicopter (call sign: *Super Six-One*) passed overhead he stepped into an alleyway and fired at the tail of the aircraft. The blast separated the tail rotor from the aircraft which then crashed immediately, dropping into the dense confines of the city.⁴³ US ground forces began moving to the crash site to provide security and to recover the helicopter crew but this movement into canalizing urban terrain afforded Somalis the opportunity to inflict several

casualties upon the Americans. As rescue efforts were coordinated more aircraft remained on station for longer periods of time which also offered Somalis more helicopters to shoot at. Roughly thirty minutes after *Super Six-One* was shot down, another UH-60 helicopter (call sign: *Super Six-Four*) was shot down with the same tactics; the Somali fighter armed with a timed fused RPG waited until his target flew overhead and he had a clear shot of the back of the aircraft and its tail rotor.⁴⁴ For roughly fifteen more hours, as rescue efforts of the two aircrews were attempted, a massive firefight raged inside the city between UNOSOM II forces and Somalis. On 4 October, when the battle was complete at least 1,000 Somalis and eighteen US soldiers were dead. Many of the dead Americans' bodies remained in the city and were subsequently ravaged, drug through the streets, and photographed.

General Aideed wanted to be the sole purveyor of power within the city which could not happen if he was being hunted by UNOSOM II. In a coordinated effort with his tactical plans he also endeavored to control the flow of information that left the city. Earlier in 1993 he killed several journalists and intimidated all American journalists into leaving Mogadishu. This void of Western media resulted in battle being told mostly by video and still pictures taken by Somali stringers.⁴⁵ Images of dead US Army Rangers being mutilated and drug through the streets of Mogadishu reached news networks by the evening of 4 October. These images sparked visceral reactions in America and began a rapid political fallout in Washington D.C. which influenced the American President to withdraw United States support from UNOSOM II. The United States Secretary of State, Warren Christopher, noted that President Clinton was, "the [victim] in many ways of instant communications, and instant polling."⁴⁶ By 31 March 1994, the United States had completely withdrawn from Somalia, and without the active backing of the US military, UNOSOM II no longer possessed the ability to pursue effective nation-building.⁴⁷ General

Aideed was then able, without external pressure, to continue as the self-appointed President of Somalia.^{vi}

Analysis and Initial Concept Development

To perform intelligence, fire, and maneuver functions General Aideed and the SNA used relatively crude assets. They learned that confronting large formations of the US military was ineffective and that they were only successful when they could isolate smaller patrols deep within the city. The SNA learned quickly that one American strength in urban operations was its helicopters, which could generate speed and combat power very quickly. To avoid this strength, it had to find a way to get the Americans on the ground and trapped in the city. Once the SNA accomplished this by shooting down two helicopters and forcing the US military to fight in the streets, it simply broadcast images of Americans being slaughtered, and those pictures broke the United States' political will to fight. Ultimately, by pulling the small units of the US military into the city and isolating them, it employed an area denial tool by affecting a total withdrawal of all US military from their country.

The Somalis did not have command and control aircraft flying endless sorties over Mogadishu or the ability to collect satellite imagery of enemy formations. What they did have, however, was a crude network of low-end systems that capitalized on existing infrastructure to gather intelligence, mobilize, and conduct information operations. They used billowing smoke from burning tires to mark check points and rally points, a local radio station to mobilize the city against the United Nations, walkie-talkies to quickly pass command and control information

^{vi} By the end of 1996 President Aideed was shot twice during a battle between warring factions and died a few days later.

amongst key leaders, and an existing news media infrastructure to tell their story to the world. They did not have aerial gunships, orchestrated artillery, or highly trained infantry units with which to use in a combined arms fashion against the foreign military in Mogadishu. With the weapons that they did have, their concept of fires and maneuver evolved over the three years that the United States had a military presence in Mogadishu. In 1991, the Somalis fought with recklessness throughout the streets, they displayed no effort to coordinate or mass fires, and they did not have any real concept of maneuver. By the Black Hawk Down incident, the SNA had found a way to control fires from various weapon systems and mass them on specific targets. Additionally, it learned to maneuver on the battlefield and instead of fighting randomly throughout the city, it created space in which to draw the UNOSOM II forces. Then it maneuvered to encircle its adversary with overwhelming mass and close in on them.

Future concepts that actors like Aideed and the SNA militia will use to conduct intelligence, information operations, and mobilize forces, will rely heavily on the usage of smart devices, cellular networks, and the internet. In 1992, the US Marine Corps established a cellular network in Mogadishu for its own use during ORH. The outcome was a convenient and commercially available communications network that provided commanders a way to communicate without occupying tactical radio networks.⁴⁸ Future militias could just as easily adopt this same concept, especially considering the rapid growth and availability of these technologies in places like Mogadishu. In Somalia, access to the wireless communications and the internet is growing rapidly. In 2013, as many as seven in ten Somalis reportedly owned a cell phone, and some polls show that nearly fifty percent of Somalis access the internet each week.⁴⁹ This capability will only continue to increase as LTE and 4G networks are installed across the country, an effort that began in 2014.⁵⁰ This will enable key leaders to communicate more easily,

and with access to the internet, images and video of dead Americans will reach audiences around the world more quickly. The ability to impact public opinion twenty-four hours a day will more aggressively affect strategic policy by placing policy makers against “instant communications [and] instant polling.”⁵¹ Additionally, as cell phones proliferate, cheap, easy to use, and commercially available devices are emerging which can create linked and mesh networks between several phones to share encrypted voice and text, data, and position information without cellular towers, routers, or satellites. The advent of cheap, reliable, highly capable, and commercially available remote controlled aerial vehicles will continue to increase the ability of non-state militias to provide increased surveillance that can collect real-time intelligence. In the fights to come, the advantage that technology and helicopters gave Americans in Mogadishu will be diminished as adversaries adopt ways to gather intel more quickly, to mobilize more broadly and effectively, and message instantly and more persuasively.

Non-state adversaries that reside in the urban littorals will continue to evolve the ways they fight to adapt to changing environments. Over the last several years totalitarian Islamists have been increasing their use of commercially available, remote controlled aerial vehicles to observe indirect fire. Recently, they have proven their ability to also use such vehicles to deliver small munitions with high levels of accuracy, by dropping explosives onto armored vehicles and into infantry formations.⁵² Using improvised explosives to harass adversaries has now evolved to such an extent that the Islamic State in Iraq is using unmanned, remote-controlled aerial vehicles to deliver them. This technique will continue to grow and modify. In 1993, the Somalis most effectively maneuvered when they allowed superior military forces to move deep into the urban environment, and then encircled them with a “swarming persistence” and used unarmed women and children as human shields. This tactic will continue to persist and become more difficult to

counter as urban populations become denser, the environments grows three dimensionally, and new ways to distribute information are developed.

Future adversaries of the United States that fit the profile of the SNA and General Aideed will be non-state actors in conflict ridden areas and cities near the littorals, that do not have a system to procure state-of-the-art, high-end military arms. They will not be flying F-35s or firing M-777s with fantastic warheads. But, they will have discarded or stolen systems from more capable militaries that they will not be able to continuously maintain, so they will salvage them to make them fit their needs and capabilities. This trend was noted in Mogadishu after General Barre fled into exile; the rival clans were unable to keep the tanks and other equipment in an operable state, and thus highly lethal technicals populated the city.

