

Overcoming Intermediary Bias Through the Use of Social Media Intelligence

A Monograph

by

MAJ Damian Ryan Taafe-McMenamy
United States Army



School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas

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Name of Candidate: MAJ Damian Taafe-McMenamy

Monograph Title: Overcoming Intermediary Bias Through the Use of Social Media Intelligence

Approved by:

_____, Monograph Director

Daniel Cox, PhD

_____, Seminar Leader

David Wood, COL

_____, Director, School of Advanced Military Studies

Henry A. Arnold III, COL

Accepted this 23rd day of May 2015 by:

_____, Director, Graduate Degree Programs

Robert F. Baumann, PhD

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Abstract

Overcoming Intermediaries Using Social Media Intelligence by MAJ Damian Ryan Taafe-McMenamy, 42 pages.

Intermediaries have long played a significant role for military forces in understanding the population within the operational environment. They have served as a hub where information from the population is collected and processed into intelligence that military forces can use. Inherent to this relationship is that by collecting and processing information for military forces, these intermediaries have allowed personal biases to shape the narrative about the peoples' wants, needs, and desires in the operational environment. The importance of understanding the population and the growth of social media can change that relationship through leveraging social media intelligence. Utilizing Social Media Intelligence (SOCMINT), military forces can now collect and process information about a population while minimized the ability of intermediaries to affect the narrative.

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Acronyms

ACE	Analysis Collection Element
ASCOPE	Areas, Structures, Capabilities, People and Events.
BCT	Brigade Combat Team
CIM	Civil Information Management Process.
COIN	Counter Insurgency Warfare
HUMINT	Human Intelligence
IPB	Intelligence Preparation of the Battlefield
PMESII-PT	Politics, Military, Economy, Social, Information, Infrastructure, Physical Environment and Time.
OSINT	Open Source Intelligence
SOCMINT	Social Media Intelligence

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Introduction

Social media has exploded in the last decade, providing an immense amount of information about people and places across the globe through status messages and user profiles. Social Media Intelligence (SOCMINT) is a sub-set of open source intelligence (OSINT). OSINT has existed for an extended period of time, but it is a relatively new source of intelligence for the Army.¹ There are approximately 3.1 billion people accessing the Internet today.² These people interact in a multitude of ways, but only over the last decade have social media sites online served to consolidate the thoughts of many in one place. These networks provide a source that aggregates personal information with network connections over time. Consolidation of personal information, network connections, and multiple reports (status messages) over time present a unique opportunity for military forces to change how they currently collect and process information about the population within the operational environment.

This monograph started with the idea that social media could provide insight into the population's wants, needs, and desires. While this may be true, the investigation of the topic identified a larger barrier to understanding for military forces, the role of intermediaries. History, theory, and doctrine identify a need to understand the people in the environment, but the problems of collection and processing have made them a necessary evil. As a result, this paper evolved to address the problems of using intermediaries to understand the population and how SOCMINT can provide a means for eliminating the bias of intermediaries in the operational environment while addressing the historical issues of collection and processing.

The question that this monograph attempts to answer is whether military forces can use the wealth of information on social media platforms to better understand the people within the operational environment. Through research and analysis, the author determined that there are two

¹ Walter R, Draeger, "Take Advantage of OSINT," *Military Intelligence Professional Bulletin* Volume 35, Issue 3 (Jul, 2009): 39.

² Ibid.

problems to understanding the population. The first is the problem of collecting information, and the second is processing that information into meaningful intelligence. To solve these problems, military forces have used intermediaries to collect information from the population, and process that information into something that military forces can use to make decisions. Unfortunately, the use of intermediaries presents a third problem, bias.

The purpose of this monograph is to examine the current problems of intermediary bias, collection, processing, and how SOCMINT can improve understanding of the human climate within the operational environment. This monograph proposes that international relations theory describes the presence of bias in intermediaries and that SOCMINT can eliminate that bias by minimizing the roles of intermediaries while addressing the problems of collection and processing to provide military forces a better understanding of the population.

Key Terms

There are few key terms that deserve defining before moving into the rest of the paper. They are: intermediary, SOCMINT, population in the operational environment, and international relations theory. These terms are used throughout the paper and the following definitions will assist in understanding the problem and potential solution of using SOCMINT to overcome intermediary bias.

Intermediary

Intermediaries are those people that military forces interact with in order to gain understanding about things that they cannot access directly. In the case of this paper, they are the people that represent the wants, needs, and desires of a sub-set of people in the operational environment. Instead of providing raw data from individuals, intermediaries provide a summary of many people's opinions in a format that military forces can use to make decisions. Host-nation government officials, business leaders, religious authorities, and Human Intelligence (HUMINT)

sources, are all examples of intermediaries that summarize raw data about the population and present information to military forces.

SOCMINT

Social Media Intelligence (SOCMINT) is intelligence derived from the collection and analysis of information from social media platforms. It is a subset of Open source Intelligence (OSINT) in that the information is public and unclassified. In this paper, SOCMINT is used to describe the raw data present on social media platforms, the methods for analyzing that information, and the resulting intelligence derived from analysis.

Population in the Operational Environment

Army Doctrinal Publication (ADP) 3-0 describes the operational environment as “a composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander.”³ In this paper, the population in the operational environment describes the people (not the threat) that exist in the composite environment described by ADP 3-0.

International Relations Theory

International relations theories attempt to describe a complex system as it is and how it should be in the future. Though most of these theories are developed based on how nations should and do interact on a global stage, when abstracted, they describe how and why people interact the way they do within a given system. This monograph utilizes international relations theory to describe the interaction between military forces, intermediaries and the population within an operational environment. In particular, it describes the interactions of military forces with

³ Army Doctrinal Publication (ADP) 3-0, *Unified Land Operations* (Washington, DC: Government Printing Office, 2012), 22.

intermediaries, and how those intermediaries allow bias to shape the information they provide to military forces in the operational environment.

Human Climate

In this monograph, the human climate describes a current assessment of the wants, needs, and desires of a population in the operational environment.

Structure Of The Paper

The paper has three chapters. Chapter 1 conducts a literature review, examining why the population is important, the distinction between culture and climate, and the current methods of understanding the climate of the population in the operational environment. Chapter 2 analyzes the presence of bias in intermediaries using international relations theory. Chapter 3 proposes how SOCMINT can overcome the bias present in intermediaries by minimizing their role and providing a framework for collecting and analyzing information about the population through the use of social media.

Chapter 1: Literature Review

This literature review will look at three things. First, it will examine the impact of the population on military operations through history, theory, and doctrine. Next, it will review the value of understanding the climate in the operational environment. Last, it will describe the current methods of collecting information about the human climate and why they are inadequate.

Why the Population is Important In Warfare

Introduction to the Impact of the Population on Military Operations.

Historically, warfare has been either enemy or terrain focused. Through the experiences gained in the recent conflicts of Iraq and Afghanistan, the concept of population focused, or population-centric warfare, has gained support as an additional focus in war. History, theory, and doctrine support this interest and have identified a need for military forces to understand the population in conflict as an important part of planning and executing operations. Historically, the population has always played a role in conflict in both conventional and unconventional warfare. Theoretically, the population is important in warfare because of its impact on military operations, and global trends indicate that this impact will only increase in future conflicts. Doctrinally, US Army publications have incorporated this importance into their current advisement of operations. Population-centric warfare has gained in popularity over the last ten years because of the wars in Afghanistan and Iraq, but the population has always been a key component in warfare as part of understanding the operational environment.

