

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.
PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.

1. REPORT DATE (DD-MM-YYYY) 04/24/2017	2. REPORT TYPE MASTER'S THESIS	3. DATES COVERED (From - To) SEP 2016 - APR 2017
--	--	--

4. TITLE AND SUBTITLE INSPECT WHAT YOU EXPECT: MEASURING SUCCESS IN THE COGNITIVE INFORMATION RELATED CAPABILITIES	5a. CONTRACT NUMBER
	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S) BLOCK, BRIAN T., MAJ, USMC	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) USMC Command and Staff College Marine Corps University 2076 South Street Quantico, VA 22134-5068	8. PERFORMING ORGANIZATION REPORT NUMBER
--	---

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release, distribution unlimited.

13. SUPPLEMENTARY NOTES

14. ABSTRACT
Current Department of Defense (DoD) and Marine Corps doctrine fails to tie performance to effectiveness when assessing operations by information related capabilities (IRCs) in the cognitive dimension. Without tying organizational performance to measures of effectiveness commanders, staffs, and IRC practitioners cannot evaluate the impact of information operations. Civilian industry has experience proving the business case for communication efforts to change knowledge, attitudes, and behaviors. Thees best practices should be into incorporated into the doctrine for public affairs (PA), military information support operations (MISO), information operations (IO), and civil-military operations (CMO).

15. SUBJECT TERMS
Public affairs, Information Operations, Military information support operations, assessment, doctrine, evaluation, measurement, strategic communication, communication

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			USMC Command and Staff College
UNCLASS	UNCLASS	UNCLASS	UU	33	19b. TELEPHONE NUMBER (Include area code) (703) 784-3330 (Admin Office)

United States Marine Corps
Command and Staff College
Marine Corps University
2076 South Street
Marine Corps Combat Development Command
Quantico, Virginia 22134-5068

MASTER OF MILITARY STUDIES

TITLE:

INSPECT WHAT YOU EXPECT: MEASURING SUCCESS IN THE COGNITIVE
INFORMATION RELATED CAPABILITIES

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

AUTHOR:

MAJOR BRIAN BLOCK

AY 16-17

Mentor and Oral Defense Committee Member: Craig A. Swanson PhD
Approved: [Signature]
Date: 24 April 2017

Oral Defense Committee Member: LtCol Jarrod Stuberborough
Approved: [Signature]
Date: 24 April 2017

Executive Summary

Title: Inspect What You Expect: Measuring Success in the Cognitive Information Related Capabilities

Author: Major Brian Block, United States Marine Corps

Thesis: The Marine Corps has increasingly focused on the use of information as a weapon in foundational documents like the new Marine Corps Operating Concept and in Marine Corps Force 2025. To effectively use information to inform, influence, and/or persuade our friends, neutrals, and adversaries the Corps will need to assess and evaluate its efforts. Failing to do this will result in throwing good money after bad as useless, or worse – counterproductive, efforts suck up more and more resources in an already resource-constrained environment. The Marine Corps needs to incorporate methodologies, specifically experimental design, the use of logic models and theories of change, and statistical analysis, to use across the cognitive information related capabilities to ensure the Marine Corps can effectively evaluate our information warfare efforts.

Discussion: Current Department of Defense (DoD) and Marine Corps doctrine fails to adequately tie measures of performance (MOP) to measures of effectiveness (MOE) when addressing assessment or evaluation of operations among the information related capabilities (IRCs) that operate in the cognitive dimension of the information environment (IE). The inability to explicitly tie organizational performance (MOP), to observable MOE tied to mission objectives means that commanders, staffs, and IRC practitioners do not have a true understanding of the effectiveness – or lack thereof – of our information operations. Civilian industry, to include non-profit organizations that focus on behavioral change, have a depth of experience of not only operating in the cognitive space, but also proving the business case for communication efforts to change knowledge, attitudes, and behaviors. Specifically, understanding or mastery of experimental design and statistical analysis, and the ability to create and explain logic models and theories of change are vital skills for IRC practitioners in the future. By incorporating best practices into the doctrine for public affairs (PA), military information support operations (MISO), information operations (IO), and civil-military operations (CMO), operational planners will be able to understand and enforce requirements that information professionals be able to demonstrate the value and relevance of their activities in order to justify the use of resources, time, and personnel.

Conclusion: Each of the IRCs that operate in the cognitive domain can benefit from incorporating more rigorous, social-science based techniques into the routine conduct of their mission. This should be done as soon as possible to support the vision of “information warfare” discussed in the Marine Corps Operating Concept.

DISCLAIMER

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

QUOTATION FROM, ABSTRACTION FROM, OR REPRODUCTION OF ALL OR ANY PART OF THIS DOCUMENT IS PERMITTED PROVIDED PROPER ACKNOWLEDGEMENT IS MADE.

Table of Contents

	Page
EXECUTIVE SUMMARY	ii
DISCLAIMER	iii
TABLE OF CONTENTS.....	iv
LIST OF ILLUSTRATIONS	v
PREFACE.....	vi
INTRODUCTION	1
DOCTRINE	2
Definitions.....	2
Joint Doctrine.....	4
Marine Corps Doctrine	7
Industry Best Practices.....	8
PERSONNEL	13
METHODOLOGIES	15
Experimental Design.....	15
Statistical Analysis.....	17
Logic Models/Theory of Change	18
Challenges and Risks	19
CONCLUSION AND RECOMMENDATIONS	22
BIBLIOGRAPHY.....	26

Illustrations

Page

Figure 2.1. *Barcelona Principles 2.0*9

Figure 4.1. *Logic Model Template*18

Preface

As a communication professional it is important to me to see the Marine Corps, with its proud tradition of innovation and excellence, to “walk the walk” so to speak when it comes to new concepts. The increasing tendency for commanders and staffs to talk about “information warfare” as the next big thing begs for rigorous research and careful thought as we shape the Corps’ ability to operate in the information and cognitive dimensions in the future. I hope that this paper can inform leaders making meaningful decisions about training, personnel assignment, and doctrinal development in the future.