Despite, not having their own high-end technology, future adversaries of this sort, will not simply disavow its use but will watch and assess what the technology is that the US military leverages and look for ways to exploit it that would reveal a critical vulnerability. Additionally, they may attempt ways to mimic the high-end technology with low-end assets to achieve the same battlefield effects. As in Mogadishu, the SNA observed a reliance on helicopters to facilitate speed and surprise so they, over time, developed an effective method to combat helicopters. As the US military continues to build its military capabilities around a reliance on technologies, they will only create advantage for a period until the enemy finds decisive ways to exploit them.

Operational Decision Game

Purpose of Operational Decision Game

The purpose of the Operational Decision Game (ODG) contained in Appendix A was to present an operational environment, with a contemporary enemy possessing modern tools, to

conceptually evaluate how a non-state actor may fight an American military force in the future. The modern tools were meant to focus upon how a non-state actor without the military-industrial complex of the United States may evolve with modern technology and employ its own version of MUM-T concepts using historical precedence as the background. Several people were asked to play the game and compile what thoughts they had. That feedback was subsequently compiled in Appendix B, and used to augment independent research to develop a future concept of non-state adversary's use of technology in urban and littoral terrain.

The ODG created for this case was specifically designed to mimic the operational environment that was Mogadishu in the early 1990s. It is not based on actual current events, but is thoughtfully crafted in a predictive way to build a situation roughly equitable to that city, and during those years. However, since the ODG was intended to help forecast and predict future enemy actions, a scenario with potentially more contemporary organizations and motives were used while trying not to alter the geographic precepts too greatly. Purely futuristic tools were not given to the enemy because that may produce forecasts that will never actually have a basis in reality. The game gave players tools that could be nearly approximated based on actual current and emerging technologies. This is less to evaluate the capabilities of the tool as it was to evaluate the decision cycle of the enemy with the tools, and think about how they may connect humans in a hostile environment through unmanned machines or technological interfaces. Ultimately the goal was to analyze various game plays and synthesize from their results how future enemy thought processes could evolve to shape a battlespace.

Design

The title of this game is, "Boko Haram's Advance Towards the Islamic State of Nigeria," and depicts a violent destabilization of the Nigerian city of Warri. After nearly a decade of

intrastate strife, continually declining economic prosperity, and northern emigration to the south for various reasons, the military is unable to mass a response in Warri when Boko Haram begins taking control of portions of the city and massing attacks on its infrastructure. A brief, but violent, battle with the Nigerian military in the city results in a military retreat which cedes ground and abandoned equipment to Boko Haram. The atrocities against Christians in Warri led to a United Nations' Security Council Resolution authorizing a forceful response against Boko Haram leadership. A United States led task force responded quickly with II Marine Expeditionary Force (IIMEF) as the main effort. IIMEF successfully retook eighty percent of the city's territory and its major infrastructure back before redeploying and turning the mission over to the United Nations led stability force called United Nations Operations in Nigeria (UNON). UNON is a Combined Joint Task Force (CJTF) made up of the Nigerian Army, other African nations fighting Boko Haram (Cameroon, Niger, and Chad), and the 24th Marine Expeditionary Unit MEU (Reinforced). Boko Haram still maintains authoritarian presence in the southeast quarter of Warri making its population unreachable to the UN force. The 24 MEU (REIN) will support internal defense, development, and stability operations as part of a CJTF to include counterinsurgency, foreign internal defense, and support adjacent special operations forces. Nigeria, Cameroon, Niger, and Chad forces will provide security operations to maintain conditions for NGOs to provide humanitarian relief.

The players represented a Boko Haram commander, and were given several most likely courses of action and basic force compositions for both sides of the fight. What made this game unique was the three non-traditional systems/concepts which the players had at their disposal to create a low-end or low cost A2AD environment. These systems/concepts were meant to pair the non-state actors with technology in such a way as could be reasonably predicted to create a

MUM-T capability for an organization lacking the industrial backing that the United States enjoys.

The first system/concept was a linked communication infrastructure using smartphones, applications, and pocket sized antennas. This low-cost solution creates a smartphone-to-smartphone network that does not require towers, routers, or satellites. It can create networks of communicators spanning several miles and can be established in less than a minute. The network is then able to transmit encrypted communications, use smart protocols, send software updates automatically to adjust frequency utilization, and share location information and data. The ODG players were asked to devise under what conditions they would employ this capability and how they would integrate it against US forces.

The second system/concept was the use of commercially available unmanned aerial systems (UAS). This technology is widely available on the commercial market and in myriad configurations and capabilities. Additionally, non-state actors are already tactically deploying these machines^{vii}. Low cost UAS were incorporated in this game to evaluate how their use could be altered in the future based off observations of their capabilities, uses of more sophisticated systems, and how those evolving tactics could be employed against US personnel and equipment.

The third system/concept was the utilization of worldwide communication systems, such as social media, available through the internet. Again, like with UAS, the utilization of the

^{vii} Conducting a simple internet search on the topic reveals a variety of sources which report on the issue. A particularly interesting report on the matter titled, “Hostile Drones: The Hostile Use of Drones by Non-State Actors Against British Targets,” was published by The Remote Control Project in January, 2016.

internet by non-state actors has already been observed and is a growing medium for recruitment and messaging.⁵³ However, because the use of information sharing through the internet has proven to be ever expanding since its inception, it was incorporated into this ODG as a capability set of Boko Haram so the ODG players could specifically utilize it to imagine ways it could be used in an unmanned fashion to fight against US military forces in the future.

ODG Results

Several themes emerged from the analysis of the ODG results. The players were familiar with the case study of Mogadishu, but all of them played the game individually. The games were completed by hand and with varying levels of input and detail. The results were compiled and input into a spreadsheet under four basic categories: Problem Framing, Course of Action (COA) Graphic and Narrative, Theory of Victory, and Future Concepts. Listed below are the trends that emerged from the various responses and a few outliers which posed unique concepts of employment.

The results of the problem framing revealed that several players all saw the same problem presented to the Boko Haram commander; an overwhelming technical force had isolated Boko Haram and put them on the defensive. The elements required to change which would allow Boko Haram to resume its control of the city and growth of its influence would be forcing a withdraw of the US military and destabilizing the local government. Opportunities for Boko Haram were being able to access the internet and social media, time, and engaging in conflict that caused high casualty rates for both sides. Threats and limitations to Boko Haram were recognized to be a better resourced US military, its ability to conduct signals intelligence, no way for Boko Haram to gain air superiority.

The COA graphics and narratives also identified several trends. Within the mission and intent of the Boko Haram commander, the trends were to disrupt government legitimacy by disrupting infrastructure and sabotaging humanitarian aid missions, imposing cost restrictions on the US military through loss of life and equipment, and lastly, ensuring all bloodshed and failed government missions were captured on the internet and on social media. The concepts that emerged with which to support the missions and intents highlighted the need to push out from the defensive and conduct clandestine attacks against the US military, establish methods for reconnaissance and communication, establish integrated defensive positions around designed engagement zones, and distribute propaganda which highlights atrocities committed by the US military and the death and wounding of its soldiers.

The theories of victory tended to have similar central ideas, but their necessary capabilities diverged. Where they agreed on central ideas was that defeating the US military would be a strategic level task that would primarily require destroying elements of the US military, live streaming those events over the internet, and filming and streaming the death of any civilian caused by an America. The necessary capabilities identified by the players to accomplish this central idea required the use of UAS, linked communication networks, cellular phones, internet access, destroying US military support assets and material, the ability to trap elements of the US military in ambushes, and to avoid direct soldier to soldier engagements at all costs.