Historical Impact of the Population

The population has long been important in counterinsurgency warfare (COIN). COIN wars fall under the second grammar of American operational art.⁴ Unlike conventional warfare, American military forces have come to accept and understand that in counterinsurgency, military operations center on the population as opposed to seizing and retaining territory. During the 1957 Battle of Algiers, Robert Trinquier stated that control of the population is the goal of modern warfare.⁵ Throughout that conflict, a small insurgent population successfully executed attacks against a numerically and technologically superior force by blending into the urban population. Both French and Algerian forces sought to influence the population to support their military

⁴ Antulio J. Echevarria II, "American Operational Art, 1917-2008," in *The Evolution of Operational Art: From Napoleon to the Present*, eds. John Andreas Olsen and Martin van Creveld (New York: Oxford University Press, 2011), 137.

⁵ Robert Trinquier, *Modern Warfare: A French View of Counterinsurgency* (London, England: Pall Mall Press, 1964), 16.

objectives. Because of the French experience in Indochina, David Galula believed that active participation by the population was necessary for the success of an insurgency.⁶ In Indonesia, the enemy was more rural than it was in Algeria, but the enemy still relied on the population for supplies and intelligence support. Whether the opposing forces are urban or rural based, the population remains an important factor for opposing forces in the conflict. As a result, the population also becomes the focus of the counter-insurgent as they attempt to isolate the population from the insurgent. Though the population may be the focus in COIN warfare, it also has a significant historic role in conventional warfare.

Historically, militaries have had to deal with problems caused by a population because of successful execution of conventional warfare. After successfully defeating the Mexican Army and seizing Mexico city in 1847, General Winfield Scott had to deal with a dissatisfied population already on the edge of civil war that “fueled an explosion of violence directed against the Americans” and had to reestablish civil control.⁷ General Scott preferred to not seize Mexico City, in that conflict, but the collapse of the government necessitated dealing with the population. Forty years earlier, following a successful campaign to seize Spain, Napoleon struggled against an insurgency. The Peninsular War in 1808 spawned from the Spanish population’s anger with the ruling Francophiles and changes in local property rights.⁸ A failure to address these concerns would result in Napoleon having to leave a significant portion of his army engaged in Spain and unavailable for the conventional campaigns in the Eastern portion of the French Empire. Similarly, in Iraq, after successfully defeating the Iraqi Army in 2003 and toppling the Saddam regime, Coalition forces faced an insurgency fueled by a population dissatisfied with a lack of

⁶ Galula, David, *Counterinsurgency Warfare: Theory and Practice* (St. Petersburg, Florida: Hailer Publishing, 2005), 15.

⁷ Daniel T. Canfield, “Winfield Scott’s 1847 Mexico City Campaign as a Model for Future War,” *Joint Forces Quarterly* 55 (Fourth Quarter 2009), 98.

⁸ Douglas Porch, *Counterinsurgency: Exposing the Myths of the New Way of War* (Cambridge, New York: Cambridge University Press, 2013), 11.

security, basic public services, and 400,000 unemployed former Iraqi service members.⁹ Each of these examples could be described as unconventional warfare, but they demonstrate that because of success in conventional warfare, and a failure to address the concerns of a population, a military can become involved in unconventional warfare.

Theoretical Impact of the Population

In addition to the historical impact, theorists too have identified the importance of the population in war and how it can have an impact on the overall success of military operations. Clausewitz' famous trinity of war speaks of war being made up of chance, reason, and passion, and that people represent the national passion for war.¹⁰ As nations go to war, the passion of the people is ignited in order to mobilize the men and resources necessary for large scale Napoleonic warfare. The impact of igniting that passion is that the will of the people and their opinion on warfare indicates that the will of the people is an essential part to understanding and defeating an opponent in warfare.

During the debate over the role of Air Power in industrial warfare, Giulio Douhet, argued that since industrial warfare required mobilization of an entire nation, that there was no longer any distinction between combatants and non-combatants.¹¹ For a nation to win in industrial-style war, the will of the people to support war should be shaped through strategic bombing attacks on population centers and the industrial production base. Through this, Douhet identified that

⁹ Michael Eisenstadt and Jeffery White, *Assessing Iraq's Sunni Arab Insurgency: Policy #50* (Washington, DC: Washington Institute for Near East Policy, 2005), 2.

¹⁰ Carl von Clausewitz, *On War*, trans. and ed. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1984), 89.

¹¹ David MacIsaac, "Voices from the Central Blue: The Air Power Theorists," in *Makers of Modern Strategy from Machiavelli to the Nuclear Age* (Princeton: Princeton University Press, 1986), 630.

affecting the will of the people is essential to engaging in successful war. Something that Emile Simpson built upon in his book *War From the Ground Up*.

In the Iraq and Afghanistan wars, Simpson identified that in insurgent warfare, war is a struggle for the support of the people against insurgents.¹² Emile Simpson stated, “The population in conflict is essentially a composition of many small groups with individual interests, problems, and conflicts. Understanding who the groups are, their place within the Operational environment and understanding how tactical decisions may have an impact on each group as well as the relationships between groups is essential when applying armed politics.”¹³ What is of importance in this quote is the need to understand the population in conflict. If a military force can understand the population, they have the capability to address needs and deny the population to an adversary. This becomes a political game in which competing narratives try to shift the opinions of different groups to support one side over the other.

Each of these theorists describes how the population’s wants, needs, and desire affect conflict. To mobilize a nation, a government must inflame and maintain a passion for the war by its people. During the war, opposing forces are not only trying to defeat a military opponent, but they are trying to suppress domestic support for the war or attempting to ignite a counter-narrative against the war within the opposing nation. Post conflict, during reconstruction, military forces must pursue the support of the population and smother the “smoldering embers” of national passion to resist occupying forces.¹⁴ Throughout the entirety of war, the population’s passion for the conflict needs to remain a chief concern to military forces.

Doctrinal Impact of the Population

¹² Emile Simpson, *War from the Ground Up: Twenty-first-century Combat as Politics* (New York: Cambridge University Press, 2012), 7.

¹³ Ibid., 115.

¹⁴ Clausewitz., 479.

With a basis in history and theory, US military doctrine also acknowledges the importance of the population in both conventional and unconventional warfare. ADRP 3-0 defines decisive action as one of the four foundations of Unified Land Operations. Decisive action is “the continuous, simultaneous combinations of offensive, defensive, and stability or defense support of civil authorities tasks.”¹⁵ Stability, as a continuous mission across the spectrum of warfare, includes security of the populace, establishing essential services, infrastructure reconstruction, and humanitarian relief.¹⁶ Each of these sub-tasks necessitates an interaction with the population. Through these tasks, military forces are attempting to shape the narrative of the population to support the military goals within the operational environment.

Conclusion of the Impact of the Population on Military Operations

History, theory, and doctrine all advocate for the incorporating of population considerations into planning in the operational environment. From Iraq to Spain, Mexico to Algeria and Indo-China, military forces found that the population could impact operations in both conventional and unconventional warfare. Theorists have also emphasized the population’s role in conflicts and why military forces must address their concerns. As a significant part of the battlefield in addition to terrain and the enemy, the problem becomes how do military forces influence the population. To develop an operational approach, the first step is gaining an understanding of the current situation with respect to the population. The next section will review the two aspects to understanding a population: culture and climate.

Culture and Climate

¹⁵ Army Doctrinal Reference Publication (ADRP) 3-0, *Unified Land Operations* (Washington, DC: Government Printing Office, 2012), 22.

¹⁶ Ibid., 2-6.

Culture and climate are two very different and important lenses through which to understand a population in the operational environment. Both terms have roots in organizational theory, which is the academic field that studies the phenomena of organizations at the micro and macro level.¹⁷ Populations within an operational environment are macro organizations consisting of many sub-groups with independent agendas. Culture and climate both describe this large organization, but the study of culture is very different from climate.