There are hundreds of information professionals in the public affairs, information operations, and military information support communities living the reality of information warfare on a daily basis – not in the pages of doctrine, but in the face-to-face interactions of building partner capacity training events, bi-lateral exercises, media engagements, and on the internet. Commanders themselves are becoming increasingly aware of the issues presented by a contested information environment and expect their staffs to factor it into planning and operations. Hopefully this report gives them something to think about or use as they fight the battle to win “hearts and minds” and we, as a Corps, can move past platitudes to real, meaningful impacts on the battlefield of the mind.

Introduction

The counter-insurgencies in Iraq and Afghanistan, the rise of ISIS and their ability to motivate “home-grown terrorists”, cyber warfare, and Russian meddling in domestic politics throughout the western world has put renewed focus on the idea that information is both a weapon itself, and a domain in which the United States military must be prepared to operate.¹ The Marine Corps, in the newly released Marine Corps Operating Concept (MOC), identifies the need to be able to fight in the “information domain.”² While short on specifics the MOC lumps together a variety of occupational specialties – including information operations, cyber warfare, military information support operations, public affairs, electronic warfare, and civil affairs – into a catch-all category of “information warfare.” What is often lost in discussions of IW is the need for proper “battle-damage assessment” in a realm that deals with intangible effects in a complex and dynamic environment.

The cognitive dimension is often shrouded in mystery for those unfamiliar with communication theory and practice. There should be no question that “knowledge outcomes, predisposition changes, and behavior can be measured”, influenced, or changed through our intervention.³ But because proper assessment is difficult, time-consuming, and resource intensive commanders and Marines alike often accept sub-standard evidence and methods for gauging the effectiveness of efforts to inform and/or influence a target audience (TA). Because doctrine is the primary touchpoint for non-IRC staffs and commanders, this paper reviews the existing IRC doctrine to regarding assessing communication outcomes. Further, this paper proposes methodologies, specifically experimental design, the use of logic models and theories of change, and statistical analysis, for use across the cognitive information-related capabilities (IRCs) to ensure the Marine Corps can “inspect what we expect” from our IW practitioners.

Doctrine

Definitions

There is an extensive body of Department of Defense (DoD) and Marine Corps doctrine that addresses the actions of IRCs and the effects they have on the information environment (IE.) The IE is “the aggregate of individuals, organizations, and systems, that collect, process, disseminate, or act on information.”⁴ IRCs are tools, techniques and activities that affect any of the physical, informational, or cognitive dimensions of the IE. Many, if not all, military functions can be considered IRCs if they are used to affect the cognitive processes of a TA – moving a battalion to a certain position or bombing a certain headquarters may change enemy decision making or affect his cognitive processes⁵.

This paper focuses on those IRCs – specifically public affairs (PA), military information support operations (MISO), information operations (IO), and civil-military operations (CMO) that primarily operate within the cognitive dimension (the information processing, perception, judgement, or decision making of a TA), or operate on linkages between the information (creation and distribution of data) and cognitive dimensions. Additionally, as the duty experts on “information warfare” or inform, influence, and persuade (IIP) operations, these IRCs are most likely to be directly responsible for generating, executing, and evaluating the effectiveness of an IO or IW plan.

What “evaluate” and “assess” mean in the context of IRCs and IO varies across existing doctrine. *Joint Publication 1-02, Department of Defense Dictionary of Military and Associated Terms*, defines evaluation in relation to intelligence as the “appraisal of an item of information in terms of credibility, reliability, pertinence, and accuracy.”⁶ Other uses in JP 1-02 refer to operational test and evaluation of weapon systems but the DoD dictionary does not refer to

evaluation in the context of IRCs. Weiss, in the context of social science and program evaluation, defines evaluation as the “systematic assessment of the operation and/or the outcomes of program or policy, compared to a set of explicit or implicit standards, as a means of contributing to the improvement of the program or policy.”⁷

Assessment has four definitions in JP 1-02.⁸ The first two, and the most relevant to the topic of this paper, refer to measuring the effectiveness of joint force employment and also the progress toward accomplishing a specific task, condition, or objective. These definitions of assessment assume that joint force actions will change their environment in some way that is observable and measurable. This is separate and distinct from evaluation, which implies a judgement as to the quality of the subject matter studied – whether inputs, outputs, or outcomes – not just the amount and direction of change.⁹ This is an important distinction, which DoD doctrine does not make, when determining the effectiveness of an information campaign because the quality of inputs into the information environment may cause different effects on a TA. The separate doctrinal publications for the IRCs do not differentiate between evaluation and assessment, and typically use the terms interchangeably. RAND notes that “assessment or evaluation is fundamentally a judgment of merit against criteria or standards.”¹⁰ This paper uses *evaluation* when discussing the linkages between measures of performance (MOP) and measures of effectiveness (MOE), and *assessment* when addressing measuring the amount or direction of change in MOPs or MOEs.

Measures of effectiveness are criteria “used to assess changes in system behavior, capability, or operational environment...tied to measuring the attainment of an end state, achievement of an objective, or creation of an effect.”¹¹ Measures of performance are criteria “used to assess friendly actions tied to measuring task accomplishment.” Often, practitioners

substitute MOPs when trying to demonstrate program success rather than expend the effort to develop valid and reliable MOEs, and often completely disregard the critical connection between MOP and MOE – what separate literature refers to as a logic model, theory of change, and measured as impact (MOI).¹² For Weiss, impact is the portion of organizational performance that is responsible for outcomes in the environment; also called “net effect¹³”. Joint doctrine does not currently have a definition for impact, include the concept of MOI, nor terminology for criteria that would tie MOP to MOE.

The closest analogue to MOI or a logic model can be found in the doctrinal concept of design with is the “conception and construction of the framework that underpins a campaign or major operation plan and its subsequent execution¹⁴.” The U.S. Army’s FM 3-07 also describes lines of effort, which “link multiple tasks and missions to focus efforts toward establishing the conditions of that define the desired end state¹⁵”, very similarly to a logic model. Few of the DoD or Marine Corps doctrinal publications speak to the role of IRCs in the process of operational design and lines of effort, but none go so far as to apply those concepts to the IRCs’ activities themselves.