The future concepts that the players developed ranged from using each system/concept in isolation to joining all three together to maximize the use of each while complimenting the capabilities of the others. In each case, however, they presented unique, deadly, and cost imposing capabilities which could be employed against the US military. The net effect of the

concepts which the players presented was an ad hoc or low-end anti-access environment at the tactical level that if used with repetition could lead to area-denial at the strategic level. The individual ideas presented by the players are listed in Appendix B, but a hybrid of their collective concepts will be presented in the following section.

Future Concept of Non-State Adversary's use of Technology in Urban/Littoral Terrain

This section means to outline a synthesis of the results from the ODG and provide a future concept of how a non-state adversary of the US military may employ current or future technologies in a MUM-T fashion that will construct a low-end, but effective, A2AD environment. As defined earlier in this paper, the US military generally sees MUM-T as the “relationships established between manned and unmanned systems personnel prosecuting a common mission as an integrated team.” Though a non-state actor may not be use the lexicon of the United States’ military-industrial complex, they may very well adopt the principles of this tactic while employing the technologies they can afford and acquire. Since they will have access to machines, such as drones, which can be piloted by one person but offload information to another person, both of whom are in communication with one another to achieve a common operating picture, they will be operating in a MUM-T fashion. But, it is important to remember that all adversaries will be thinking enemies and cannot be constrained to operate in accordance with paradigms set forth in US military doctrinal publications. They will be seeking to exploit critical vulnerabilities and change the reality of the battle space faster than US commanders and policy makers can orient themselves to make credible decisions.

Problem Statement

Should the US military, as it did in Mogadishu in the early 1990s, find itself in a dense urban littoral city fighting a non-state actor for control and to quell a humanitarian crisis, or any

litany of other crises, it should expect that the enemy commander will be problem framing and planning a campaign to defeat the United States. That commander's problem statement, and list of assumptions, may look something like the following: The presence of the US military is preventing the natural and proper distribution of power, it has the backing of a multi-national coalition, and it has an overwhelming technical advantage and highly trained military with which it can achieve tactical victories.

Underlying this problem statement, the enemy commander may also hold the following assumptions. The US military, with its superior military force, will have to be defeated at the strategic level by attacking its nation's will to fight. This can be quickly and effectively achieved by waging an information operations campaign that depicts a bloody war, the graphic death of US soldiers, and US soldiers committing violent acts against civilians. Another assumption likely to be made is that the non-state force will have control of the local populations in which they are imbedded due to coercion or cultural, ethnic, or religious ties. Additionally, since the US military will have to enter channelizing terrain to conduct its tactical operations, this will afford an adversary the ability to isolate it and inflict heavy casualties while using the same urban terrain to mask movements and minimize exposure. By using information operations and coercion in the local area, civilians may be lured into the engagement zone to hinder the ability of the US military to distinguish between non-combatants and combatants, or to simply and overwhelm them physically and thus decrease their rate of movement.

Hypothesis

By using cheap and commercially available technology in unique and evolving ways, non-state adversaries will be able develop MUM-T capabilities that will further their ability to communicate, control fires, maneuver against US military forces, and conduct information

operations in such a way to establish an A2AD environment which will have strategic effects on an opposing US military campaign. Although the US military may be able to win a series of tactical engagements, by locking them into a bloody campaign which can be broadcast to their policy makers, their nation's will to fight will be broken and they will be ordered to withdraw. The situation can be further complicated for the US military by spreading information that will cause the local population to have no trust in them or their espoused mission.

Capability Description

The assets a non-state actor will need to possess to make this hypothesis prove successful will be commercial equipment such as mobile phones for distribution throughout a command and control network, linked communication devices, unmanned vehicles (both aerial and ground), reliable access to the internet,^{viii} and a team of individuals who are capable of exploiting tools in that domain. Each of these assets, in isolation, will offer unique means to the user. The UAS in isolation can be flown by an operator for myriad missions, limited only by the imagination of the user; from simple reconnaissance profiles to dropping grenades on troop formations. Cell phones and the internet simply connect two users via various mediums. Likewise, linked communication infrastructure just connects varying number of users, albeit over varying ranges, but by itself there is no unmanned component. Used in isolation these technologies don't satisfy the definition of MUM-T. But, it will be their combined use that will leverage a MUM-T capability and facilitate the achievement of strategic ends. The ability to create battlefield relationships between

^{viii} Though legacy systems like radio remain prolific in countries like Nigeria, where this ODG took place, the internet, especially in littoral areas, is gaining more users and is becoming more available for home use. For example, according to the report, "Contemporary Media Use In Nigeria," published by the Broadcasting Board of Governors, from 2012 to 2014, while radio and television usage both declined, internet usage increased.

decision makers, or manned systems personnel, with unmanned personnel, through a shared asset to achieve a common operational mission objective⁵⁴ will create an ability to increase operational tempo, and make a more complex reality for the US military to react to.

The capability of extending communication networks via mobile technology and the internet may allow users to extend data link distances to and from commercial UAS and allow for video feeds to be more widely disseminated, and more quickly. The US Deputy Chief of Naval Operations for Warfare Systems, Rear Admiral Michael Manazir said at the Navy League's Sea-Air-Space Exposition in 2016, that networks will be the key to success in fifth generation warfare and that his office is less concerned with platforms as it is with capabilities.⁵⁵ Presumably, then non-state actors may also be fighting in the fifth generation if they can achieve the paradigm of networking battle space information and the prioritization of end-state effects over ways. Catch phrases like, "turning a kill chain into a kill web,"⁵⁶ will be state and actor agnostic. Non-state actors may not have encrypted "tactical clouds" meshing fifth generation fighter aircraft together with submarines, but they will understand that by using readily available open networks they will be able to maneuver in the information domain and increase the effectiveness of their warfighting capabilities.

Concept of Employment

The hybrid future MUM-T concept synthesized from the results of the ODG is a combination of all three of the concepts and systems presented to the players in the scenario. The UAS and its operator can stage at greater distances from the command and control hub to operate the machine. Then, to establish the relationship "between the manned and unmanned systems personnel prosecuting a common mission as an integrated team," they can be connected through a linked communication infrastructure and share or distribute video, images, sound, or written

messages through either the same linked infrastructure, the cellular network or the internet. Using the internet, the captured video or other propaganda can quickly be distributed to a worldwide audience. Figure 1 depicts a very simple MUM-T concept wherein a commander can communicate with unmanned personnel over a linked network and receive UAS position data while also viewing its video feed via an internet connection. The operator is also in “direct voice communication between the participants [and able to] accurately depict each member’s location with regard to the object being monitored.” One of the benefits of a linked communications network would be that for one node to communicate with another, it can transmit throughout the entire linked network until the intended recipient ultimately receives the communication. Additionally, an added benefit to the non-state adversary in an urban environment is the ability to also rely on civilian communication networks, as perhaps the primary, but most definitely as a secondary or even tertiary means of communication. Figure 2 depicts the same information cycle as Figure 1, but is broken down by system and represents a single loop instead the complete battlefield network displayed in Figure 1.