Culture has long been a focus for military organizations, especially as part of deployments. The Combat Studies Institute states, “Cultural understanding is necessary both to defeat adversaries and to work successfully with allies.”¹⁸ To gain this understanding, service members go through cultural training and basic language skills as part of preparing for a deployment. While the military has identified the importance of culture, another important aspect to understand the population is through assessing the climate.

The study of culture utilizes qualitative research methods to describe the unique aspects of the social setting.¹⁹ It refers to the “deep structure of organizations, which is rooted in the values, beliefs, and assumptions held by organizational members.”²⁰ In contrast, the study of climate uses qualitative methods to measure aspects of an organization and this view is relatively temporary.²¹ In other terms, while culture *describes* an organization, providing a meaningful context through which to understand why an organization does what it does, climate is a historical

¹⁷ Christen Knudsen and Hardimos Tsoukas, *The Oxford Handbook of Organizational Theory: Meta-Theoretical Perspectives* (New York: Oxford University Press, 2003), 2.

¹⁸ William D. Wunderle, *Through the Lens of Cultural Awareness: A Primer for US Armed Forces Deploying to Arab and Middle Eastern Countries* (Fort Leavenworth: Combat Studies Institute Press, 2006), v.

¹⁹ Daniel R. Denison, “What is the difference between Organizational Culture and Organizational Climate? A Native’s Point of View on a Decade of Paradigm Wars,” *The Academy of Management Review*, Volume 21, Issue 3 (July, 1996), 621.

²⁰ *Ibid.*, 624.

²¹ *Ibid.*

snapshot that *measures* specific aspects of an organization to assess what is happening within an organization. Culture, provides the context, but climate measures the current situation.

The challenge of understanding climate is that, as a measurement, it only represents a snapshot in time, the time when the information was collected. Over time, that information becomes less valuable because how people felt yesterday, or last week does not provide an accurate understanding of how they feel today. Perishability of current information requires the person studying the climate to continually re-measure the climate. Re-measuring provides both an updated understanding of the climate as it currently is in time, and provides data that researchers can use for context in the future as a historical record of the climate.

Applying cultural understanding to military activities, cultural training provides an understanding by describing the values, beliefs, experiences, and norms within a population. Culture provides the context for understanding the population in an operational environment. Developing assessment methods to measure the climate helps military forces understand why a population is acting the way they are during a specific period. Culture and climate represent the two halves necessary for gaining a complete understanding of a population within the operational environment. The next section will discuss why current doctrine is insufficient to gain an understanding of the climate.

Current Methods of Understanding the Population in Military Operations.

Despite the importance of the population in conventional and unconventional warfare, there is very little doctrinal support across the US Military for understanding the climate in the operational environment. Doctrinally, the US Military has two processes to collect and analyze information about the population. The first process is Intelligence Preparation of the Battlefield (IPB) and the second is the Civil Affairs Civil Information Management Process. IPB is “a systematic process of analyzing and visualizing the portions of the mission variables of threat/adversary, terrain, weather, and civil considerations in a specific area of interest and for a

specific mission.”²² This intelligence process focuses heavily on developing a cultural understanding through the operational variables of Politics, Military, Economics, Society, Information, Infrastructure, Physical Environment, and Time (PMESII-PT), and the six Civil Considerations of Areas, Structures, Capabilities, Organizations, People and Events (ASCOPE).²³ In contrast, there is little in this process for assessing the climate. Military forces would have to task measurement of the climate through the collection plan to some organization that could gather that information.

The purpose of the Civil Affairs Information Management (CIM) process is to “benefit the situational awareness, situational understanding, and situational dominance of the supported commander.”²⁴ CIM utilizes collected information through three methods: Collaboration, Civil Reconnaissance, and Data Mining.²⁵ These methods leverage information collected by other organizations to gain an understanding of the population. Once again this is heavily focused on culture, but this process has a lot of potential to assist the commander gain an understanding of the climate.

²² Field Manual 2-01.3, *Intelligence Preparation of the Battlefield/Battlespace* (Washington, DC: Government Printing Office, 2009), 1-1.

²³ Ibid., 1-9 – 1-11.

²⁴ Army Training Publication 3-57, *Civil Affairs Civil Information Management* (Washington, DC: Government Printing Office, 2012), 1-3.

²⁵ Ibid.

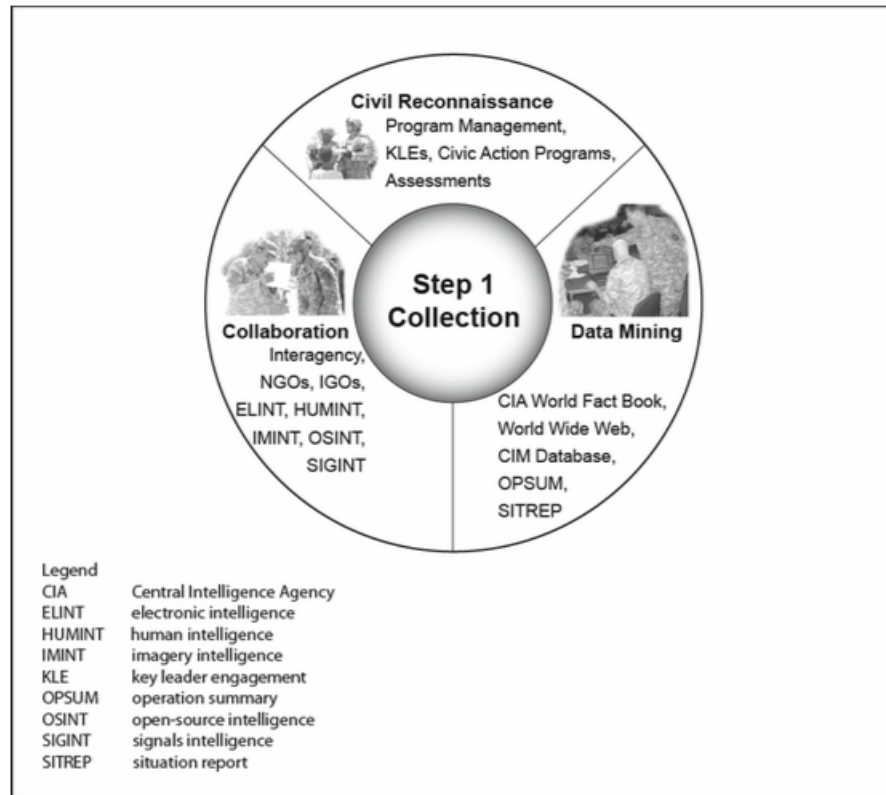


Figure 1-2. Collection process

Source: Army Training Publication 3-57, *Civil Affairs Civil Information Management* (Washington, DC: Government Printing Office, 2012), 1-3.

The top third of this diagram describes using Civil Reconnaissance as a key part of understanding the operational environment. Civil Reconnaissance “is a targeted, planned, and coordinated observation and evaluation of those specific civil aspects of the environment.”²⁶ Through Civil Reconnaissance, commanders could use surveys and key leader engagements to complete databases used and collaboration could leverage in the assessments of other organizations to gain understanding. Unfortunately, this process has significant challenges.

The largest obstacles to the effective use of the CIM to assess the climate is that the Civil Affairs team at the Brigade Combat Team (BCT) level is too small to effectively sift through all potentially valuable data. CIM Cells are the hub for analyzing all the information collected at through the CIM process. These are only located at the divisional level and above. At the

²⁶ Ibid., 1-10.

divisional level, this team consists of four to five civil affairs personnel. In comparison, the Division Analysis Collection Element (ACE), which manages the IPB process, has more than 200 soldiers working on analysis. The severe shortage of labor to read and fuse the information gathered through the CIM is just one of the problems with using this process to understand the climate. The next chapter will address how military forces currently use intermediaries to overcome the problems with collection and processing to understand the human climate.