Joint Doctrine

Public affairs joint doctrine includes very little mention of either assessment or evaluation. In JP 3-61 a PA assessment should “identify, measure, and evaluate implications within the operational environment that the commander does not control, but can influence through coherent and comprehensive [Commander’s Communication Synchronization process] established by early integration in the planning process.” The doctrine then immediately transitions to discussing assessing media coverage and tactical PA products.¹⁶ Neither of these

address assessing or evaluating the outcomes or impacts of PA activities, nor do they address the need to synch PA efforts with the overall objectives of the larger mission. A “public affairs assessment” as defined by JP 1-02 should include an “analysis of the news media and public environments to evaluate the degree of understanding about strategic and operational objectives and military activities and to identify levels.”¹⁷ However, this definition does not address what PA is attempting to accomplish during this assessment.

Joint IO doctrine contains the most robust description of the rationale and methodology for assessment, specifically the creation of MOPs and MOEs tied to the overall mission, while acknowledging that assessment in the cognitive dimension is challenging.¹⁸ IO doctrine also assumes that, while difficult, it is possible, through these properly crafted MOEs and MOPs, to “establish a direct cause between the activity and the effect desired.”¹⁹ Confusingly, that assumption is directly contradicted elsewhere in JP 3-13: “joint IO planners should be cautious about making direct causal statements”²⁰ and “it is more advisable to approach [IO effects on a TA] from a correlational, versus a causality perspective.”²¹ These later passages reflect the broader consensus on the appropriate use of statistical and experimental methods in assessing communication programs.²² Planners are specifically cautioned not to think in terms of the predictability provided by the *Joint Munitions Effectiveness Manual* when trying to measure effects in the information environment²³ because “unforeseen factors can lead to erroneous interpretations...irrespective of otherwise successful IO”²⁴ – or otherwise unsuccessful IO for that matter.

Information operations also use measures of effectiveness indicators (MOEI) to better assess MOE, but rather than tying MOP to MOE, MOEI are used to provide additional data in support of evaluating an MOE, typically when MOE are qualitative (e.g. public support for a

host-nation [HN] government). These indicators do not directly tie MOP to MOE; rather, they provide additional, quantitative detail for assessing changes to MOE. These indicators are best thought of as intermediate MOE, not a logic model or measure of impact evaluating the effectiveness of joint force IO actions.

Assessing civil affairs effectiveness offers a wider variety of metrics, though most of them fall outside the cognitive dimension and therefore outside the scope of this paper. This review focuses on those aspects of the civil affairs mission that impact the cognitive or informational domains, and the intersection of civil-military operations or civil affairs and the other IRCs. CMO assessments are often focused on physical infrastructure or governance. These have impacts in the cognitive dimension, but doctrinally CMO focuses on other areas while providing support or information for other IRC assessments.²⁵ Joint CMO doctrine does include possible MOP and MOE for CMO, but like the rest of joint doctrine, there is no discussion of linking the MOP to the MOE to demonstrate program effectiveness.²⁶

Like IO doctrine, joint MISO doctrine offers robust guidance on using evaluation, but focuses primarily on MOEs and endstates rather than demonstrating how MISO efforts result in those endstates. Phase VII in the “Joint MISO planning process” is evaluation. In this phase practitioners are expected to use criteria established in the beginning stages of the planning process to “assess the effectiveness of MISO on achieving the commander’s objectives.”²⁷ This includes coordination with other IRCs and staff sections, notably intelligence.

Doctrinally, development of the MISO tab to an operations order includes research and analysis of target objectives to support MISO course of action development. One can assume that this research may form the baseline for future evaluation of MISO performance but, like other IRC doctrine, that connection is not explicit. At best, the doctrine advises the MISO

planner to consider mechanisms for gathering feedback on MISO efforts, but provides no guidance on how to gather that feedback.²⁸ Indeed, the “Specific MISO Guidance and Planning Considerations” lacks any mention of developing a plan to assess or evaluate the effectiveness of MISO efforts.²⁹

The *Commander’s Handbook for Strategic Communication* (CHSC) identifies four assessment methodologies for measuring strategic communication effectiveness: content analysis, surveys or polling data, expert knowledge, and quantitative data.³⁰ Using a combination of all four of these methods “allows assessment analysis to utilize both quantitative and qualitative data, and tailor collection means to obtain optimum data for the desired measures.”³¹ The CHSC also notes that commercial methods and tools can be used, focusing on advertising and industry. The CHSC incorporates the concept of operational design to communication planning as a way to understand the complexity of the operational and information environment, but notes that this is separate and distinct from MOE or MOP.³²

Marine Corps Doctrine

Marine Corps PA doctrine stresses the value and importance of integrating public affairs early in the planning process but, like joint PA doctrine, does not explicitly address conducting an assessment/evaluation of PA efforts in order to demonstrate effectiveness. Doctrinal guidance for writing a PA estimate includes an assessment of the information environment, but does not include any identification of target audiences, guidance on establishing baselines from which to measure, or models of how PA efforts will impact an audience. Without those criteria, any later assessment must be reverse engineered with the benefit of hindsight that threatens the validity of the assessment.

Marine Corps IO doctrine, like joint IO doctrine, has the most robust framework for assessment. A fundamental assumption of Marine Corps IO doctrine is that “it is possible to measure the effectiveness of IO actions in relation to an operational objective.”³³ The doctrine advises that MOEs should be developed early in the planning process so that resources, primarily from the intelligence community, can be used to collect information to create benchmarks from which gauge success. While there are numerous references to “assessment” through MCWP 3-40.4, it is not included in the template for developing the IO appendix to and operations order.³⁴

Marine Corps CMO doctrine readily acknowledges their role in influencing audience on and off the battlefield.³⁵ The “Information Components” section of Marine Corps CMO doctrine discusses the role and value of CMO in the information domain, but makes no reference to assessing or evaluating its impact. The doctrinal guidance for creating Appendix 1 to Annex G (Civil Affairs) does include references to an assessment of the “perceived legitimacy” of national and local police forces and of attitudes toward the US intervention, but does not address goals or objectives to positively impact those perceptions or methods/methodology to assess changes. The assumption may be that close coordination with MISO, IO, and PA may provide some of this information, but this is not explicitly called out in the doctrine. Overall, CMO, as an element of the MAGTF may “define mutually supportable objectives [and] define the desired end state and exit criteria”³⁶ but includes no mention of a logical connection between CMO efforts and the accomplishment of the mission.

