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# MILITARY OPERATIONS IN THE INFORMATION AGE:

# PUTTING THE COGNITIVE DOMAIN ON TOP

by

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i

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# Biography

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# Abstract

*Military Operations in the Information Age: Putting the Cognitive Domain on Top* focuses on the application of information to influence combined and synchronized with the kinetic component of military power as the essence of information age warfare.  In the information age, the proliferation of cell phone and smartphone technology, along with social media has changed the environment and presents opportunities that must be exploited like others are already doing. The information age has provided a shared information environment where politics and perceptions are shaped.  This makes almost everyone with an internet connection reachable and potentially able to be *influenced*.  Kinetic battles will sometimes be necessary, however, the West tends to currently look at information operations as a supporting element to hard power. This perspective is upside-down thinking based on warfare of the industrial age.  Since hard power dominance is ultimately used to make an adversary either *decide* not to fight or to cease fighting and accept the desired terms, and because in the information age this decision can be directly targeted like never before, the cognitive domain should be seen as the dominant consideration with operations in the other domains in support.

Information age warfare must be conducted with synchronization of messaging and hard power at the operational level.  Messaging can be used to influence other governments, domestic and ally populations and enemy forces.  To achieve the desired influence in the cognitive domain, messaging must be tailored to the ideology being fought and the cultures involved.  The US should lead the West in adapting its way of war using information age capabilities to exert influence alongside hard power.

# Introduction

In the information age, the interconnectedness of people and the ability to influence has dramatically changed due to the internet, cell phone technology and social media. Although information and the power of influence is recognized as an important component of the diplomatic instrument of national power, this paper will focus on the application of information to influence combined and synchronized with the kinetic component of military power as the essence of information age warfare. The West, despite its hard power advantages, has not prevailed in the cognitive domain because it has failed to shift from industrial age warfare thinking that concentrates on hard power. In the information age, the proliferation of cell phone and smartphone technology, along with social media has changed the environment and presents opportunities that must be exploited like others are already doing. Kinetic battles will sometimes be necessary, however, the West tends to currently look at information operations as a supporting element to hard power. This perspective is upside-down thinking based on warfare of the industrial age. Since hard power dominance is ultimately used to make an adversary either *decide* not to fight or to cease fighting and accept the desired terms, and because in the information age this decision can be directly targeted like never before, the cognitive domain should be seen as the dominant consideration with operations in the other domains in support.

The US should lead the West in adapting its way of war using information age capabilities to exert influence alongside hard power. This monograph will first make the case for the importance of the cognitive domain and will then explain how important influence is modern warfare. It will then explain how information age tools can provide better situational awareness for the operational commander. Finally, targeting terms will be combined with rhetorical triangle concepts to illustrate how influence can be achieved.

# The Problem: Making the Case for the Cognitive Domain

The cognitive domain is essentially where information influences perceptions, attitudes, ideology and will.  This important domain is the one in which, although the Taliban government in Afghanistan and Saddam Hussein's regime in Iraq were defeated, the rise of insurgencies made the significant hard power advantage of Western nations unable to 'win the peace.'

The rise of the so called Islamic State, or ISIL, and its success in recruiting on virtually every continent has been due to its ability to use its ideology to influence potential recruits through information age tools.  So far, the West has not been successful in countering their message.[1]  In Afghanistan, Iraq and in the war against ISIL, the West has overwhelmingly had the advantage of superiority in kinetic based weapons systems, yet control of the narrative and local public perception has not always been in its favor.

The idea that hard power alone does not guarantee victory is not new.  Sun Tzu understood the efficacy of winning without going to battle. "(A)ttaining one hundred victories in one hundred battles is not the pinnacle of excellence.  Subjugating the enemy's army without fighting is the true pinnacle of excellence."[2]  Clausewitz also discussed the will of the enemy, "his power of resistance, which can be expressed as the product of two inseparable factors, *viz. the total means at his disposal and the strength of his will*."[3]  These two historical strategists understood that hard power alone did not win wars.  Sun Tzu's point was that it is best to preserve one's power by winning without fighting.  Clausewitz understood power to not only be the kinetic component but also the enemy's will, a factor that can be *influenced*.