Chapter 2: Analysis of Intermediary Bias

The Role of Intermediaries in Understanding the Human Climate

Before diving into the problems with using intermediaries, it is necessary to understand why military forces use them. For the purpose of this monograph, intermediaries are people who represent the population for military forces and are synonymous with the term Key Leaders. Key Leaders are influential people familiar with the complex human terrain of the environment.²⁷ Intermediaries are necessary in understanding the population because they solve two important problems for military forces when understanding the climate of the population. These problems are issues that military forces have with collecting the data from the population and the second is processing that data to gain understanding. Collection problems stem from the ability to access the data, to collect the wants, needs, and desires of the population. To do so without intermediaries would require military forces to conduct individual surveys. Conducting individual surveys is a problem of distance, time, and manpower. At the peak of the Iraq War in 2008, US troops numbered 157,800.²⁸ Of this 157,800, many of these soldiers were in administrative and

²⁷ Richard C. Nash and Eric P. Magistad, “Disarming The Key Leader Engagement,” *Military Review*, 2010. 11.

²⁸ Amy Belasco, “Troop Levels in the Afghan and Iraq Wars, FY2001-FY2012: Cost and Other Potential Issues” (Washington DC: Congressional Research Service, 2009), 9.

combat support roles, so the number available to conduct surveys was much lower. In comparison, the population of Iraq was over thirty-two million spread over 438,000 square kilometers.²⁹ Even if all soldiers in Iraq surveyed twenty-four hours a day, there was no way to collect that volume of data while maintaining current data. Additionally, military forces were less likely to speak the language of the population, making collecting surveys subject to availability of interpreters. The issues of scale and language barriers were why the concept of using surveys was impractical for military forces to collect data directly from the population.

The second reason why military forces use intermediaries to understand the population is because they have the capacity to process the raw data. If military forces were able to collect extensive surveys on a large range of topics on a continual basis, this data is useless unless it is processed into meaningful data. The two information processes that the military currently uses, CIM and IPB, would quickly become overburdened by the volume of climate data directly collected from the population due to constraints of manpower, time, and competing demands.

Rather than expending great resources and over taxing existing processes, military forces use intermediaries to collect climate information from within their support base and to process that information into something that coalition forces can understand and use to make decisions. Using intermediaries enables commanders to establish “productive relationships” with those that best understand the complex human terrain.³⁰ Currently, intermediaries are the most effective way for military commanders to understand the climate within the operational environment, but there are problems with using intermediaries. The next chapter will address the problems associated with using intermediaries to understand the climate.

²⁹ “Iraq,” CIA World Factbook, last modified June 22, 2014, accessed December 8, 2014, <https://www.cia.gov/library/publications/the-world-factbook/geos/iz.html>.

³⁰ Jeanne F. Hull, *Iraq: Strategic Reconciliation, Targeting, and Key Leader Engagement* (Pennsylvania: Strategic Studies Institute, 2009), iii.

Introduction to the Problems of Using Intermediaries

If the goal of military forces is to influence the population, then it is necessary for military forces to understand the needs, wants, and desires so that the military forces can design an appropriate operational approach to influence the people. At the center of the discussion are the issues with using intermediaries as a way to measure the human climate. Intermediaries can, and do, shape the narratives of the population's want, needs, and desires in a way that distorts the truth. As a result of using intermediaries, it is impossible to gain a clear understanding of the population and thus any operational approach is developed on a weak foundation.

Looking at the operational environment as a complex system, the environment consists of a hierarchy of nested sets of sub-systems, "each embraced by those at the next higher level and embracing those at all lower levels."³¹ Within this complex system, intermediaries act in accordance with operating in two different roles. The first is as an agent, and the second is as a meta-agent. Agents are singular entities that operate based on a combination of ideology and internal models. Meta-agents are entities that are made up of many different sub-agents and operate based on the need to balance interests between their sub-agents, based on their institutional formation, and the nature with which they interact with other agents according to a two-level game. Intermediaries shape the narrative about the populations wants, needs, and desires due to bias that comes from their dual roles of an agent and meta-agent. First this chapter will examine the source of intermediary as agents and then as meta-agents.

Intermediaries as Agents

³¹ Neil E. Harrison, *Complexity in World Politics: Concepts and Methods of a New Paradigm* (SUNY Press, 2006), 26.

First, intermediaries derive bias from their role as an individual agent within the complex system that is the operational environment. Agents as singular entities interact with other agents based on five concepts: internal models, ideology, institutionalism, the principle-agent relationship, and use of level one and level two systems of decision making. These concepts are a source of bias for the agent and can affect how that agent acts within the environment. For the intermediary, these concepts shape the narrative that they present to military forces about the human climate as an individual agent in the operational environment.

Internal Models

Internal models create bias for agents because it affects how they view the larger system and how other agents operate within the system. If ideology defines the agent, both in a descriptive and prescriptive manner, internal models present how intermediaries and other agents operate in the operational environment. Each agent in the system has an internal model that describes how the agent should act in the system within which they operate.³² There are essentially three models that agents use to describe how they will interact with each other to best serve their individual interests. These models are realism, liberalism, and constructivism. Within each of these internal models there are many nuances, but for the purpose of this paper, only the overarching theories are described. Realism describes the system as chaos and that everyone in the system acts according to their own interests. This leads to agents cooperating only when it serves their needs and then abandoning others when the cooperation does not serve its own interests. Liberalism also views the system as chaos, but its own interests are best served by cooperating with like-minded agents to bring order to the system.³³ Liberalism has two basic premises. First, that it is not in the best interest of a nation to go to war. Second, that international

³² Harrison, 9.

³³ Chris Brown and Kirsten Ainley, *Understanding International Relations* (Basingstoke: Palgrave Macmillan, 2009), 20.

structures can serve as a way to avoid conflict through conversation and discourse.³⁴ This leads agents into building relationships with other agents that may not directly serve their interests, but is in alignment with how they believe the system should look overall. The last internal model is constructivism. Constructivism describes that agents in the system act uniquely with respect to other agents within the system.³⁵ Agents may cooperate with some agents based on their historical interactions and world vision, while balancing power against others. It essentially integrates the concepts of realism and liberalism into a perspective unique to the individual agent.

Each of these theories about the system shapes how that agent will act. In the operational environment, intermediaries will interact with military forces and other intermediaries based on these three theories. Some will use a realist perspective and only interact according to their own interests. Others will attempt to serve their interest through cooperation for a vision of how the operational environment should look. Yet others will act based on the individual relationships built with the other agents within the operational environment. Military forces must understand how intermediaries view the system and how that view may shape the accuracy that intermediaries use to describe the human climate. Of these three views, the concept of ideology for the intermediary plays a key role in how the intermediary interacts with military forces.

Ideology

Bias for agents comes from ideology because it affects how the agent views itself within the system. Ideology is a body of doctrine, beliefs, and myths that an agent has based on an agent's history.³⁶ This historical perspective of identity defines the agent in both a descriptive and prescriptive role. In a descriptive role, it tells the story of who the agent is and how it came into

³⁴ Ibid.

³⁵ Ibid., 48.