Industry Best Practices

For as much as has been made of the digital revolution and the substantial and growing ability to assess the success of information campaigns by using social media, this approach has

some serious shortfalls. First, it relies too heavily on small, non-random, and often self-selecting samples. Metrics gathered from social networking sites (SNS) like Facebook “likes” or re-tweets on Twitter make for good statistics and seem like they offer a whole new level of granularity in information-related data – but they only apply to the narrow subset of users of those platforms that for whatever motivation engaged with, or were exposed to, organizational content.³⁷

Without going a step deeper and analyzing the nature of the public being targeted, their consumption habits, and the qualitative nature of their engagement with our content we are seeing less than half the story in the information environment.

Informational dynamics cannot be reduced to purely to counting arbitrary engagement numbers online. Counting is easy, and can be done by just about anyone, but it misses the subtle nuances surrounding the use of a hashtag in context, or the reasons a person may “like” or “follow” a page on social media. Being able to effectively assess the effectiveness of an information campaign requires that extra level of insight and skill.

Still, social media has led to a renaissance in communication measurement. Digital tools allow more detailed and accurate tracking of consumers’ online behavior and sentiment in real time than has ever been possible. Some public relations practitioners have advocated for specific metrics to determine the effectiveness of social media initiatives: influence, opportunity to reach, engagement, and sentiment.³⁸ Other use metrics like bounce rate (the frequency with which a story or message is shared through media that the organization does not control), social share of voice (a measure of how much of the traffic on a given issue originates from, or repeats, an organization’s content), share of traffic driven, and amplification rate.³⁹ Others still track content and sourcing, reach and impressions, engagement and conversation, opinion and advocacy, influence, and impact and value.⁴⁰ Each of these metrics will be appropriate to different

scenarios. More important than what specific standard is used is the creation of clear, consistent, and commonly understood standards; standards that do not currently exist among DoD IRCs.

The Barcelona Principles 2.0, issued by the International Association for the Measurement and Execution of Communication (AMEC) and supported by organizations like the Public Relations Society of America (PRSA), the Institute for Public Relations (IPR), Public Relations and Communication Association (PRCA), and others, outline industry-wide best practices for the acquisition, analysis, and presentation of data-driven evaluation in public

communication.⁴¹ Re-issued in 2015, the Principles advocate a closer focus on evaluating communication efforts, rather than simply measuring outputs; reflect an integrated model of communication rather than simply public relations focused; and acknowledges the value and importance of qualitative methods in providing insight into program performance and effectiveness. While foundational rather than operational the Barcelona Principles are effective guidelines when evaluating communication outcomes.

The revamped Barcelona Principles emphasize the importance of aligning communication efforts with organizational objectives rather than measuring “hits”, “impressions”, or relative advertising value. Additionally, communication and measurement efforts are focused on influencers in the information environment that practitioners expect will directly impact a target audience.⁴² For military information practitioners this translates to

Figure 2.1
AMEC Barcelona Principles 2.0

<u>Barcelona Principles 2.0</u>
1.) Goal Setting and Measurement are Fundamental to Communication and Public Relations
2.) Measuring Communication Outcomes is Recommended Versus Only Measuring Outputs
3.) The Effect on Organizational Performance Can and Should Be Measured Where Possible
4.) Measurement and Evaluation Require Both Qualitative and Quantitative Methods
5.) AVEs are not the Value of Communication
6.) Social Media Can and Should be Measured Consistently with Other Media Channels
7.) Measurement and Evaluation Should be Transparent, Consistent and Valid

SOURCE: International Association for Measurement and Evaluation of Communication, <http://amecorg.com/barcelona-principles-2-0/>, 2015.

identifying and focusing assessment via MOE and the logic model on key leaders and influencers in the information dimension.

The “Valid Metrics Framework” (VMF), created by AMEC, reinforces the Barcelona Principles while also providing an actionable guide for evaluating communication efforts.⁴³ The VMF provides measures across the three public relations (PR) phases: content creation and distribution by the organization, mediated dissemination (via journalist, influencers, or other third parties), and consumption by the target audience. Each phase is assessed using metrics by phase – PR activity (PRA) in the first phase; intermediary effect (IE) in the second, and target audience effect (TAE) in the third.

PRA assessment is analogous to MOP in the DoD. Metrics can include amount and type of content created, media and influencer engagement, or stakeholder engagement. Intermediary effects are assessed by metrics that address awareness, understanding, interest and support among the intermediaries exposed to organizational content. Lastly, TAE is measured through awareness, understanding, interest, support, and most importantly, action. A well designed VMF ties organizational performance through intermediary actions to changes in the conditions of the target audience. These logical connections can then be used to demonstrate program success or identify opportunities for improvement. Importantly for both the practitioner and the client, these connections are explicit. Both the executor and the planner are clear on expectations of performance and impact and can identify and shift focus or resources as the situation matures.

Non-profit organizations provide an effective analog for military information operations efforts. Because they focus on behavioral change or tangible impacts rather than profits or sales as in marketing it is easier to adapt their metrics to military operations. Military IO, PA, and CMO, by doctrine, seek to change the behavior of a target audience to the advantage of the

military force. The consulting firm McKinsey identifies several ways that nonprofits can measure their success: narrowly define their mission so that progress can be measured directly; invest in research to determine whether its activities actually do help to mitigate the problems or to promote the benefits the mission involves using data collection and statistical analysis; and develop “micro-level goals” that, if achieved, would imply success on a grander scale.⁴⁴ The key to success is operationalizing the goals in such a way that they can be observed, measured, and evaluated. The inclusion of MOI or a logic model, as advocated by RAND and most non-profit organizations, provides an important bridge between MOP and MOE to demonstrate the effectiveness of organizational intervention.