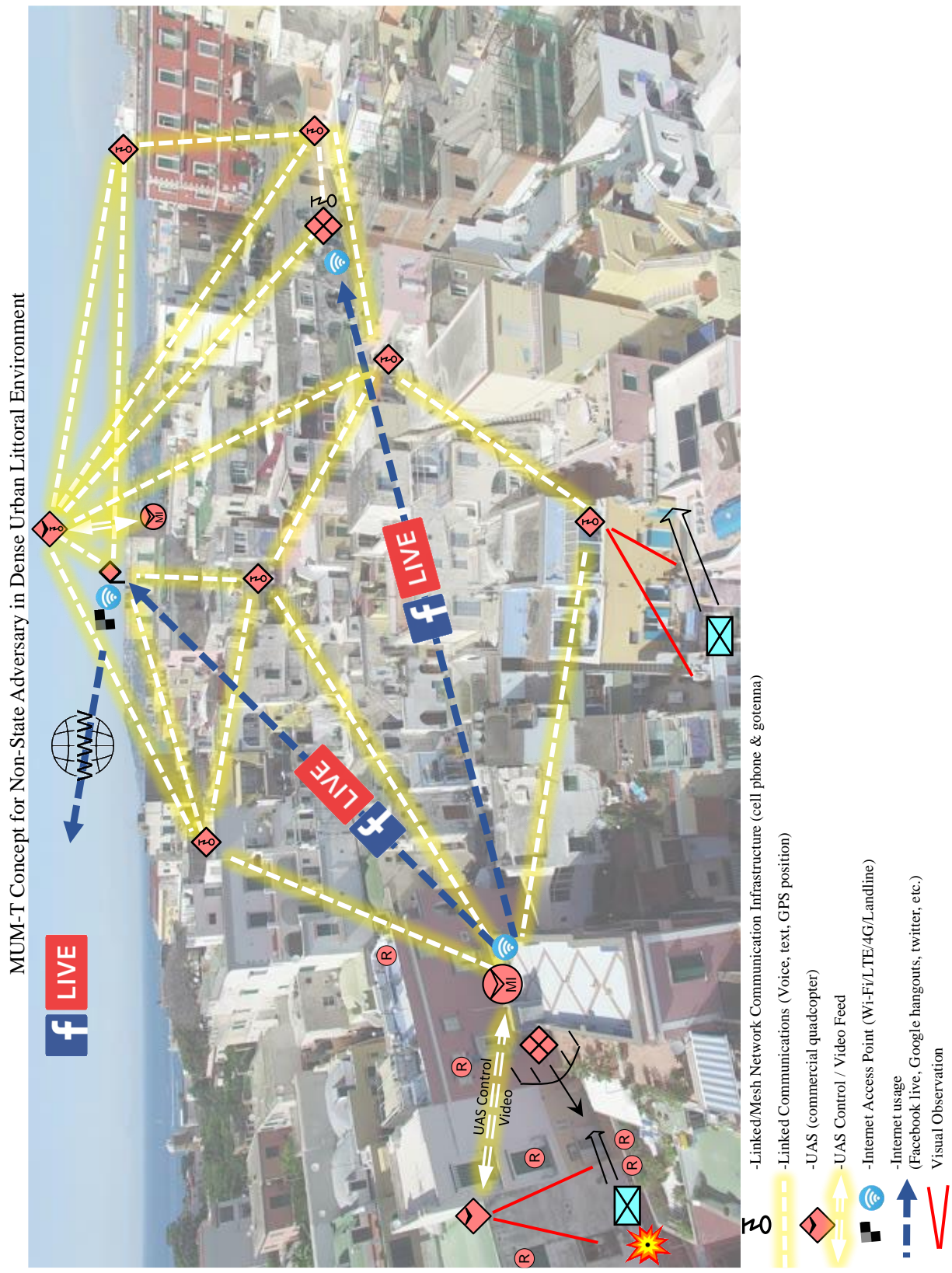


Figure 1: MUM-T Concept for Non-State Adversary in Dense Urban Littoral Environment



Non-State Adversary MUM-T

Problem Statement– By using cheap and commercially available technology in unique and evolving ways at the tactical level, non-state actors will be able develop MUM-T capabilities that will further their ability to communicate, control fires, maneuver against US military forces, and conduct information operations in such a way to establish an A2AD environment which will have strategic effects on an opposing US military campaign.

Figure 2: Non-State Adversary MUM-T System Components



Measures of Success

There are several measures by which this concept could be measured for success. First would be whether combining several, otherwise separate, and individual systems and abilities would provide a non-state actor with a MUM-T capability, or not. Additionally, in this networked fashion, success could be measured by whether an otherwise technologically outmatched belligerent could operate in fifth generation warfare thus bringing some level of symmetry to the battle space. Cumulatively, this would allow a non-state commander to increase his operational tempo and further complicate the reality of the US military. Lastly, success would be measured by whether this concept could increase the flow of information out of the battle space effectively enough to negatively influence US public opinion and ultimately break the will to fight of strategic policy maker.

Tradeoffs

The utilization of this concept would impose a tradeoff for both the non-state adversary and for the US military. The non-state actor would have to trade the opportunity to operate and fight in a totally technologically outmatched fashion. This could appear to not even be a question for many tacticians in a technologically superior military; but there could be some advantage gained by an opponent who chooses to operate totally off a grid and thus provide some level of asymmetry, only in a somewhat reversed fashion. Someone can't be located and isolated on a domain in which they don't reside. So, this would have to be a tradeoff that the non-state commander is willing to take. Once they chose to seek a MUM-T capability in a contemporary fashion, they would have to assume the risk that the US military may be able to exploit them. The tradeoff which the US military may face, is if a non-state actor in a heavily populated and urban area begins developing widely linked communication schemes that operate on unsecure

civilian networks, and hidden in the mass of the internet, it will have to develop countermeasures that may also disrupt the daily life of civilians and non-combatants. This could prove to be problematic if the US military is trying to win the support of the local populace whose ability to communicate and conduct business gets restricted.

Areas for Future Research

From this point, there are many areas for future research which may lead to a better understanding of how non-state actors may approach the concept of MUM-T capabilities. The three highlighted in this section attempt to focus on considerations from the tactical to the strategical level. The first is how quickly, how diversely, and how uniquely, application software for mobile phones, linked communications infrastructure, and UAS, can get updated and refined to stay ahead of countermeasure attempts and maintain control of a MUM-T capability. The second is if the benefit of developing and maturing a MUM-T capability for use in an urban environment would outweigh the social costs which come once a population begins living under a siege mentality in that death may come at any time from a machine that is watching them from the sky.⁵⁷ Lastly, will a non-state actor be best suited to fight a technologically superior force by focusing on material progress or on its own cognitive progress and how to out think its enemy.^{ix} Air Vice-Marshal of the United Kingdom's Royal Air Force, Jon Lamonte, astutely noted that the world's largest military powers' ever expanding use of UAS controlled from bases at home,

^{ix} To highlight this point, it is beneficial to reference the 1973 Arab-Israeli War. Albeit, that war was a state-on-state contest, the point remains the same. Egypt knew it could not match the material assets and technological capabilities of Israel, so it focused its effort instead on achieving political success, without a military victory, by out maneuvering Israel in the cognitive domain.

may become an impetus for their adversaries to transfer the battlefield away from their homelands and to the control points of those machines.⁵⁸

Conclusion

MUM-T is less about platforms than it is about creating relationships between people to increase information sharing. Inherent in the nomenclature, however, is the fact that an unmanned system is vital to this process and that without it the operational objective would have to be accomplished with other means. As the US military pursues a third offset strategy that leverages technology to gain battlefield advantages it is important to remember the basic concept of MUM-T: the machine is simply used to connect people to one another. This is a significant point because “Machines don’t fight wars... Humans fight wars.”⁵⁹ If the United States pursues ways to remove human cognition from the Observation and Orientation steps of the OODA Loop at the tactical level⁶⁰, commanders’ decision making cycles will be stalled or flawed thus allowing the enemy to shape the battlefield and achieve victory.

The lessons learned from Mogadishu in the early 1990s reveal that a technologically outmatched adversary will be constantly thinking and evolving with the intent of locating and exploiting US military critical vulnerabilities. This was not an isolated incident relevant to only the technologies of a 1993 battlefield; it is an observable trend throughout history. Whether it was David fighting Goliath in ancient times, Egypt fighting Israel in the 1973, or the SNA fighting the US military in 1993, technologically outmatched forces will find gaps and maneuver around their enemy’s surfaces to turn tactical actions into strategic victories.