³⁶ Alan Cassels, *Ideology and International Relations in the Modern World* (New York: Routledge, 2002), 240.

being in the system. Wars, religion, and past interactions with other agents serve as a way to describe the agent as it is today. In addition to being descriptive of the agent's identity, ideology prescribes the vision for how the agent views the system. Essentially it prescribes the vision that the agent has for the system in which it operates. Since ideology is rooted in history, the agent's future actions are merely additional steps along a historical timeline. Past actions, and the lessons learned from those actions, have allowed the agent to reach its current position and future actions will continue on a similar path. Agents will not act significantly from how they have in the past because acting in a manner that counters an agent's ideology creates an identity crisis for the agent. The identity crisis comes from the agent not being able to mentally reconcile its actions with the way that it defines itself based on the actions that led to its current position. When using intermediaries, military forces need to understand how the intermediary rose to their current position. The intermediaries' identity will prescribe how the intermediary will act in the future. With regard to communicating the climate of the population, the intermediary is unlikely to share opinions from the population that counter its own view of the operational environment based on internal bias. Sharing such opinions would threaten its identity and vision for how the operational environment should look. As a result of this, intermediaries will shape the narrative of the human climate in a way that conforms to its own ideology. Part of what shapes that narrative is a result of the intuitionism inherent to the intermediary itself.

Institutionalism

Intermediaries act according with the institution that places them in power. In the discussion of intermediaries as meta-agents this paper will address the existing power structures that emplace them as intermediaries, this section will address the issues of the intermediary as an institution and how the intermediary will act as an institution of power. Institutionalism describes

how institutions are created as a result of habitualized interaction.³⁷ This habitualized interaction automates decision-making for members of the institution to open space for innovation and deliberation on a multitude of issues.³⁸ The problem that institutionalization presents is that once the institutions are created, they begin to operate according to the institutional interests and not always in accordance with the members that created the institution in the first place. Once an institution is created in a complex environment, the institution has an interest to preserve itself within the environment and will attempt to shape the narrative in the best way that supports the institution. Narrative shaping happens in two ways: horizontally and vertically. Horizontally, the institution, as an agent, attempts to legitimize its existence by convincing all the other institutions with which it interacts with that the existence of the institution make sense.³⁹ Vertically, the institution attempts to convince members of the institution that its actions are in accordance with their own desires.⁴⁰ Through narrative shaping, institutions are able to preserve themselves within a complex environment. For intermediaries acting as the head of institutions, the concept of preservation drives them to shape the narratives to both members and other agents in the operational environment. This concept of self-preservation through justification, and therefore legitimization, as an institution to both military forces, and the constituencies that make up their institutional power base, result in a distortion of the current human climate and how military forces might attempt to address that climate. Institutionalism brings up the issue of how intermediaries as institutions interact with military forces in a principle-agent relationship.

Principle-Agent relationship

³⁷ Peter L. Berger and Thomas Luckmann, *The Social Construction of Reality; a Treatise in the Sociology of Knowledge* (New York: Doubleday, 1966), 53.

³⁸ Ibid.

³⁹ Ibid., 92.

⁴⁰ Ibid., 93.

Intermediaries act as agents to military forces through the architecture of the principle-agent relationship. The principle-agent relationship describes how the principle monitors and evaluates the agent based on varying expectations.⁴¹ As described before in the discussion about why military forces use intermediaries, military forces have tasked the collection of the human climate to intermediaries to present a clear and accurate picture to military forces, but intermediaries often obscure their performance of that responsibility through working and shirking as a result of the principle-agent relationship.

Working describes how much agents support the principle. Shirking describes how much agents attempt to limit their responsibilities to the level at which they are monitored by the principle. At the heart of this issue are the contracts that the agent has between the interests of the agent and its own self-interests. Members of the intermediaries' constituency invent the intermediary, contracting it to protect the members' interests.⁴² Military forces also contract the intermediary to delegate understanding of the climate of the population.⁴³ Due to the tension between the interests that established the intermediary as a power broker and supporting the interests of the contract with military forces as an intermediary to understanding the population, the accuracy of information that the intermediary provides to military forces is called into question. Potentially, the intermediary could work for the principle (military forces), providing the maximum transparency to the principle and acting according to the principle's interests.

In contrast to working, the intermediary could be acting in a shirking model, and only operating to the extent that military forces monitor their actions within the operational environment. Intermediaries will shape the narrative of the human climate as it serves the intermediary within this working and shirking relationship that the intermediary has with military

⁴¹ Peter D. Feaver, *Armed Servants: Agency, Oversight, and Civil-Military Relations* (Cambridge: Harvard University Press, 2009), 2.

⁴² *Ibid.*, 54.

⁴³ *Ibid.*, 55.

forces. The ambiguity associated with the accuracy of information will shape military force actions to address the human climate in relation to how much military forces believe the information that intermediaries present to the military forces as a result of the shirking and working dynamic between the principle and the agent. The next section will address intermediaries decision-making in the operational environment.

Level-one and level-two decision-making processes

Intermediaries share information with military forces about the human climate through two decision-making processes: level one and level two systems. Military forces often assume that intermediaries decide what they share as the result of a rational process, but there are two processes that intermediaries use. System level one strategies draw on the intermediary's abilities to read the current situation and make a quick decision based on that reading and the intermediary's history. A system-level one strategy to thinking describes decision-making as the result of instinctual thinking.⁴⁴ This instinctual thinking affects what and how agents share information with military forces. System level two decision-making is a rational process in which intermediaries weigh the different options and balance that against the interest of themselves and the interests of constituents to arrive at the optimal outcome.⁴⁵ Unfortunately, the more rational level two system of decision-making is only used when decisions represent a significant anomaly to the system level one decision-making process that requires an intermediary to perform a more rational analysis of the situation and make a rational decision.⁴⁶ As a result of these two decision-making processes, military forces cannot always assume that the information shared about the

⁴⁴ Lawrence Freedman, *Strategy: A History* (New York: Oxford University Press, 2013), 613.

⁴⁵ *Ibid.*, 614.

⁴⁶ *Ibid.*, 614.

human climate is the result of rational decisions. The intuitive decision-making process is hampered to the extent that the decision fits into the existing paradigm of the intermediary.

Conclusion to the roles of intermediaries as agents

Due to the intermediaries' role as an agent, the narrative of the human climate is shaped through multiple ways. First, the intermediary has an internal model for how they view the system and will act in the system based on a realist, liberalist, or constructivist internal model. Second, intermediaries will act as a consequence of their ideology, which describes their role in the operational environment and prescribes a vision for how the intermediary will act in the future. Third, intermediaries as institutions act horizontally with military forces and vertically with their supporting members in a manner that preserves the institution that emplaces them as intermediaries in the operational environment. Fourth, intermediaries act as agents within a principle-agent relationship with military forces and will shape the narrative they present to military forces based on the extent that they work in alignment with military force interests, or shirk their responsibility to provide accurate information in order to protect their own interests. Fifth, intermediaries share information about the human climate through two-decision making processes. Often decisions about what to share are the result of instinctual decision-making and not based on rational analysis. All of these issues highlight the problems associated with using intermediaries as agents to understand the human climate. The next section will address the problems of intermediaries as meta-agents.

Intermediaries as Meta-Agents

In addition to the role of intermediaries play as agents, intermediaries also derive bias from their role as meta-agents in the complex system within the operational environment. As meta-agents in the environment, intermediaries represent their respective constituencies to military forces as a way to understand the human climate. Due to their role as meta-agents,

intermediaries shape the information that they present to military forces as a result of how they became intermediaries, their requirement to balance interests, and the two level game that they play with their constituencies as they interact with military forces. This bias distorts a clear understanding of the human climate within the operational environment.