Personnel

Growing a community of practitioners who know how, why, and when to evaluate their work is even more important than the methodology we use to assess those efforts. Having the right people is the most important factor in the potential future success in the information and cognitive domains. The most significant factor in effectively executing IIP operations is having practitioners who know how to conduct research, analysis, and are integrated into the organization's dominant coalition.⁴⁵ RAND's analysis of DoD IIP efforts in Afghanistan noted the value of having personnel in IRCs with educational backgrounds or experience in the social sciences and statistical analysis.⁴⁶

An IW practitioner without that knowledge is like a rifleman without a rifle. In the civilian public relations and marketing communities excellence is generally correlated with PR structures and personnel that are integrated into the decision-making and managerial policies and structures, not added at the end as an afterthought.⁴⁷ This mirrors military doctrine that insists, at least in theory, that IRCs and information considerations be incorporated throughout the planning process.⁴⁸

Understanding how information flows in the environment and how it impacts or affects a target audience requires a basic understanding of communication theory and social science research techniques. While it is easy to count Facebook likes or re-tweets, these metrics do not in and of themselves reveal the connections between our interventions in the information domain and the effects or impacts we observe – if we observe any at all.⁴⁹

Because of this, success in assessing communication efforts will not be possible without personnel with the background and training to conduct those assessments. All the tools in the world are useless if no one knows how to use them. IO doctrine tries to take some of the burden

off the IO personnel proper for assessment and evaluation by citing reach-back resources such as “specialized software, behavioral scientists, polling, social-science studies, operational research specialists, statisticians...and support from academia.”⁵⁰

As the Marine Corps continues to develop the force structure and doctrinal concepts associated with the information warfare force of the future envisioned by the MOC,⁵¹ the IW community in particular needs to be built towards a culture that promotes rigorous evaluation of its efforts. This is the only way they will be able to continue to show the return on investment that justifies shifting resources from infantry units, aircraft, and materiel to the cognitive dimension of information warfare. Leaders need to make assessment a priority and resource it appropriately, and be willing to listen to feedback even when it does not agree with their preconceived perceptions or assertions.

Methodologies

An information operation, strategic communication campaign, or a communication plan should be treated no differently than other programs in regards to evaluation and assessment. Just because the subject matter deals with something intangible does not excuse lazy or incomplete design in the planning or executing the program or its evaluation. Stoplight charts and weighted averages are not meaningful assessment.⁵²

Experimental Design

In addition to understanding the importance of a logic model in tying MOPs to MOEs, practitioners should be able to design and execute valid experiments in order to demonstrate the value of their efforts. Experiments are the most useful tool in controlling for the potential influence of extraneous variables and threats to the internal validity of a study. “Experimental design is a careful balancing of several features including “power”, generalizability, various forms of “validity”, practicality and cost.”⁵³ Proper design of the experiment should begin in problem framing. As Weiss notes, “many things impinge on people’s lives...and under some circumstances it is vital to be able to separate out the effects of the program from the rest of the cacophony of living.”⁵⁴ Experiments can also filter out some of the extraneous variables that make it difficult to connect our actions to an output.

True experimental designs require random assignment to groups (where every member of the sample has an equal chance of ending up in any given group, e.g. treatment group or control).⁵⁵ Random assignment is important, when feasible, because it allows the use of statistical tools in order to generalize outcomes for a larger population from the results observed in the test sample, but can be exceedingly difficult during combat operations. Cluster

randomization designs are useful when evaluators cannot randomly assign individuals to conditions, but can randomly assign larger groups (e.g. schools, military units, communities). This is useful in a combat environment where selecting a sample is more difficult. If the data is acquired at the individual level (member of a mosque), but the randomization is at the group level (by mosque), then the data must be converted to the higher level before accurate evaluation can occur.⁵⁶ If the units of measurement are sufficiently similar, a practitioner may conclude that similar inputs will yield similar results.

Quasi-experimental designs can be used when random assignment to groups is impossible. However, differential selection (when two groups differ in significant ways beyond just receiving the experimental treatment) is a serious threat to validity with quasi-experimental designs and should be acknowledged up front.⁵⁷ Quasi-experimental designs can be simple: a single control group and another that receives the intervention followed by observation of both groups; or more complex: non-randomized versions of true experimental designs like the Solomon four-group.⁵⁸ Proper design can overcome the challenges to validity if the researcher use the data appropriately and does not try to apply conclusions from the sample to broader populations. Item seven of the Barcelona Principles (“measurement and evaluation should be transparent, consistent, and valid”) addresses this concern – practitioners should be transparent about the applicability of their findings.

If a control group is unavailable or impossible to create, single-group designs, using a pretest-posttest process to evaluate change from a baseline are an option, but they suffer from serious threats to validity and the practitioner will have difficulty truly determining whether the intervention is responsible for the change in behavior.⁵⁹ Time-series designs track populations using multiple posttest observations following an intervention to track the trajectory of change.

If measures are held constant, this method can avoid threats to validity, even in a non-random sample.⁶⁰

Surveys can be used as a data collection tool in the context of a larger experiment. When used on their own, surveys can also provide insight on a population at a specific point in time (descriptive), over a longer period to show change within a group or population (longitudinal), or to describe differences in two or more different populations (cross-sectional).⁶¹ Surveys are useful in evaluating MOI because questions can be designed to directly or, better yet, discreetly measure the role of an experimental intervention in changing the knowledge, attitudes, or behavior of a target audience.⁶² The effectiveness of surveys in this context requires careful planning to avoid biases on the part of both the researcher and the respondent.

Statistical Analysis

Experimental design works hand in hand with statistical analysis and data collection to provide usable information about causality. Statistical analysis is a powerful tool in social science research – and is frequently used in public relations, marketing, and associated fields to measure the effectiveness of a communication campaign. However, few professional communicators have the training or familiarity with statistics to interpret results with confidence.⁶³ The existing DoD and Marine Corps doctrine makes only limited reference to statistical analysis, citing it as a reach-back option for IO personnel. Specific statistical tools are outside the scope of this paper, but the PRSA does have guidelines for practitioners to understanding and explaining statistical data that would improve the utility of doctrine and provide a baseline for IRC personnel who either work with statistics themselves, or must interpret statistics in support of their command.