By using cheap and commercially available technology in unique and evolving ways, non-state adversaries will be able develop MUM-T capabilities that will increase their ability to communicate, control fires, maneuver against US military forces, and conduct information

operations in such a way to establish an A2AD environment which will have strategic effects against an opposing US military campaign. Too many forecasts of future conflict predict that US military actions will occur in the world's urban, littoral landscape against non-state adversaries, for a third offset strategy to focus solely on how to create overmatch against another industrialized military. If the third offset strategy does not account for the full spectrum of conflict and the threats therein, adversaries using low-end technology will defeat the US military by using tactics and equipment which allow them to maneuver more effectively, despite costing far less; much like David, a shepherd boy with a rock and a sling defeated Goliath, covered in armor, wielding large weapons, and expecting to battle another prized fighter.

AppendicesAppendix A

Boko Haram's Advance Towards the Islamic State of Nigeria



Operational Decision Game in Warri, Nigeria

Developed by:

***Major Lexi Plunkett, USAF
Major Joe Montagna, USMC***

The overall classification of this briefing is **UNCLASSIFIED**



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Guidance and Context

This operational decision game (ODG) is an unclassified fictitious scenario developed as part of the requirements for completion of the Advanced Studies Program at the USMC Command and Staff College.

The purpose of this ODG is to test a future operational concept(s) as part of a notional future threat. Your participation is extremely important to understand how different players approach the challenge and employ technology. The more information that you are able to provide on your thought processes, concept of employment, and warfighting functions, the better we can refine our future concepts.

Thank you for your participation!

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SITUATION 2030 – Violent Destabilization in Warri

The optimism of Nigeria as a democratic anchor state in Africa has been in decline since 2018, when violence from Boko Haram (BH) reached its peak in the northeast of the country. The dramatic spike in violence drastically increased security costs for Nigeria's Army, diverted government resources from other services, and discouraged foreign investment. In conjunction with the violence, after reaching its peak in 2018, Nigeria's GDP has contracted at least 1% annually furthering the grinding poverty throughout the country. Moreover, Nigeria is currently experiencing an extreme food shortage caused by increased desertification and pastoral grazing pushing farther south into the country. Finally, Nigeria's inability to implement family planning has resulted in high birth rates leading to its current youth bulge in which the economic support to dependency ratio is 1:10.

BH's aggression in northeast Nigeria between 2018 and 2030 has led to mass migration to the south of the country, as families fled in search of greater stability and opportunity. Many families were drawn into the city of Warri in the Delta State because of its status as an oil hub. The migration from the north swelled the population of Warri, a largely Christian city, with Sunni Muslims who settled in the southeast of the city. The new Muslim inhabitants have had a difficult time assimilating and fulfilling their dreams for a better life. BH hungry for resources to create their Islamic State of Nigeria see the oil hub of Warri as necessary territory and is able to exploit its new Sunni inhabitants.



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SITUATION 2030 – Violent Destabilization in Warri (Continued)

After BH was able to gain a stronghold in southeast Warri, it was able to establish enough forces and momentum to take over the city's key infrastructure, including the airport, river port, and refinery. Furthermore, BH waged an offensive against the Amphibious Infantry Battalion, killing 120+ infantry and causing the remainder to abandon their equipment, which was then seized by BH and repositioned at various defensive positions throughout the city. BH has limited supplies and food from entering the city, starving the citizens and killing hundreds of Christians in offices, schools, police stations, and churches, raising the death count to over 10,000 in Warri.



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UNSCR 2030 and UNON

The atrocities against Christians in Warri led to UN Security Council Resolution 2030 authorizing a forceful response against BH leadership. The US-led task force responded quickly, with II MEF as the main effort, retaking 80% of the city's major infrastructure and, before redeploying, and turning the mission over to the UN-led stability force called UN Operations in Nigeria (UNON). UNON is a CJTF made up of the Nigerian Army, African nations fighting BH including Cameroon, Niger, and Chad, and 24 MEU (REIN). BH still maintains authoritarian presence in the neighborhood in the southeast (outlined in red on slides 9 - 10) making its population unreachable to the UN force. The 24 MEU (REIN) will support IDAD and stability operations as part of a CJTF to include counterinsurgency, FID, and support JSOTF conducting HVI raids. Nigeria, Cameroon, Niger, and Chad forces will provide security operations to maintain conditions for NGOs to provide humanitarian relief.



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AFRICOM Guidance

- Deny BH the ability to move outside southeastern section of Warri
- Capture key BH leadership from Warri and transport to airport (northeast Warri) for immediate airlift to detainment
- Set conditions to enable follow-on humanitarian aid
- Minimize civilian casualties and damage to infrastructure

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BH Fighters and Equipment

- No less than 1,500 BH fighters living amongst civilian population.
 - Large death counts of initial BH fighters resulted from fighting Nigerian Army. Most that are in Warri now moved to Warri from NE Nigeria in groups of 20-40 after BH began assault on Warri and when fighting II MEF.
 - Leader is A'been Pupeen who is in his late 40s, has been fighting for BH in NE Nigeria for two decades. He only communicates face-to-face, and lets his network of Lts use cell phones/radios/twitter, etc.
 - Lts are well trained in warfighting functions and messaging operations. Many have trained abroad with elements of ISIS and Al-Shabab. Majority of fighters are not trained or literate, but are motivated by drug addictions and ideology.
- Can quickly mobilize no less than 5,000 civilians in the southeast to support efforts if UNON threatens BH.
 - High unemployment rate leaves all ages/sexes without anything to do during the day.
 - Mosques can be used to shelter fighters, and conduct messaging.
 - Women and children will be used to conduct reconnaissance, conduct mass protests around UN forces, and act as human shields for armed fighters.
 - Average civilian has one cell-phone with data per household and has internet access via internet cafes (most operate 24/7) at least once per week.
- BH will capitalize use of Warri's 4G/LTE cellular and internet infrastructure.
- Equipment:
 - 55 "Technicals"
 - ~5-10 Anti-aircraft guns (ZU-23-2, Strela 2)
 - ≥1,500 Small arms (AK-47, Heckler & Koch G3, BM-59)
 - ~500 Mortars
 - ≥1,000 RPG-7
 - Suspected to have small cache (~1-5) SA-7s or 14s.
 - ~50 IEDs – more built as required (location of factory in SE of Warri unknown)
 - Includes IED, Vehicle-Borne IED, House-Borne IED, Air-Borne IED
 - ≥100 smart phones
 - Computers



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CTF Composition (Friendly Forces)