As stated by Hoffman in *Conflict in the 21st Century: The Rise of Hybrid Wars,* military planning remains too linear in practice and needs to better integrate kinetic and non-kinetic effects.[4]  As urged by Lieutenant-General David A. Deptula, USAF (Ret.), Dean of The Mitchell

Institute for Aerospace Studies, "(W)e need to challenge our adversaries' domination of public perception in the information age. We have to learn how to use the application of accurate, compelling information as a core element of our security apparatus. We are woefully inept at strategic communications and too often are put in a reactionary position when it comes to this core tenet of the information age."[5] The calls to increase capability in the cognitive domain come because of a current lack in influence that needs to be filled.

Since the proliferation of information age tools, it is no longer sufficient, if it ever was, to accept that the design of a military force around hard power requirements alone will inherently make it capable of defeating a weaker adversary. Even in his time, Clausewitz understood the potential of the use of the local population in conflict. Despite the dearth of tools available then to influence locals, writing about the use of the local population in warfare, he advised that "(a)ny nation that uses it intelligently will, as a rule, gain some superiority over those who disdain its use."[6]

Other significant world powers recognize and exploit the cognitive domain to achieve their national goals. The *Joint Operating Environment 2035: The Joint Force in a Contested and Disordered World* (JOE) defines Violent Ideological Competition as "(i)rreconcilable ideas communicated and promoted by identity networks through violence."[7] It warns that it has a "state level component, as a number of countries such as Russia, China, and Iran will continue to activate, guide, and direct identity networks, including foreign proxies, to further their own national interests as well as to avoid overt military engagement."[8]

Russia has proven in recent operations that they have already indoctrinated the use of the cognitive domain alongside hard power. It is described by some as 'hybrid warfare' and is sometimes mistakenly perceived as a new innovation. Its synchronization with hard power

capabilities has increased but working in the cognitive domain started much earlier. As recently pointed out by Larry Kay in *Innovation of Military Thought in the Postmodern Warfare Era*, use of the information domain is "not a new Russian strategy. It started during World War II (dezinformatsiya: disinformation) and continued during the Cold War. Then, it reemerged in Estonia in 2007, evolving with an integrated kinetic information operation in Georgia in 2008 and Ukraine in 2014, Montenegro in 2016, and in the 2016 US presidential election." Kay further hypothesizes that "postmodern warfare is multi-domain, borderless competition dominated by the ability of state and non-state actors to manipulate information."[9] As pointed out by a French Officer after the Israeli war against Hezbollah in Lebanon in 2006, "it is absurd and dangerous not to use the same technologies as the enemy."…modern armies must "re-learn to retaliate using psychological action."[10]

Information age tools that provide unprecedented connectivity at the individual level have made the cognitive domain more easily accessed and influential. The 'message' is no longer only passed from state leader to state leader through diplomatic channels nor solely by the media in broadcasts. Individuals across most of the world have access to the internet and in most cases, a smart phone. Smart phones are a very common and important personal asset, even amongst Syrian refugees.[11] In fact, cell phones are perhaps even more important to refugees since they will often be their only way to connect to family members dispersed across many regions from Jordan to Western Europe.[12]

Influence in the cognitive domain is important throughout the spectrum of conflict. Current doctrine highlights the importance of shaping operations to prevent conflict or pre-conflict. Post conflict, influencing is important in creating stability and ensuring that conflict does not reemerge due to unsettled security, economic or governance issues. But influencing

during kinetic operations is more important since war is not conducted by machines but by people.  A person makes decisions based on their perception and beliefs.  Clausewitz explained that war is not waged against an object but rather "(i)n war, the will is directed at an animate object that *reacts*."[13]  Influencing in the cognitive domain can help that reaction to be what is desired.  So in other words, the cognitive domain is where influence operations can and should be conducted throughout the spectrum of conflict, from peace to total war.

Deterrence relies on the potential enemy deciding that their best option is to not attack. The fulcrum of a coercion strategy rests within the mind of the adversary.  Deterrence and coercive strategies rely on hard power but also on human decisions, influenced by ideas in the cognitive domain.  The existence of a hard power advantage is extremely important, that point is not disputed.  But as Mearsheimer stated, "(t)he balance of power is not a highly reliable predictor of military success"[14]  Awareness of, and influence in, the cognitive domain must be central to the threat and employment of hard power.  In other words, hard power needs to be combined and synchronized with cognitive influence or soft power.  This is what Joseph Nye refers to as 'smart power.'[15]

The information age has provided a shared information environment where politics and perceptions are shaped.  This makes almost everyone with an internet connection reachable and potentially able to be *influenced*.  The influence of the internet on politics has been demonstrated.[16]  That same ability to influence must be used throughout the spectrum of conflict to shape perceptions.