First, practitioners must be open and clear about how information research was conducted (e.g. through survey or focus group), and how data was collected. This includes a description of the sample in terms of size and relationship to the target audience as a whole, whether or not the sample was truly random, and any biases that may affect the survey results (e.g. question ordering – asking if how much aid a respondent received from the U.S. military before asking about support for the U.S. military). All of these factors affect the ability to generalize to a larger population from the sample set and should inform decision makers about the validity of any statistically based claims.

Practitioners must also be realistic and honest about what any given statistic tells us about a problem or population. All statistical research includes some level of uncertainty.⁶⁴ Reporting confidence levels and statistical significance (in the form of *p*-values), and avoiding definitive causal statements provides important context to decision-makers and planners.

Taken together experimental design, data collection, and statistical analysis in support of a clear logic model can provide greater fidelity and identify more causal linkages between joint force actions and effects in the cognitive dimension.

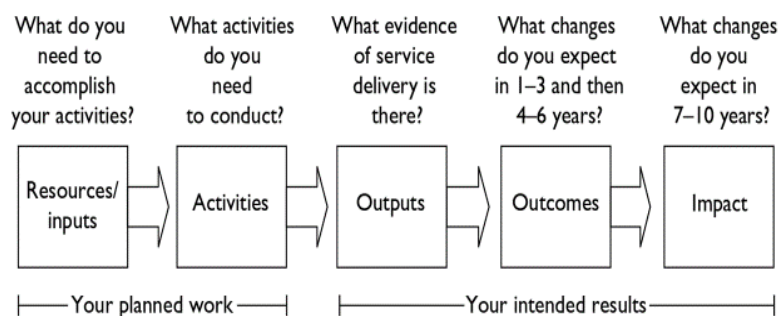
Logic Model/Theory of Change

Creating effective MOPs and MOEs requires a mature and rigorous theory of change or logic model so that practitioners, their commanders, and staffs fully understand the rationale and expected outcomes from a given information operation. RAND noted that “because the social and psychological processes required of influence efforts are not part of standard military intuition, it is important that connections (and assumptions) be explicitly spelled out.”⁶⁵ The logic that connects given outputs to outcomes may seem obvious, but the challenge for IRC

planners is making that connection explicit. The model should include description of the inputs, activities, outputs, outcomes for the planner's theory of change.

Inputs are those things that we put into the planning and execution of a program or project, like personnel or funding. Activities are those things that we do using the resources available to us.

Figure 4.1
Logic Model Template



SOURCE: Mertens and Wilson, p. 245

Outputs are the quantity and quality of services delivered; outcomes are the changes at the individual level, typically assessed through behavior, knowledge, skills, or attitudes. Mertens and Wilson use “impacts” to describe the broader, organizational or systemic level changes. This model fails to address the “net effect” or impact of organizational importance described by Weiss which is more useful in this discussion of evaluation.⁶⁶ Inputs resource the activities, and the activities produce the outputs, and the outputs lead to the outcomes. Importantly, outcomes “are characteristics of behaviors of the audience or population, not of the program or effort.”⁶⁷

Assumptions and external forces can affect the creation or execution of any part of the logic model, and should be explicitly stated.⁶⁸

Challenges and Risks

Evaluation is only as good as the people conducting it, and the purposes they use it for. Weiss⁶⁹ identifies conditions where an organization, or subgroup within an organization, uses evaluation or results inappropriately. One, “postponement”, relies on the long-term nature of

some evaluation processes to delay organizational decision making. In this case the organization has no interest in the findings of the evaluation, only in buying time before having to make a controversial choice. Second is “ducking responsibility.” In this case one group that is opposed to a course of action uses evaluation selectively to find reasons to avoid complying with a decision they disagree with. Third is “window dressing”: here a decision has already been made within the organization but evaluation is conducted to selectively provide support for that position or choice. In this instance contrary results are ignored or avoided in the design of the evaluation. Lastly are the closely related “eyewashing” or “whitewashing.” In these cases organizations cherry-pick the results that best serve their purposes and use those findings to advocate for a policy or hide organizational failure. Honest and useful evaluation must avoid these pitfalls, and commanders and their staffs must be accountable in guarding against them.

Additionally, IRC practitioners should not assume that they can use these methodologies to overcome the friction and fog of war. The information and cognitive domains are exceedingly complex, and it is unrealistic to expect deterministic, cause-and-effect relationships between MOPs and MOEs. Practitioners and commanders should think probabilistically and acknowledge the wide variety of factors that intervene and complicate assessing public communication efforts. Chaos is not a justification for not trying to assess effectiveness – it is a reason to make sure you do it as well as possible to mitigate risk and friction.

How an organization approaches evaluation or assessment research will have a significant impact on its utility. Often, due to organizational politics, a desire to champion a specific program or field, or simply through personal ego, research is used to justify and support preconceptions, attack opposing viewpoints and communities, or to make a particular person or group appear more successful. None of these conditions support the commander in making

decisions and “true evaluation research is done to gather information honestly and objectively to provide data for decision making with an open mind⁷⁰.”

Conclusion and Recommendations

Current DoD and Marine Corps doctrine does not adequately address the need to fully explain the connection between joint force actions and the effects we observe in target audiences in the cognitive dimension. In order to effectively modernize those communities that work in the cognitive maneuver space doctrine must be updated; personnel assignments should take social science and statistics skills into account or incorporate them into training; and commanders, practitioners, and staffs must become conversant in the language of experimental design and statistical analysis.

All IRCs should adopt guidelines similar to the Barcelona Principles 2.0 for assessing and evaluating operations in the cognitive or informational dimension. It is important to move away from measuring to evaluating our efforts. Without consistent and valid guidelines for assessment and evaluation IRCs will continue to struggle to provide commanders with valuable, actionable, and realistic feedback to aid decision making. Commanders, in turn, may continue to allocate scarce resources to operations that either fail to achieve their objectives or do not provide adequate return on investment.

Preference should be given to personnel with social science or statistics backgrounds when assigning Marines to IRC MOSs. Practitioners must be at least familiar, and ideally comfortable, with the concepts and methods of rigorous social science research and statistical analysis before we can expect them to use those tools. This will shorten the amount of time and training required to better incorporate those concepts into doctrine, training, and execution.