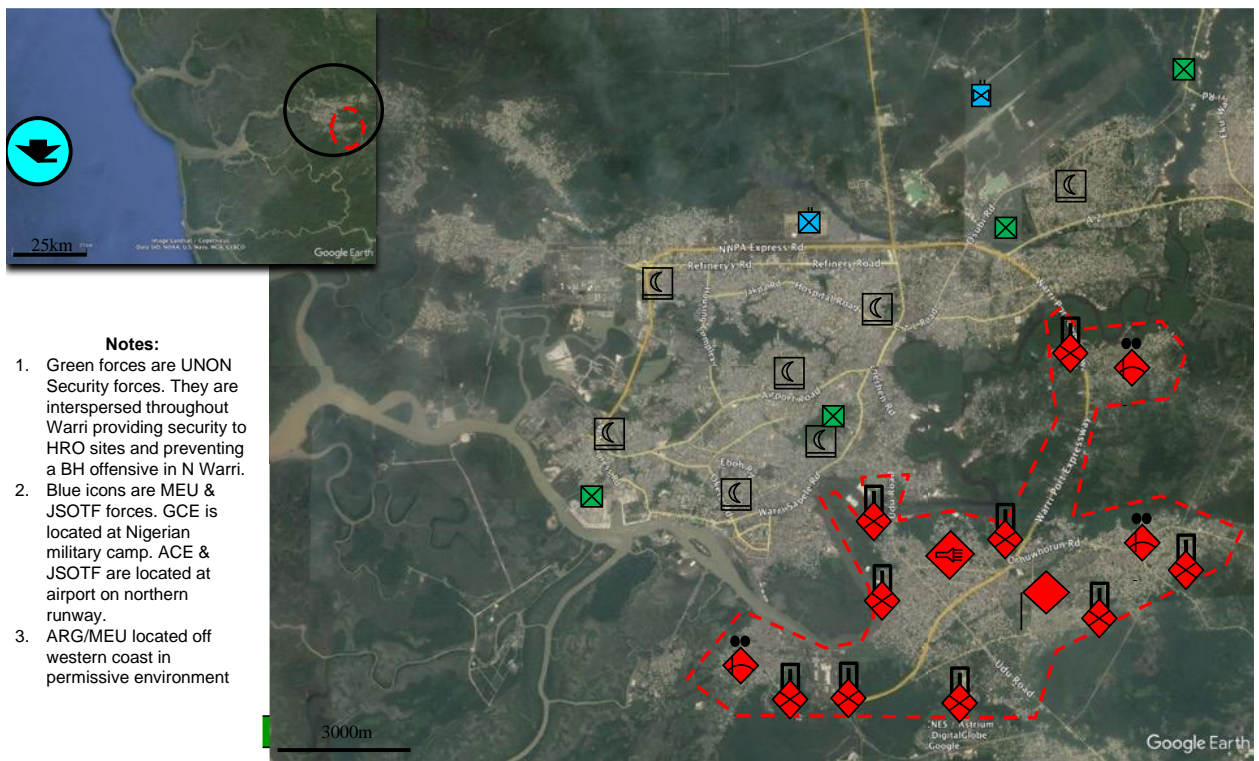
- Air Force
 - 24/7 RQ-4 Global Hawk coverage
 - 2 CAPS MQ-9 Reaper coverage
 - 1 EC-130 Compass Call
 - 2 x AWACs
 - 2 x JSTARs
 - 4 x C-130 (lift)
 - 4 x KC-46
 - 1 F-35 squadron
 - Maintenance available in theatre
- Marine Corps
 - 1 x ARG/MEU
 - 1x HQ Element
 - 1x Infantry Battalion (REIN)
 - 1x Combat Logistics Battalion
 - 1x VMM (REIN)
- Coalition Forces
 - 1 x Battalion (Nigeria)*
 - 1 x INF Company, each (Cameroon, Niger, Chad)
- Special Forces
 - MARSOC: 1 x Marine Raider Co
 - AFSOC: 1 x DET (6) T-6 Super Tacano
 - ARSOC: 1 x DET (6) 1/60 SOAR CH-47
- Other
 - Role 3 Medical Facilities aboard amphibious shipping

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Warri Laydown At A Glance



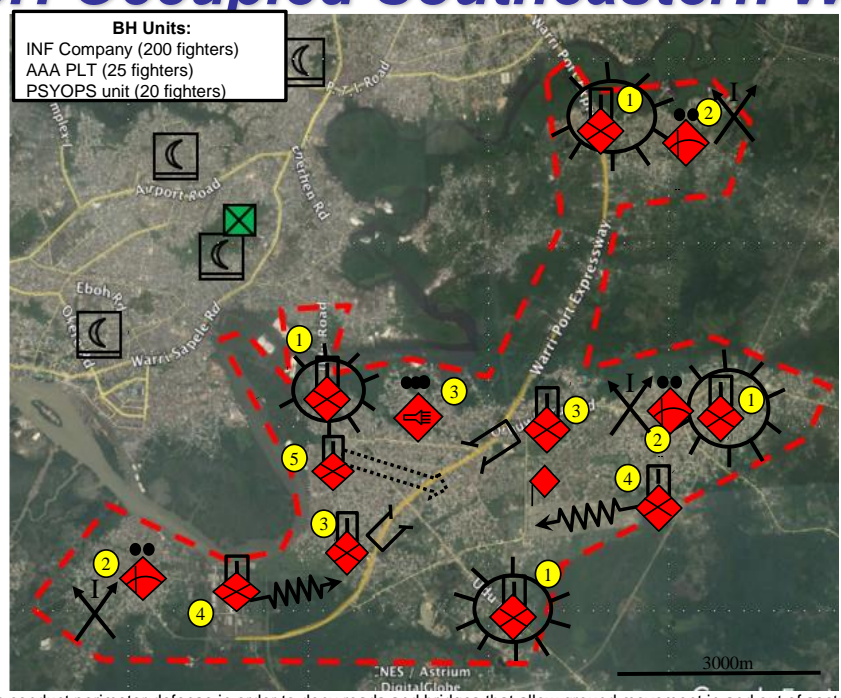
Notes:

1. Green forces are UNON Security forces. They are interspersed throughout Warri providing security to HRO sites and preventing a BH offensive in N Warri.
2. Blue icons are MEU & JSOTF forces. GCE is located at Nigerian military camp. ACE & JSOTF are located at airport on northern runway.
3. ARG/MEU located off western coast in permissive environment

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BH Occupied Southeastern Warri



1. 4x INF Company teams conduct perimeter defense in order to deny roads and bridges that allow ground movement in and out of sector. They will most likely allow superior sized force to pass by unmolested IOT conduct mobile defense in canalized terrain.
2. AAA PLT interdict approaching enemy aircraft into southeast
3. INF Company canalize forces into central portion of southeast Warri; PSYOP Platoon will exploit US forces using images and video of urban combat
4. 2x INF Company teams fix attacking forces to channel enemy forces in the center of the sector to ambush US forces
5. INF Company conducts a counterattack to kill as many US forces and possible



Additional Information on BH MLCOA

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1. BH has SE Warri divided into no less than 7 sectors. Each sector is probably divided further. Sectors likely have 24/7 sentinels that report to a “duty officer” who reports to the sector’s Lieutenant. Communications are conducted in a variety of ways from shouting, sending runners, walkie-talkies, and occasionally social media messages.
2. Lieutenants are all connected via cell phones.
3. BH conducts perimeter surveillance but keeps majority of permanent fighters clustered inside population centers.
4. BH allows US forces (air and/or ground) to penetrate well inside city and become canalized. Intent is to trap US forces inside a sector by using impromptu roadblocks (trash, tires, fires, etc.), moving groups of fighters to bridges and roads once US forces have crossed, and quickly mobilizing masses of civilians to protest in streets and collapse on US ground forces. Expect other civilians to be attracted by gunfire to see what is going on.
5. BH is using HUMINT to serve as ISR around Warri, especially at the airport and northern military camp. Expect BH to recruit near real-time mass mobs using text alerts, megaphones, and mosques to increase chaos and population/weapons density in southeast.