The creation of meta-agents post conflict

First, intermediaries gain their role as meta-agents from the nature of conflict. Once nations have defeated the military threat, there is a need to build the state. Building the state requires first the stabilization of the environment post conflict before the building of a new state. State builders recognize the role that intermediaries play in stabilizing the environment post-conflict. These intermediaries have the interests, power, and authority of their constituencies to assist military forces in stabilizing the environment.⁴⁷ These intermediaries also acknowledge the legitimacy of the reform proposed by the military forces building the state, but are intent to minimize the manner in which these reforms conflict with the existing interests of their sub-agents. As a result of this dynamic, there is an inherent tension between the reforms proposed by military forces and the interests that created the intermediary as a meta-agent. Unfortunately, the selection of these intermediaries with established constituencies often reinforces “previously existing state-society relations – weak states characterized by patrimonial politics and skewed development.”⁴⁸ Military forces use existing intermediaries and their power structures because they need to stabilize the nation post-conflict, before they can begin implementing changes to the society to address the root causes of the conflict.⁴⁹ What this leads to is a compromised state

⁴⁷ Michael Barnett and Christopher Zurcher, “The Peacebuilders Contract: How External Statebuilding Reinforces weak statehood,” In *The Dilemmas of Statebuilding: Confronting the Contradictions of Postwar Peace Operations* (New York: Routledge, 2009), 25.

⁴⁸ Barnett and Zurcher, 24.

⁴⁹ Ibid., 31.

building where military forces balance their own needs and desires with those of the power brokers that need to reinforce and protect their sources of power.⁵⁰ Due to the issues of size and scope, and the importance of intermediaries to understand the population, using intermediaries reinforces existing structures within the state and presents the bias of those meta-agents that represent their existing power base.

Reinforcing the existing power structures that placed the intermediary in a position to represent a constituency only reinforces the agendas of the sub-agents that selected the intermediary as a representative of the constituency. This leads to compromised state building in which the military forces in the operational environment must tailor their objectives for the state based on what the existing power structures will allow. The agendas of the sub-agents represented by the meta-agent as an intermediary reinforces that narrative about the human climate that led to conflict in the first place. Due the use of existing power structures and the interests that created the meta-agent, the meta-agent propagates narratives about the human climate that are in conflict with the agenda of military forces to build a state post conflict. These pre-existing narratives of the intermediary bias the true story of the human climate and as it attempts to interact with military forces in the operational environment. The next section will address how meta-agents represent their constituencies based on current interests.

Balance of Interests

Operating as meta-agents, intermediaries often have to balance the interests of their individual constituencies. In this way, meta-agents are not acting in respect to an overall interest; they are balancing the interests of subordinate constituencies.⁵¹ Meta-agents have multiple subordinate constituencies that have their own agenda that plays into the agendas of the superior

⁵⁰ Ibid., 24.

⁵¹ Ramesh Thakur, "A Balance of Interests," *The Oxford Handbook of Modern Diplomacy* (New York: Oxford University Press, 2013), 2.

meta-agent. One of the ways that the meta-agent can present the opinions of their subordinate constituencies is through the balance of interests and thus resulting in an overall policy that represents all subordinate constituencies. Within meta-agents, there will be a difference of perspectives, opinions, and interests that will shape how the meta-agent interacts with other agents.⁵² The balance of interests describes the performance of meta-agents as a result of understanding the interests of the subordinate constituencies and balancing those interests into a uniform policy. By balancing the interests of subordinate agents, meta-agents are subject to the level of influence that subordinate agents have on the resulting policy. In the case of intermediaries, the bias and influence of the supporting sub-agents manifests in how intermediaries communicate the human climate. Intermediaries communicate with military forces through a lens that filters the needs, wants, and desires of their population through the ability of the subordinate agents to effectively influence the agendas of intermediary in the balance of interests. This balancing of interests represents an opportunity for sub-agent bias to manifest itself in the meta-agents actions as they interact with military forces.

Two-level games

As meta-agents, intermediaries represent several different sub-agents and sub-agendas. In addition to the issues of balancing interests, the intermediary must also play the role of negotiator between constituents and military forces. Tension between the intermediary role as an individual and the agendas of sub-agents, shapes the narrative through a two-level game. The two-level game describes that interaction between level the one actor and level two actors. Intermediaries as level one agents must negotiate with the military forces, but then they must validate those negotiations within their own power base to gain buy in to that the outcome of negotiation.⁵³ At

⁵² Ibid., 4.

⁵³ Robert D. Putnam, "Diplomacy and Domestic Politics: The Logic of Two-Level Games," *International Organization* Volume 42, Issue 3 (June, 1988), 433.

the sub-agent level, internal groups attempt to pursue their interests by pressuring the intermediary to adopt policies favorable to them.⁵⁴ These intermediaries then attempt to maximize their own abilities to satisfy the needs of their constituents while minimizing the adversarial consequences of interacting with other agents in the system.⁵⁵ Intermediaries bargain with military forces over the information they will provide about the population and then must have separate discussions with constituents about whether they will provide that information.⁵⁶ The tension between what subordinate interests allow and what intermediaries can effectively negotiate with military forces in accurately describing the human climate is defined as a win-set. Win-sets define the all the possibilities that intermediaries as level one agents can present to military forces that is in accordance with the interests of their sub-agents.⁵⁷ With respect to the human climate, this represents only a small portion of all possibilities to understand the population in the operational environment constrained by the interests of sub-agents within the operational environment.

Conclusions of Intermediaries as meta-agents

Due to the intermediaries' role as a meta-agent, the narrative of the human climate is again shaped through multiple ways. First the description of the population is shaped by the existing power structure. Military forces choose to interact with intermediaries because of that existing power structure that created the intermediary, and as such, they propagate existing narratives that reinforce the reasons that the conflict started in the first place instead of a current narrative about the human climate. Second, intermediaries must balance the interests of multiple

⁵⁴ Ibid., 434.

⁵⁵ Ibid.

⁵⁶ Ibid., 436.

⁵⁷ Ibid., 437.

sub-agents in accordance with the influence that those sub-agents have on the intermediary. This leads to a perspective of the human climate by military forces shaped through existing interests within the intermediary as a meta-agent. Lastly, the information presented to military forces is the result of a two-level game that intermediaries play as meta-agents between the desires of military forces for state building and what subordinate interests will allow.

Conclusion for the Problems of Using Intermediaries

The use of intermediaries by military forces presents multiple problems. These problems come from the role that intermediaries must play within a complex system. Intermediaries act as both agents and meta-agents. As agents, the information they provide is subject to the filters that unitary agents have when interacting with the system. They are subject to shaping narratives about the human climate as a result of internal models, ideology, institutionalism, the principle-agent relationship, and their decision-making processes. Added to the issues of acting as an agent, intermediaries also act as meta-agents that utilize the existing power structures and narratives that led to the conflict, must balance the interests and agendas of their sub agents, and play a two level game of negotiation over the sharing of accurate information with military forces. Within the meta-agent paradigm, all of the subordinate agents are subject to the same bias of agency that intermediaries are as agents themselves. Intermediaries solve the problems of collection and processing for military forces by taking on that responsibility. This means that these intermediaries also struggle with the problems of collection and often have sub-intermediaries take on the responsibility for collection and processing information about a smaller section of the population. It is a span of control issue. Span of control describes the number of individuals that a command directly manages.⁵⁸ In the Army, a division commander has over ten thousand soldiers under his command. These are too many soldiers for a division commander to directly control, so

⁵⁸ Army Doctrine Reference Publication (ADRP) 6-0, *Mission Command*, (Washington, DC: Government Printing Office, 2012), 2-101.

division commanders use intermediaries, brigade, battalion, and company commanders to manage individuals within the division overall. This limits his span of control to only a handful of brigade commanders. Intermediaries do the same thing in the operational environment. Provincially governors use district representatives, who rely on mayors, who rely on neighborhood counsels who actually interact with the population to gain an understanding of the province as a whole. For all of the sources of bias that intermediaries have as agents and meta-agents, the exact same problems of bias exist within the intermediaries' sub-structures. The issues with span of control compounds bias as information moves up, down, and across the system where information is intentionally and unintentionally manipulated. The final information available is merely a shell of the original truth.