Statistical analysis, experimental design, and rigorous standards for quantitative and qualitative research must be incorporated into the MOS producing training pipelines for IRC personnel that operate in the cognitive domain. Furthermore, commanders should expect and

require their IO, MISO, PA, and/or CA personnel to incorporate these considerations into their planning and assessment and be able to explain the relevance and utility of their findings.

¹ Marine Corps Operating Concept, p. 6 and p. 20-21.

² Ibid.

³ Broom, Glenn. *Effective Public Relations, 11th ed.* (Upper Saddle River: Prentice Hall, 2009), p. 350.

⁴ Joint Publication (JP) 1-02, Department of Defense Dictionary of Military and Associated Terms, February 15, 2016, p. 110.

⁵ Marine Corps Warfighting Publication 3-40.4 Marine Air-Ground Task Force Information Operations, p. 1-4.

⁶ Ibid., p. 82.

⁷ Carol H. Weiss. *Evaluation, 2nd ed.* Upper Saddle River: Prentice Hall, 1998, p. 4

⁸ Ibid., p. 16. The full definitions are: 1. A continuous process that measures the overall effectiveness of employing joint force capabilities during military operations. 2. Determination of the progress toward accomplishing a task, creating a condition, or achieving an objective. 3. Analysis of the security, effectiveness, and potential of an existing or planned intelligence activity. 4. Judgment of the motives, qualifications, and characteristics of present or prospective employees or “agents.”

⁹ Surbhi S. “Difference Between Assessment and Evaluation.” July 7, 2016. Retrieved from <http://keydifferences.com/difference-between-assessment-and-evaluation.html> on December 14, 2016.

¹⁰ Christopher Paul, Jessica Yeats, Colin P. Clarke, Miriam Matthews. “Assessing and Evaluating DOD Efforts to Inform, Influence, and Persuade.” RAND, 2015

¹¹ JP 1-02, p. 149.

¹² Christopher Paul, Jessica Yeats, Colin P. Clarke, Miriam Matthews; Donna M. Mertens and Amy T. Wilson. *Program Evaluation Theory and Practice : A Comprehensive Guide.* (New York, NY: Guilford Press, 2012.); Carol H. Weiss. *Evaluation, 2nd ed.* (Upper Saddle River: Prentice Hall, 1998.)

¹³ Weiss, p. 8.

¹⁴ JP 1-02, p. 175.

¹⁵ Headquarters US Army, *Stability Operations, FM 3-07* (Washington, DC: Headquarters US Army, October 6, 2008), p. 4-9.

¹⁶ JP 3-61, Public Affairs, p. III-24.

¹⁷ JP 1-02, p. 192.

¹⁸ JP 3-13, Information Operations, p. VI-2.

¹⁹ Ibid, p. VI-11.

²⁰ Ibid, p. VI-3.

²¹ Ibid, p. VI-12.

²² Public Relations Society of America. “Best Practices Guide for Use of Statistics in Public Relations.” September 2011. www.prsa.org/Intelligence/BusinessCase/Documents/StatisticsBestPracticesGuide.pdf; Paul, Yeats, Clarke, and Matthews.

²³ JP 3-13, p. VI-12.

²⁴ Ibid.

²⁵ JP 3-57, Civil Military Operations, p. C-2.

²⁶ Ibid, p. I-14.

²⁷ JP 3-13.2 Military Information Support Operations, p. V-5 – V-6.

²⁸ Ibid., p. B-5.

²⁹ Ibid., p. IV-9.

³⁰ U.S. Joint Forces Command, “Commander’s Handbook for Strategic Communication and Communication Strategy,” (Suffolk, VA: Joint Warfighting Center, 2010), p. IV-26.

³¹ Ibid.

³² Ibid, IV-30.

³³ MCWP 3-40.4 Marine Air-Ground Task Force Information Operations, p. 1-1.

³⁴ Ibid., p. C-1 – C-3.