## The Solution: How To Address the Cognitive Domain

Information age warfare must be conducted with synchronization of messaging and hard power at the operational level.  Messaging can be used to influence other governments, domestic

and ally populations and enemy forces.  Public diplomacy by the State Department, public affairs efforts by any part of government, and psychological and information operations by the military are all fundamentally the same thing.  They are communications meant to influence in the cognitive domain and since from the receiver perspective it doesn't especially matter what department they happen to come from, these communications should be created and delivered in a coordinated and congruent manner.

Understanding public diplomacy and influence activities as the work of only one department, such as the Department of State, ignores its importance to military operations. *Enlisting Madison Avenue* makes the case that "U.S. government and DoD organizations should also integrate and coordinate their shaping messages across operating environments. Current plans call for a U.S. Department of State (DoS)–based coordination cell to synchronize strategic communication at the interagency level.  Similar coordination entities, potentially comprised of PA, PSYOP/IO, and maneuver force personnel, should be a part of combatant command, joint task force (JTF), and other headquarters…"[17]  Operational objectives need to include use of the cognitive domain to decrease the likelihood of (or level of) conflict and to better set the conditions for stability after conflict.  Western forces need to have the capability to monitor, track, disseminate and discuss[18] *ideas* in cyberspace to understand the messages being used by the enemy and to counter them.  According to Krause and Van Evera, "The U.S. government should now recognize that national security requires a capacity to shape debate abroad.  It should develop a sound strategy for this mission and commit resources that are appropriate to its vital importance."[19] To do this, an increased sophistication in monitoring and the formulation of effective messaging at the operational level is critical.  Operational mission verbs should not

always rely on words like *destroy* or *degrade* and should sometimes use words like *influence* and *convince.*

**Situational Awareness in the Cognitive Domain**

Commanders do not set out to conduct operations without first seeking to understand the battlespace. Before further exploring ways of employing this use of coordinated influence operations, it is necessary to understand the cognitive domain and how information age tools and people's use of them provide an intelligence source. Current surveillance technology exists to monitor cell phones and is already in use by the US Government.[20] China also uses social media monitoring to surveil its own population – and that data is for sale![21] The technology required to monitor and use big data tools to better understand the operational environment already exists. Analysis of social media and the use of cell phones in operations areas should be used by the intelligence community and integrated with information from more traditional intelligence gathering sources to improve situational awareness for the operational commander.

The *Capstone Concept for Joint Operations: Joint Force 2020* states that we need to "(i)mprove capabilities that better fuse, analyze, and exploit large data sets. The military now captures an exploding amount of data that can be stored digitally. We need better techniques to mine it in the service of specific operational needs. Advances in machine learning, automated processing, and machine-analyst interaction are needed."[22] The acknowledgement that we are not yet best using 'big data' technology to filter vast amounts of stored data for operational use is a starting point. This statement refers to using this mined information for the augmentation of kinetic capabilities. This is necessary, but the context of this statement misses the value of using 'big data' techniques to filter and understand the ongoing conversations on social media as a means of better understanding the cognitive domain in the commander's area of operations. An

operational commander needs to see more than the front line and the positioning of forces.  The commander also needs to see and understand the cognitive domain and the potential impacts.

The impact of ideas flowing through information age tools, particularly social media, has recently been evident in the Arab Spring.  As outlined in a report by Philip Howard, "social media carried a cascade of messages about freedom and democracy across North Africa and the Middle East, and helped raise expectations for the success of political uprising…People who shared interest in democracy built extensive social networks and organized political action. Social media became a critical part of the toolkit for greater freedom."[23]