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Additional Information on UNON MLCOA

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1. CJTF will have 24/7 video surveillance over SE Warri and will be able to monitor and/or jam radio frequencies at will.
2. CJTF forces will have the capability to destroy communications infrastructure but will likely refrain from doing so.
3. JSOTF will likely conduct all HVI missions at night. MEU will likely conduct 24/7 counterinsurgency and FID missions.
4. CJTF will likely maintain a forward presence around the perimeter of SE Warri using combined arms and various air and ground mobility assets. HQ and various reserve elements will likely be kept in garrison on north side of Warri. CJTF will maintain logistics link via USAF and ARG.
5. CJTF will attempt to minimize repetitive tactical missions.
6. CJTF will minimize civilian deaths. CJTF will allow civilians to migrate out of and into SE Warri in order to ensure civilians have equal access to aid and markets.

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GAME 1

- Future BH concepts against US current capabilities.
- This game is meant to be played as if you are “turning the map around.” Be creative and think of ways that the enemy could use technologies like this. It doesn’t have to be what they’ve currently demonstrated but where you think a thinking and adapting enemy may take technologies and capabilities like the concepts shown here.

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Future Non-State Concept 1

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- **Linked communication infrastructure using smartphones.**
 - Low-cost antenna and app creates a smartphone-to-smartphone network.
 - Does not require towers, routers, or satellites.
 - Networks groups of ≥10 users in a range of several miles.
 - Network can be established in < 1 min
- **Under what conditions would you employ this capability?**
- **How would you employ it?**
 - Would you integrate it into fighting against US forces?
 - MUM-T: How would an otherwise technologically outmatched force use this technology?

goTenna Uses Smart Protocols + Radio Waves To Send Messages Off-Grid



Pair goTenna to your smartphone via Bluetooth and use the goTenna app to communicate with other goTennas up to several miles or kilometers away.

In less than a minute, you can create a smart, people-powered network, anywhere. No towers, routers or satellites required.

[LEARN MORE](#)



Turn your smartphone into an off-grid communication tool

- No Service?**
Send messages even when there's no cell service or wifi.
- Share & Save Locations**
Share and request location information on detailed maps.
- TEXT**
Create Networks
1-to-1 & group messaging, or broadcast to anyone.
- Safe & Secure**
Send encrypted messages that aren't stored anywhere.

Are you a developer? Get started with our SDK >

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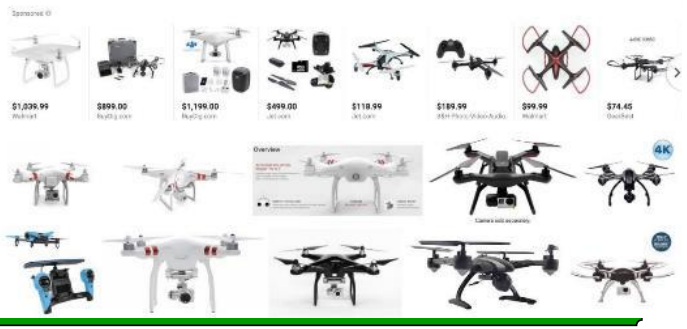
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Future Non-State Concept 2

- Using low-cost commercial drones for ISR, Air-Borne IED (ABIED), and communication relays
- How would you integrate multi-class drones into any of the following warfighting functions?
 - Intelligence
 - Fires
 - Maneuver
 - C2
 - Protection

How ISIS is turning commercial drones into weapons

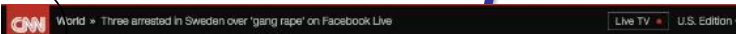
By Mitch Utterback January 25, 2017 | 12:34pm





Future Non-State Concept 3

- **Social media BOTs to spread mass volumes of propaganda**
 - Propaganda widely distributed on networks likely to be accessed by US and Coalition populations
 - Propagates to popular platforms like Facebook, Twitter, and Instagram.
 - Includes images, video, text, and fake news.
 - America's intervention largely requires public support.
- **How would you employ it?**
 - **Under what conditions would you choose to employ a media campaign as BH fights US in Warri?**



Three arrested in Sweden over 'gang rape' on Facebook Live

Elizabeth Roberts, CNN
Updated 2:11 PM ET, Tue January 24, 2017



A man with a dismembered person on the street.



Top and bottom are US Rangers being mutilated in Mogadishu in 1993



US Marine being aggressive with someone in the streets



The stage for this was Mogadishu in '93. Images captured by General Aided were aired on CNN the next night, and then days later US camera crews captured AH-1s conducting gun runs on a house. US public was largely unaware that US military was even in Somalia, let alone fighting. Public opinion and polling mounted against the campaign so quickly that POTUS ordered an immediate end to offensive operations and a total withdrawal from the theater five months later. This was a strategic win for the warlord because he regained total control of the city.



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Fill in the problem framing, COA Graphic/narrative, and theory of victory slides

References on key terms are provided

SOLUTION SET

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Problem Framing

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Problem <u>Statement</u> (incl. list of key facts and assumptions):
Tensions Between Current Conditions and Desired Conditions:
Elements that Must Change to Achieve the Desired Conditions:
Opportunities and Threats to Achieving the Desired Conditions:
Limitations:

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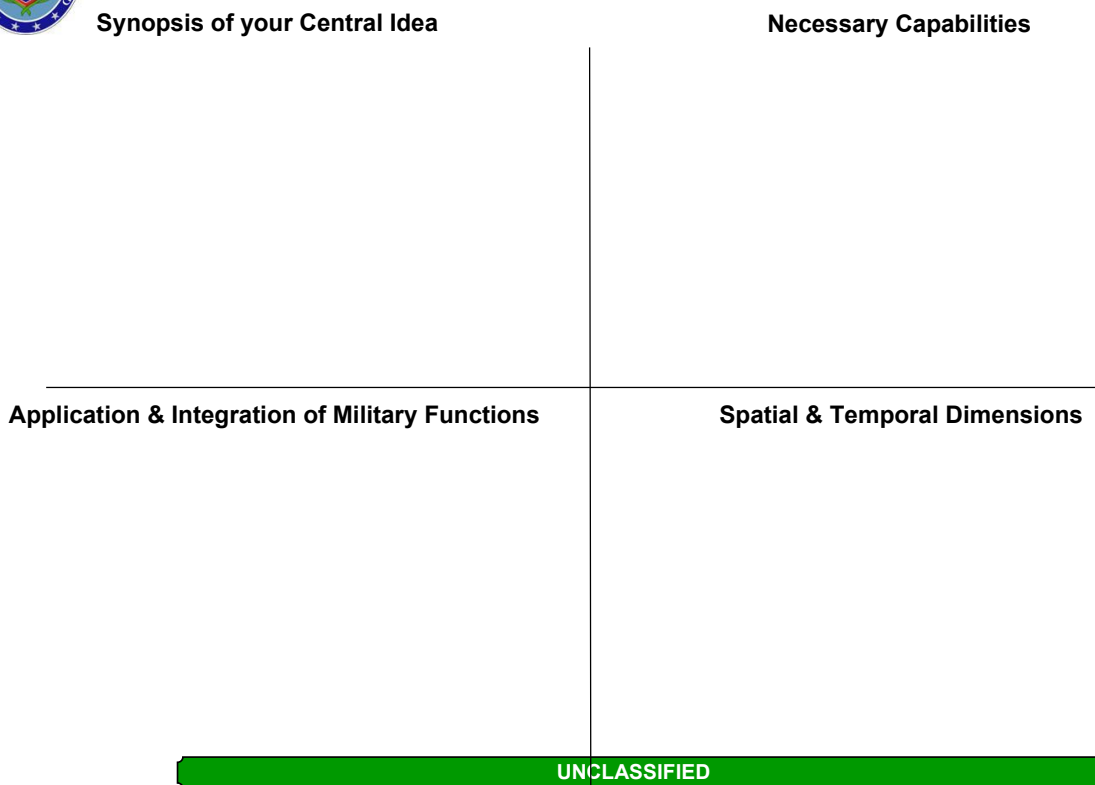
COA *Graphic and Narrative*

COA GRAPHIC <u>OR</u> TYPED DESCRIPTION	MISSION:
	INTENT: (purpose, method, desired condition)
	CONCEPT: (incl. key tasks by phase)
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Theory of Victory

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Anything Else?