Using intermediaries as a way to collect and process information about the human climate is fundamentally flawed as the use of intermediaries subjects the truth to the bias of the intermediary as an agent and meta-agent within the system. Despite these problems of bias, they have been the best tool available to military forces up until now to understand the human climate. The next section will address how SOCMINT may provide an alternative to using intermediaries and how they can eliminate bias while improving understanding of the population.

Chapter 3: How Military Forces Can Use Social Media To Understand The Human Climate

Introduction

Military forces use of intermediaries to understand the population highlights two fundamental problems. Those problems are collection and processing of human climate data from a population spread across great distances in a manner that keeps that information current. Intermediaries solved this problem for military forces because they could use their existing networks to collect and process data from their respective constituencies. By using only a handful of intermediaries and their separate constituencies, military forces have the ability to gain a

comprehensive understanding of people within the operational environment and solved the two problems of collection and processing. Effectively, the military forces outsourced collection and processing to another agent in the complex system, but doing so corrupted the data.

Use of intermediaries creates a third problem to understanding. Intermediary bias compounds the difficulties of understanding the human climate within the operational environment. Intermediaries as agents and meta-agents corrupt the data they collected and processed as a result of their multiple roles and biases within the complex system. This bias leads to military forces having only a distorted understanding of the military environment as shaped through the biases of intermediaries. Military forces cannot eliminate the bias of intermediaries unless they are willing to deal with the problems of collection and processing, something that military forces are not currently equipped to do. SOCMINT can solve this dilemma for military forces by eliminating intermediary bias, while providing the architecture to both collect and process information in a way that military forces can use to understand the human climate. The next section will explain how SOCMINT addresses each one of these problems.

Eliminating Intermediary Bias

SOCMINT can provide an accurate understanding of the population within the operational environment through minimizing intermediary bias. Looking at the environment as a series of nested two-level games between intermediaries and their sub-meta-agents, eliminating bias requires collecting information directly from the principle level two agents, individuals within the environment. Anne-Marie Slaughter, a professor of international relations at Princeton, proposed that all the issues associated with the negotiations between level-one agents and level-two agents should be to directly negotiated with each other using informal networks. This would eliminate other level-two agents balanced against the win-sets available from level-one agents.⁵⁹

⁵⁹ Anne-Marie Slaughter, *A New World Order* (Princeton: Princeton University Press, 2005), 261.

Social Media platforms provide that informal network. By participating in the informal network of social media, military forces can gain direct access to data from individuals without having to utilize intermediaries as conduits of information. Eliminating the series of intermediaries between the population and military forces minimizes the bias of those intermediaries to shape the narrative. SOCMINT cannot completely eliminate intermediary bias in the system. These intermediaries have existing power structures and will want to have an impact on the environment, but will no longer have control over the individual narratives of the people as they once have had when they were the only channel of such information.

Solving the Collection Problem using Social Media

With bias minimized within the system, social media networks solve the problem of collection for military forces. Recall that the issue with collection is a problem related to manpower, distance and time; SOCMINT can address all these issues. Instead of outsourcing collection to intermediaries, military forces can use social media networks to outsource collection directly to the individuals in the environment. Individuals using social media accounts are essentially voluntarily reporting their opinions as opposed to having to be asked as in traditional collection methods eliminating the requirement for military forces to participate in the collection process at all. This self-reporting happens in the absence of military forces and the social media network itself becomes the larger database that stores these reports. In addition to storing the reports, the information is continually updated as individual's continually self-report eliminating issues of perishability associated with collecting climate data. It essentially automates collection; military forces only need to interact with the data when they are ready to process that data.

Data stored in social media networks consists not only of the self-report in the form of a status message, but also places that report within a wealth of relational data. Messages in social media networks lie within a complex web of user profiles, relationships, biographical information, geotagging (the location where the message was composed built into the message

itself), historical reporting, and on and on. This wealth of relational data provides context for the message, but also the potential to process that message using any lens that military forces can think of to analyze the information through data-mining. Data mining describes an intelligence practice that looks for specific information within a mass of data using statistical analysis and search parameters to answer priority intelligence requirements.⁶⁰ Want to know what unemployed 18 year olds in eastern Baghdad who like military topics think about the operational environment? That data already exists in several social media networks, ready for processing.

There are two risks of outsourcing collection to individuals through social media networks. These risks are participation and accuracy. Will enough individuals participate in social media networks to give an accurate picture of the target population, and is the information they provide accurate?

The first risk is the issue of participation. Self-reporting is a function of access to the social media network and the choice to voluntarily self-report by using the social media network. Access has long been a function of owning a PC, which has traditionally created a “Digital-Divide” between those with the education and funds to own a PC and the national infrastructure to support a large number of users.⁶¹ This divide is closing with the increasing presence and access of internet across the globe. In addition, the ubiquitous presence of computers and Internet connections that makes access as easy as finding a place to log on; the networks are going mobile. High data capacity cell networks have made the issue of access possible for anyone with a smart phone and signal. Access is not available everywhere, but it is constantly growing meaning that for many populations, access is either currently present, or will be soon. With access becoming near universal, the next issue is whether people will volunteer to participate, will users self-report

⁶⁰ ADRP 2-0, 3-20.

⁶¹ Amir Hatem Ali, “The Power of Social Media in Developing Nations: New Tools for Closing the Global Digital Divide and Beyond,” *Harvard Human Rights Journal*, Volume 24, Issue 1, (June, 2011), 197.

through social media networks. Social media networks derive value in how well they encourage members to use them to share information and opinions. The structure of the network itself is optimized to make users want to participate. Looking at the growth of Twitter and Facebook, it is clear that these social media networks are effective at getting users to voluntarily participate in the network.

The second risk associated with using social-media networks is that since individuals voluntarily self-report there are potential issues with the accuracy of that information. Individuals are subject to all the same bias that intermediaries have as individual agents. Issues such as ideology, internal models, and self-preservation still exist within the individual, but due to a significantly larger sample size, the presence of these biases become statistically insignificant. Unlike the intermediary who operates as one of only a handful of people that interact with military forces, the individual within the population is only one voice amongst hundreds of thousands and millions. Health care professionals have long used social media as a way to evaluate, track, and predict the spread of influenza.⁶² By utilizing the larger sample size, any individual bias becomes statistically insignificant within the massive amount of data available to analyze. So while an individual report may be inaccurate, the overall reporting of all members of the population can make up for that inaccuracy through volume of more accurate reporting. In addition, the social aspect of the network provides another benefit. The relational information provides a way to evaluate the validity of a report based on its connections to other reports. In the case of influenza, the likelihood that a “tweet” about the flu is more likely to be true based on how many connected accounts also report about the flu.⁶³ It is more that just a large number of reports that make the tweet statistically significant, but the number of ties that reports have to each other. Through the collection of a large number of reports to minimize the likelihood of

⁶² Henry Kautz, “Data Mining Social Media for Public Health Applications,” *23rd International Joint Conference on Artificial Intelligence (IJCAI 2013)*, Beijing, 2013, 1.

⁶³ Ibid.

error and evaluating the strength of reports through relational analysis, SOCMINT provides a reliable way to collect information through self reporting.

SOCMINT effectively address the traditional issues of collecting climate information by outsourcing collection to individuals within the operational environment. First, self-reporting using existing networks, allows collection to continually occur in the absence of military forces. Next, the networks themselves increase the value of the data by automatically linking that data with other pieces of data such as profiles, geo location, relationships, and the ways in which members of the networks are connected. Lastly, the risks associated with non-participation and inaccuracy are mitigated by the design of the network itself to be addictive, encouraging participation while creating a large inter-connected data set that can minimize inaccuracies. With the problem of collection addressed, next, SOCMINT can help military forces process the immense amount of data collected directly from the population to understand the human climate.