The flow of ideas does not stop at geographic borders and can unite likeminded people. According to an analysis by Howard and Hussain, "The Arab revolts cascaded across countries largely because digital media allowed communities to realize shared grievances and nurtured transportable strategies for mobilizing against dictators. Individuals were inspired to protest for personal reasons, but through social media they acted collectively."[24]  *Blogs and Bullets III: Syria's Socially Mediated Civil War* points out that analysis of social media during the Syrian conflict has shown the tendency of likeminded groups to form and reinforce themselves.[25] Monitoring of social media can provide insight into the shared ideas of groups and can also serve as an indicator of impending action.  "During the week before Egyptian president Hosni Mubarak's resignation, for example, the total rate of tweets from Egypt — and around the world — about political change in that country ballooned from 2,300 a day to 230,000 a day.  Videos featuring protest and political commentary went viral – the top 23 videos received nearly 5.5 million views."[26]  If this information and its popularity had been monitored, then it could have served as an 'indication and warning' of the impeding action.  The intelligence value of recognizing the formation of like-minded groups and understanding their relationships to

security concerns will give commanders and decision makers a more complete understanding of the cognitive domain battlespace within which they operate.

This ability to monitor people and their ideas is in widespread use in governments, industry and amongst some of the West's adversaries. Social media and other information age tools must be used at the operational level for surveillance but it is not only an opportunity to better understand the battlespace but also to influence it. Social media was effectively used in the ouster of the Morsi regime, an overthrow of a government that would have otherwise been much more violent without the heavy use of information age tools.[27] Understanding of the ideas and influences in an area is very important on its own, but is more powerful if the commander can do something about it by using this information age connectivity to influence.

**Targeting: Messaging to Influence**

While monitoring information age tools like social media will help operational commanders understand the cognitive component of the battlespace, the use of these same information age tools should be used to exert influence to help shape perceptions. Operational commanders need to analyze the cognitive domain in their area of operations and select areas to influence. Referring to Clausewitz's trinity of the government, the military and the people as pillars, Kay points out that "the Russian doctrine studied the dynamic interaction between the pillars, attacking the informational interaction or "information space" between the three pillars."[28] The West, led by the US should study and apply these same techniques. Using information and influence to dislocate the military force from its political masters and its supportive population, or separating the will of the people from its government have shown to be highly effective against Western powers such as in the Vietnam War. These areas or cognitive

spaces need to be protected for friendly forces and offer opportunity for attack against adversaries.

In current doctrine, targeting concepts exist to help warfighters in kinetic operations.  In order to use messaging to influence on the internet and through social media, it is important to study and employ proven methods to ensure the messages are powerful and effective.  It is worthwhile to refer to others who are adept at messaging to learn tactics, techniques and procedures (TTPs) as operational influence doctrine is evolved.  Writers and the marketing sector use the rhetorical triangle, logos, ethos and pathos to make effective messages.  To better illustrate how messaging can be used to influence in military operations, targeting terms from doctrine will be used here in combination with the rhetorical triangle concepts used in marketing and other influence disciplines.

**Logos: Synchronizing Joint Fires**

Logos is the element of the message that appeals to the audience's sense of logic and intelligence.  Messages must make logical sense to be effective and must be logical when observed alongside kinetic operations.  In an operational context, messages must 'make the case' for the necessity of kinetics to defend the perception of friendly forces or can attack the logic of the enemy's conduct.

Post 9/11, America's 'global war on terror' was highly supported by allies and regional partners and many nations participated in operations in Afghanistan in pursuit of Al Qaida.  The invasion of Iraq shortly after was not as well supported.  According to Nye, this was because the US did not make the effective logical link between terrorists and the urgent need to topple Saddam Hussein.[29]

Collateral damage caused by poorly executed kinetic operations have the tendency to damage the message and strengthen the adversary's.  As outlined in *Enlisting Madison Avenue*, "(s)trategies that help businesses craft their line of products can help the U.S. military ensure that operations do not conflict with shaping-campaign goals. To this end, the military should thoroughly explain the necessity for kinetic operations, place the burden for such operations (and their negative consequences) on the adversary, rebuild damaged infrastructure, and monitor the impact such operations have on civilian attitudes toward the U.S. force.  They should similarly monitor the impact of U.S. government policies and statements that contradict shaping-campaign themes."[30]  Any contradiction should be explained because a perceived contradiction between the message and actions can challenge the logos element in the cognitive domain.  It can also do damage to another part of the rhetorical triangle, ethos.

## Ethos: Character and 'Nesting' of Messages

Ethos is the element of effective messaging that deals with trust and the moral authority of the sender.  Operational commanders already work to establish and foster relationships with other leaders in their area of influence.  The messages, since they can go directly to practically everyone in the area over social media and the internet, need to establish some level of trust and moral authority with as broad an audience as possible.  When the purpose, the message and actions are not synchronized, citizens of the home nation, allies and partners, and the perceptions taken by adversaries will diverge from the logic of the operation and the ethos that underwrites the moral authority for action.