-
- ³⁵ MCWP 3-33.1 MAGTF Civil-Military Operations, p. 3-15.
- ³⁶ Ibid, p. 3-15 – 3-16.
- ³⁷ Garron J. Garn and Joseph Digirolamo. "First to "Like": Returning Relevance to Public Affairs." *Marine Corps Gazette* 99.12 (2015): 59-63
- ³⁸ David Rockland, "From Barcelona to Hong Kong: Moving toward measurement standards." April 2, 2012. Retrieved from http://apps.prsa.org/intelligence/Tactics/Articles/view/9697/1046/From_Barcelona_to_Hong_Kong_Moving_toward_measurement#.WIVhCvkrKMo, on January 10, 2017.
- ³⁹ Sarah Dawley, "7 Social Media Metrics that Really Matter – and How to Track Them." July 28, 2016. Retrieved from <https://blog.hootsuite.com/social-media-metrics/>, on January 20, 2017.
- ⁴⁰ The Conclave on Social Media Measurement Standards. "The Conclave: Complete Social Media Measurement Standards June 2013." Retrieved from, <http://smmstandards.wixsite.com/smmstandards/view-the-standards>, on January 20, 2017.
- ⁴¹ David Rockland. "The Barcelona Principles – David Rockland explains why change was necessary" International Association for the Measurement and Evaluation of Communication, September 3, 2015. <http://amecorg.com/2015/09/the-barcelona-principles-david-rockland-explains-why-change-was-necessary/>.
- ⁴² Andre Manning and David B. Rockland, "Understanding the Barcelona Principles." March 21, 2011. Retrieved from http://apps.prsa.org/intelligence/TheStrategist/Articles/view/9072/1028/Understanding_the_Barcelona_Principles#.WIVgF_krKMo, on January 10, 2017.
- ⁴³ International Association for the Measurement and Evaluation of Communication US Agency Research Leaders Group. "Valid Metrics for PR Measurement: Putting the Principles into Action, Based on the Barcelona Declaration of Measurement Principles." June 7, 2011. Retrieved from <http://amecorg.com/downloads/resource/ValidMetricsFramework7June2011PrintVersion.pdf>, November 17, 2016.
- ⁴⁴ John Sawhill and David Williamson. "Measuring what matters in non-profits." May 2001, McKinsey Quarterly. Retrieved from <http://www.mckinsey.com/industries/social-sector/our-insights/measuring-what-matters-in-nonprofits>, January 12, 2017.
- ⁴⁵ David M. Dozier, Larissa A. Grunig, and James E. Grunig. *Manager's guide to excellence in public relations and communication management*. Routledge, 2013.
- ⁴⁶ Christopher Paul, Jessica Yeats, Colin P. Clarke, Miriam Matthews, p. 66.
- ⁴⁷ Dozier, Grunig and Grunig.
- ⁴⁸ JP 3-61, JP 3-13, JP 3-13.2, MCWP 3-33.3, MWCP 3-40.4.
- ⁴⁹ Garn and Digirolamo. "First to "Like": Returning Relevance to Public Affairs." p. 59-63.
- ⁵⁰ JP 3-13, Information Operations, p. VI-2 – VI-3.
- ⁵¹ Marine Corps Operating Concept, p. 20-21.
- ⁵² Christopher Paul, Jessica Yeats, Colin P. Clarke, Miriam Matthews, p. 66.
- ⁵³ Howard J. Steltman. "Experimental design and analysis." *Pittsburgh: Carnegie Mellon University* 428 (2012), p. 3.
- ⁵⁴ Weiss, p. 87.
- ⁵⁵ Mertens and Wilson, p. 315; Weiss, p. 215; Christopher Paul, Jessica Yeats, Colin P. Clarke, Miriam Matthews, p. 148.
- ⁵⁶ Mertens and Wilson, p. 321.
- ⁵⁷ Ibid., p. 315.
- ⁵⁸ Ibid., p. 323.
- ⁵⁹ Ibid., p. 325.
- ⁶⁰ Ibid.
- ⁶¹ Ibid., p 325-327.
- ⁶² Christopher Paul, Jessica Yeats, Colin P. Clarke, Miriam Matthews, p. 153.
- ⁶³ Public Relations Society of America. "Best Practices Guide for Use of Statistics in Public Relations." September 2011.
- ⁶⁴ Ibid, p. 2.
- ⁶⁵ Christopher Paul, Jessica Yeats, Colin P. Clarke, Miriam Matthews, p. 103.
- ⁶⁶ Weiss, p. 8.

⁶⁷ Ibid., p. 90.

⁶⁸ W.K. Kellogg Foundation. "Logic Model Development Guide." January 2004, retrieved from <https://www.wkkf.org/resource-directory/resource/2006/02/wk-kellogg-foundation-logic-model-development-guide>, on January 10, 2017.

⁶⁹ Weiss, p 22.

⁷⁰ Broom, p. 353

Bibliography

- Armistead, Leigh. *Information Operations Matters: Best Practices*. Washington, D.C.: Potomac Books, 2010. Print.
- Broom, Glenn. *Effective Public Relations, 11th ed.* Upper Saddle River: Prentice Hall, 2009.
- Davis, Paul K., et al. *Effects-Based Operations: A Grand Challenge for the Analytical Community*. Santa Monica, CA: RAND, 2001.
- Dozier, David M., Larissa A. Grunig, and James E. Grunig. *Manager's guide to excellence in public relations and communication management*. Routledge, 2013.
- Garn, Garron J., and Joseph Digirolamo. "First to "Like": Returning Relevance to Public Affairs." *Marine Corps Gazette* 99.12 (2015): 59-63.
- Headquarters US Army, *Stability Operations*, FM 3-07 Washington, DC: Headquarters US Army, October 6, 2008.
- Headquarters US Marine Corps. *Marine Air-Ground Task Force Civil-Military Operations*. MCWP 3-33.1. Washington DC: Headquarters US Marine Corps, April 7, 2003.
- Headquarters US Marine Corps. *Marine Corps Public Affairs*. MCWP 3-33.3. Washington DC: Headquarters US Marine Corps, September 8, 2010.
- Headquarters US Marine Corps. *Marine Air-Ground Task Force Information Operations*. MCWP 3-40.4. Washington DC: Headquarters US Marine Corps, April 7, 2003.
- Joint Chiefs of Staff. *Information Operations Incorporating Change 1*. JP 3-13. Washington, DC: Joint Chiefs of Staff, November 20, 2014.
- Joint Chiefs of Staff. *Public Affairs Incorporating Change 1*. JP 3-61. Washington, DC: Joint Chiefs of Staff, August 19, 2016.
- Joint Chiefs of Staff. *Civil-Military Operations*. JP 3-57. Washington, DC: Joint Chiefs of Staff, September 11, 2013.
- Joint Chiefs of Staff. *Military Information Support Operations Incorporating Change 1*. JP 3-13.2. Washington, DC: Joint Chiefs of Staff, December 20, 2011.
- King, Sara B. "Military Social Influence in the Global Information Environment: A Civilian Primer." *Analyses of Social Issues and Public Policy* 11.1 (2011): 1-26.
- Leggetter, Barry and David Rockland. *Barcelona Principles 2.0*. Powerpoint presentation. Institute for Public Relations, retrieved November 15, 2016
<http://www.instituteforpr.org/barcelona-principles-2-0-updated-2015/>.

- Mertens, Donna M., and Amy T. Wilson. 2012. *Program Evaluation Theory and Practice: A Comprehensive Guide*. New York, NY: Guilford Press.
<http://public.eblib.com/choice/publicfullrecord.aspx?p=869331>.
- Michaelson, David and Don W. Stacks. *Standardization in Public Relations Measurement and Evaluation*. Powerpoint presentation. David Michaelson and Company, LLC, 2011.
- Paul, Christopher. *Assessing and Evaluating Department of Defense Efforts to Inform, Influence, and Persuade: Desk Reference*. Santa Monica, CA: RAND, 2015. Print. Research report (Rand Corporation).
- Seltman, Howard J. "Experimental design and analysis." *Pittsburgh: Carnegie Mellon University* 428 (2012).
- Ventre, Daniel. *Information Warfare*. London, UK: ISTE Ltd., 2009).
- Weiss, Carol H. *Evaluation*, 2nd ed. (Upper Saddle River: Prentice Hall, 1998).