Solving the Processing Problem Using Social Media

SOCMINT can help military forces process the large amounts of rich data that social media networks collect through multiple means. The nature of the data set and the structure of social media networks allow military forces to view a snapshot of the current environment through multiple lenses. First, it provides information about what is happening in the current environment through reporting. Next, it provides a historical record of snapshots that can help commanders understand the context in which events occur in the environment. Last, it provides current opinions about the past and the future. The next sections will explain how SOCMINT can provide insights for military processes using these lenses.

Reporting correlates with what people in the operational environment are saying through social media accounts. This pertains to the current environment and the historical record of what people are saying over time. There are three benefits from using reporting to understand the environment. Through the lens of current reporting, SOCMINT provides insight to what has

happened, what is happening and what people think might happen in the operational environment. The case of Iraq, with a large land mass and population, and very few troops, this current reporting supplements combat reporting by using the eyes and ears of the entire population. Current reports provide insight to what is happening, what has happened and what might happen in places where combat troops are not present, providing a more complete understanding of the current climate within the entire operational environment.

Sentiment analysis analyzes the way in which people in the operational environment feel about the present, past and future. Specifically, “sentiment analysis is the process of determining and measuring the tone, attitude, opinion, and emotional state of responses.”⁶⁴ Since social media is a text-based platform, the words that people use on social media accounts, these words have degrees of intensity that statistical programs could measure. Words like good, bad, great, ok, and terrible are adjectives that describe the writer’s intensity about how they feel about the subject within their sentence structure. Additionally, sentence structure includes tense, which describes whether the user is describing the subject in terms of the present, past, or future. Sentiment analysis uses statistical models to analyze sentence structure of multiple social media messages within the context of time and intensity. As populations report more and more on their environment through social-media, there is a large amount of data available for sentiment analysis. During a visit to the United Services Automobile Association (USAA), the author was able to see how the company leverages sentiment analysis to track how people view their brand. On a large wall, the company has what it calls its social media exchange, eight screens that monitor the brand on social media. One of the screens focuses on sentiment alone. On the screen are the name of USAA and other banks, each highlighted with a color ranging from green to red. The color indicates the current sentiment of the brand on social media accounts. Through this

⁶⁴ Mehta, Rushabh, Dhaval Mehta, Disha Chheda, Charmi Shah, and Pramila M. Chawan, "Sentiment analysis and influence tracking using twitter," *International Journal of Advanced Research in Computer Science and Electronics Engineering (IJARCSEE)* Volume 1, Issue 2 (2012): 75.

analysis, the company can see how it is doing, and how it is doing with respect to competitors. Military forces can use this analysis to understand to the degree that the population feels about events in the past, present, or future and make decisions based on this complete understanding of sentiment within the operational environment.

Co-design analysis describe what people “want” in the operational environment by opening a dialogue with the population through social media networks. In comparison to the other strategies that are dependent on passive monitoring of social media accounts, co-design asks people in the environment to give their opinion about what military forces should do as part of the decision-making process. Military forces are endowed with resources that allow them to change the environment. If the goal of these resources is to improve the environment, then military forces have an obligation to listen to the human climate of the population to determine how they apply those resources to enact change. Wright State University did a study on tweets during Hurricane Sandy power outages in New Jersey in 2014. In their research, through the analysis of a tweet, they were able to identify a need for resources.⁶⁵ This analysis went beyond just beyond a request for power in a blackout, but through analyzing the language of tweets, researches could infer the need to apply resources, in this case, the need to restore power.⁶⁶ Military forces could do the same for analyzing the need for resources within an operational environment. Studying information available in social media could tell military forces which neighborhoods need generators, where to drill a well, or which roads to repair. Through this method, military forces essentially co-opt the population help make decision of military resources. Through co-design, military forces can engage the population about what it should do (measures of performance) and whether that objective meets intent (measures of effectiveness). Understanding the wants of the

⁶⁵ Shreyansh P. Bhatt, Hemant Purohit, Andrew Hampton, Valerie Shalin, Amit Sheth, and John Flach, "Assisting Coordination During Crisis: A Domain Ontology Based Approach To Infer Resource Needs From Tweets," *Proceedings of the 2014 ACM conference on Web science*, 297.

⁶⁶ Ibid.

population through co-design can assist military forces to make better decisions about what it should do in the operational environment to meet the wants and needs of the population in terms of performance and effectiveness.

SOCMINT provides understanding of the human climate of the operational environment through the multiple lenses including current reporting, sentiment analysis, and co-design. Reporting can leverage the eyes and ears of an entire population to provide understanding of what has happened, what is happening and what will happen in areas that combat forces are not present. Sentiment analysis utilizes statistical models to provide an in depth understanding about the past present and future by measuring intensity of feelings and tense. Co-design takes an active approach to help military forces to incorporate the wants of the population into the decision-making process about what they should do based on the ability to pre-measure measures of performance and effectiveness for multiple courses of action.

Conclusions of using SOCMINT to understand the Human Climate

Military forces in the operational environment can overcome the bias present in the current use of intermediaries through leveraging social media networks while maintaining the ability to collect and process information about the human climate directly from the human population. Utilizing social media as a way of understand the population minimizes bias by eliminating the roles of intermediaries to understand the population. The stickiness of these networks and their inherent structures allows military forces to collect information through an automated process that operates in the absence of military presence reducing the requirement of time, manpower and resources to collect information across a large population distributed over a large area. Lastly, SOCMINT tools allow military forces to efficiently and effectively process this large data set to derive meaning and better understand the human climate within the operational environment.

Conclusion

This monograph demonstrates how social media can provide a better understanding of the population in the operational environment. In particular, it addresses three key problems in the current operational environment: collection, processing, and intermediary bias. Understanding the population has always been limited by the constraints of collection and processing. Military forces lack the capacity to collect and process large amounts of information spread across vast distances on a continuous basis. Due to the problems of dealing with a vast amount of data, military forces have outsourced collecting and processing information about the population to intermediaries that have their own networks to collect information from their sphere of influence. Unfortunately, while the use of intermediaries has addressed the problems of collection and processing it has created a third problem, intermediary bias. Consciously and unconsciously, intermediaries allow bias to creep into their assessment of the population due to their roles and agents and meta-agents within the complex system that is the operational environment. SOCMINT provides an opportunity to minimize the presence of bias of intermediaries by collecting information directly from the people in the environment through social networks. Leveraging these social networks, SOCMINT can use the power of computing to solve the problems of collection and processing information directly from the population. Using the information available and new analytical tools, military forces now have the potential to gain a better, unbiased understanding of the population in the operational environment.

While this research presents the problems of using intermediaries and how SOCMINT can overcome the problems of bias, collection, and processing, there is much potential to further this research through application. Military forces in operational environments should leverage social media analytical tools to better understand the people within their operational environment. Military forces can easily incorporate social media analysis into existing force structures through the purchasing of social-media analysis tool-kits and training a small cell of four people within the intelligence company at the brigade and higher levels. A team of four soldiers would be able

to provide twenty-four hour support to brigade operations. From humanitarian operations to COIN environments, military forces should look to social media and incorporate that information into a better understanding of the population within the operational environment.

A war amongst the people can occur as a result of both conventional and unconventional warfare. To operate in this environment, commanders and staffs must gain an understanding about the needs, wants, and desires of the population within the environment. Current challenges of understanding the human climate within the operational environment drives military forces to outsource the problems of collection and processing to intermediaries. Outsourcing these tasks subjects the data to bias that intermediaries have as agents and meta-agents resulting in military forces receiving a corrupted perception about the human climate potentially leading to making bad decisions. Social media and SOCMINT can overcome those biases by eliminating intermediaries, while providing a framework that supports the collection and processing of data directly from the population to support military force decision-making processes.

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