Just like kinetic targets are 'nested' within operational objectives born from national policy, influence operations should also be synchronized from the national political level all the way down to the military operational level.  This will enable operational commanders to use

influence operations to attack undesired ideologies and the cognitive advantages of adversaries in a way that is synchronized and congruent with national level messages.

Effective, synchronized and congruent messages can be used to shield domestic public support, maintain positive attitudes with allies, partners and third parties and maintain a perception of strength in the mind of potential adversaries.  The top level strategic set of messages should be clear, simple and based on Western values such as the dignity of the person, freedom and the rule of law.  Care should be taken to ensure that the top level messaging is widely shared and accepted internally as well as across allies and partners.  It is for the political level to determine exactly what these fundamental messages are as they may change slightly from administration to administration.  This set of top level messages can serve as a foundation of all other messaging lower in the chain of command and as a touchstone as the lower level messaging is formed and adapted to changes in the battlespace.

The Western message, unlike the Russian approach of disinformation, must be truth based to ensure credibility is not forfeited because the fundamentals of a Western message would be based on human rights and respect for the person rather than the Russian message which seems to be based on nationalism.  In the cognitive domain, the West should value truth because credibility is the 'vital ground'.  As stated by Robert David Steele in *Information Operations: Putting the 'I' back in DIME,* "It is about education, not manipulation."[31]

When military action is segregated and not seen as congruent with the message and other elements of public diplomacy, the impact of images that portray that warfighters are not 'walking the talk' are damaging and powerful.  For example, the strategic message based on the value of the person of bringing freedom to Iraqis by the defeat of an oppressive Saddam Hussein was likely hard to accept when images from Abu Graib and Guantanamo circulated the internet, a

point made by Joseph Nye in *Public Diplomacy and Soft Power*.[32]  Events like these that are not congruent with the message damage credibility and trust and are likely to invoke negative emotions and perceptions.  As conflict continues, Clausewitz has warned us of the unpredictability that accompanies it, "original political objects can greatly alter during the course of the war and may finally change entirely since they are influenced by events and their probable consequences."[33]

 As 'events' occur during operations, one must use messaging to put those events in a perspective that is favorable.  This will often involve resetting the context, explaining the complexity or even admitting non-intended consequences when appropriate.  Although operational commanders understand the damage wrong perceptions can cause, they are not normally resourced or enabled to address them directly.  In *Enlisting Madison Avenue,* the authors submit that "the traditional kinetic focus of U.S. military operations often jeopardizes communication-based shaping efforts.  U.S. forces are trained primarily for kinetic operations and inflicting casualties on an enemy, not for shaping noncombatant attitudes. Both force structure and mind-set can be incompatible with shaping goals.  For example, collateral damage can increase popular support for U.S. adversaries."[34]

 Conversation is more important and effective than broadcasts.  As argued by Krause and Van Evera, "public diplomacy should usually be conducted as a dialogue, not a monologue."[35]  The same is true for influence activities at the operational level.  Dialogue increases trust and shows respect.  In information age warfare, the operational commander needs the tools and expertise in place to react quickly to manage shaping efforts during all levels of conflict to ensure that trust and credibility is protected, but also must do so in a culturally astute manner.

**Pathos: Striking with Precision in the Cognitive Domain**

The third element of rhetoric, pathos, appeals to the emotion and values of the audience. Targeting doctrine employs precision to focus the weapon energy on the intended target and to limit undesired damage to anything or anyone else. The delivery of messages to influence can be to all levels from the political all the way down to the morale of individual fighters but must be directed specifically to target audiences in a way that considers language, culture and beliefs to increase effectiveness on target audiences and decrease negative reactions from other observers. Using precision in messaging increases the likelihood that the target audience will accept the pathos element of the message as intended.