- Please include any questions, comments, or additional details about employment of future concepts here:

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REFERENCES

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Military Problem (Defined)

Description of the military problem. “In most basic terms, a future operating concept supposes a military problem and then proposes solutions to it. A future operating concept must therefore include a description of the military problem the concept is meant to solve. This provides the context within which the concept applies. Equally important, it establishes the conditions under which the concept does not apply. The problem description should include the broader context within which the problem exists. In the case of a strategic concept this would be the wider political situation. In the case of an operational concept, it would be the envisioned political-strategic situation. In the case of a tactical concept, it would be the operational situation. The problem description must include a statement of the type of mission to be accomplished. The mission type may be as broad as defeating enemy military forces in conventional combat, or it may be more narrowly defined. To the extent that geography or physical environment are factors in the concept, it should describe them. A central element of the problem description should be a description of the security environment envisioned to apply in the timeframe of the concept. This environment includes a description of the character and form of the envisioned threat, including organization, tactics, and weaponry and other key types of equipment and technology. It also includes any governmental, economic, societal or other factors that may impact on the conduct of military action. A concept may explicitly take its context from a higher-order operating concept, in which case it need not restate that context in full, but need only amplify where necessary.”
Schmidt, DART paper

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Central Idea Defined

Central Idea: The centerpiece of any future operating concept is a high-level description that encapsulates the “how” of the concept in a paragraph or two. Think of this as a concept of the concept. It captures the “big idea” of the concept, ideally in terms that differentiate the concept clearly from others. This synopsis should aim to capture the essence of the concept in the most fundamental and widest terms possible that retain practical meaning. Included in this synopsis should be a description of the “success mechanism,” a statement of how it envisioned this concept will accomplish the stated mission. This success mechanism should be stated in terms sufficiently broad that it can be widely applied. Basing a future operating concept on the eventuality of a single, narrowly conceived success mechanism neglects the friction that is a primary and timeless attribute of war.

- **Examples**

- The following is a synopsis of the U.S. Army’s tactical and operational operating concept of 1982, taken from Field Manual (FM) 100-5, Operations: The Army’s basic operational concept is called AirLand Battle doctrine. This doctrine is based upon securing or retaining the initiative and exercising it aggressively to defeat the enemy. Destruction of the opposing force is achieved by throwing the enemy off balance with powerful initial blows from unexpected directions and then following up rapidly to prevent his recovery. The best results are obtained with initial blows struck against critical units and areas whose loss will degrade the coherence of enemy operations, rather than merely against the enemy’s leading formations
- The following excerpt from Marine Corps Doctrinal Publication (MCDP) 1, Warfighting, is a synopsis of the operating concept that is the basis of the Marine Corps’ maneuver warfare doctrine: Maneuver warfare is a warfighting philosophy that seeks to shatter the enemy’s cohesion through a variety of rapid, focused, and unexpected actions which create a turbulent and rapidly deteriorating situation with which the enemy cannot cope. Rather than wearing down an enemy’s defenses, maneuver warfare attempts to bypass these defenses in order to penetrate the enemy system and tear it apart. The aim is to render the enemy incapable of resisting effectively by shattering his moral, mental and physical cohesion—his ability to fight as an effective, coordinated whole—rather than to destroy him physically through the incremental attrition of each of his components, which generally is more costly and time-consuming. Ideally, the components of his physical strength that remain are irrelevant because we have disrupted his ability to use them effectively. Even if an outmaneuvered enemy continues to fight as individuals or small units, we can destroy the remnants with relative ease because we have eliminated his ability to fight effectively as a force

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Application and Integration of Military Functions (Defined)

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“An operating concept should include a description of how the various military functions, are applied and, importantly, how those capabilities are integrated per the concept into a cohesive operating system. Again, these functions traditionally consist of command and control, fires, maneuver, sustainment and security, although an operating concept may include others. It may be possible to conceive of a radical new construct for describing the conduct of military operations that does not include the traditional military functions. (This would probably constitute a truly revolutionary concept.) If so, the burden is on the concept to make the case that this is a valid construct. In any event, this description should elucidate each of the pertinent functions. This is not a generic description of those functions, but a description of how they apply specifically within the context of the operating concept. These provide the basis for the subsequent development of supporting functional concepts. A concept may rely on a particular approach to logistical support or a particular use of fires, which would be summarized in the operating concept and then fleshed out supporting functional concepts. As an example, the operating concept of maneuver warfare described in paragraph 10.4.4 above is supported by a concept of decentralized command and control based on mission-tactics, as seen in the following excerpt from MCDP 1, Warfighting: It is essential that our philosophy of command support the way we fight. First and foremost, in order to generate the tempo of operations we desire and to best cope with the uncertainty, disorder, and fluidity of combat, command and control must be decentralized. That is, subordinate commanders must make decisions on their own initiative, based on their understanding of their senior’s intent, rather than passing information up the chain of command and waiting for the decision to be passed down.” Schmidt, DART paper

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Capabilities & Spatial/Temporal Dimension

Necessary capabilities. The concept should describe the capabilities that it is envisioned will be required to implement the concept successfully. This description refers to the general capabilities of the force rather than to any particular doctrinal, materiel, organizational or other capabilities as might be specified in requirements documents. The description should be made in qualitative vice quantitative terms. The concept generally should not dictate how the capability is to be created and should not specify any particular branch, service, system or organization. Examples of such capabilities descriptions might include “the ability to engage two enemy echelons simultaneously,” “the ability to neutralize enemy air defenses,” “the ability to conduct forcible entry,” or “the ability to operate almost exclusively from sea bases.”

- **Spatial and temporal dimensions.** Military actions occur in time and space, and an operating concept should discuss these dimensions. It is difficult to describe distances, ranges, tempo and duration with precision because these factors are situationally dependent, but a future operating concept should provide at least a general appreciation for the scale of these dimensions as they apply within the concept, even if that appreciation is only relative or qualitative. For examples, a concept might describe actions taking place at “tactical standoff distances” or as “maintaining a higher operating tempo than the enemy.” Where appropriate, an operating concept should describe any envisioned sequence of actions, not necessarily as the designated phases of an operation, but as a description of the expected general flow of events over time. For example, the concept should describe any required build-up phase or envisioned preliminary actions. Schmidt, DART paper

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Endnotes

¹ US Joint Chiefs of Staff, *Joint Operating Environment 2035: The Joint Force in a Contested and Disordered World* (Washington, DC, July 14, 2016), iii.

² John Boyd, *The Essence of Winning and Losing*, (June 28, 1995), PowerPoint presentation, <http://dnipogo.org>.

³ *Ibid.*

⁴ Robert Work, “The Third U.S. Offset Strategy and its Implications for Partners and Allies,” (speech, Washington, DC, January 28, 2015), US Department of Defense <http://www.defense.gov/DesktopModules/ArticleCS/Print.aspx?PortalId=1&ModuleId=2575&Article=606641>.

⁵ Megan Eckstein, “Manazir: Networked Systems are the Future of 5th Generation Warfare, Training,” UNSI.org, May 16, 2016, <https://news.usni.org/2016/05/18/manazir-networked-systems-are-future-of-5th-generation-warfare-training>.

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