Pathos employs the emotional aspect of the human receiver to strengthen the acceptance and retention of the message. The pathos element is likely why ISIL messaging does not only include beheadings but also fighters hugging kittens. As bizarre as this seems, their messaging has nonetheless been very effective and has resulted in significant recruiting from practically every continent, including many Western nations. The success of the ISIL recruiting campaign was so effective that, although exact numbers of killed versus recruited are difficult to ascertain, it is widely accepted that during the first year of Operation INHERENT RESOLVE, the total number of ISIL in Iraq and Syria was not decreased.[36] The number killed in that first year was in the order of 15 thousand, therefore, the number of recruits was roughly the same. If a counter-narrative had only been able to dissuade 10% of the recruits that would have meant 1500 fewer ISIL fighters in the area of operations. A kinetic event that took 1500 ISIL fighters off the battlefield would be heralded as a tremendously successful event.

The cognitive domain is not homogenous because different people will perceive the same things in different ways. When operating in the cognitive domain, warfighters must understand

that different nations and cultures perceive things differently.  As Patrick Porter concluded in *Military Orientalism: Eastern War Through Western Eyes,* "…Cultural theories remind us that the stakes or referent objects of war, such as national interests, war aims, or victory, are not mere self-evident things, but a combination of things and ideas about them. Ideas intervene to define what these mean, and even what the end of a war looks like."[37]

Conversation conducted in a manner that is consistent with the culture and beliefs of the target audience is important so that the message is interpreted as intended and resonates with the receiver.  According to *Enlisting Madison Avenue,* "…the U.S. military should adopt the business strategy of segmentation and targeting whereby it would partition the indigenous population into selected groups based on their level of anticipated support for coalition presence and objectives."[38]  Or as described by *Steele,* "Novices do broadcast press releases. Journeymen do specialized lists. The real masters, however, know how to reach key communicators in any domain, any country, "by name." Moreover, they employ individualized messages, informed by values-based biographies and sophisticated social network analysis."[39]  Messaging needs to be formed specific to the audience it seeks to influence in order to achieve precision.

Google marketing technology is an example of an off the shelf product that allows companies to 'target' their marketing to specific internet users.  This same technology could be used at the operational level to frame messaging in culturally appropriate ways to reach individuals and the 'groups of like-minded' in the same way.  The existence and frequency of extremist websites in a particular phone user's cell phone as well as their location and language are factors that the google marketing technology could use to select the best message and then open portals for discussion and counter-messaging.  This would allow what Krause and Van Evera suggest: "U.S. public diplomacy should speak separately to the unique beliefs and worries

of each…community."[40]  Operational commanders must be able to make use of tools like these to ensure precision in their delivery of messages in the cognitive domain.

## Recommendations

To adapt its way of war to the information age, the US should lead the West by:

1.  Employing information influence alongside kinetic hard power by establishing the ability to coordinate messaging from the national level all the way down into the military headquarters (to at least the operational level);

2. Recognizing that the cognitive domain is important, and arguably the most important, throughout the spectrum of conflict and to adjust doctrine, training and professional military education to ensure that influence is understood to be much more than a supporting function to hard power;

3. Monitoring using information age tools to better understand the cognitive domain component of the battlespace;

4. Defending and augmenting friendly strengths and attacking and accentuating adversary weaknesses in the cognitive domain by 'targeting' the 'information spaces' such as between the government, the population, and the military;

5. Using the messaging concept of logos to 'make the case' for military operations in the other domains while attacking the logical links of the adversary;

6. Using the messaging concept of ethos to establish and improve trust and moral authority of friendly forces while attacking those of the adversary; and

7. Using the messaging concept of pathos and tools like google marketing to achieve precision by creating dialogue specifically tailored to the language, culture and beliefs of targeted groups and individuals.

# Conclusion

This paper has shown that the application of information and influence combined and synchronized with hard power is the essence of information age warfare.  In the information age, the proliferation of cell phone and smartphone technology along with social media has changed the environment and presents opportunities that must be exploited.  Employing simple information operations techniques to support kinetic action is upside-down industrial age thinking.  In the information age, perception is the battlespace with kinetic operations, when necessary, in support of the desired influence.  Others, like Russia and ISIL have adapted to the information age.  It is time that the US leads the West in changing their way of war to become more sophisticated in the cognitive domain by using information age tools to monitor and influence.  Perceptions are important throughout the spectrum of conflict and in a globalized information environment, it is more important than ever to influence those perceptions to ensure that friendly operations are understood.  Winston Churchill, known for his way with words and his forward thinking said, "The empires of the future are the empires of the mind..."[41]  Due to the arrival of the information age, the future is now.

# Notes

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