

Preface

I am very pleased to provide all of you with a comprehensive text on the topic of Net Centricity and Interoperability. These are the types of topics that a lot of us hear about, but do not really find any further information, especially within the book stacks of our nearby bookstore.

Before delving into the topic's details, I would like to provide you with thoughts that went into preparing an approach for this book, and thoughts on the upcoming future. This includes an understanding of why this topic is important and the nexus of military and politics. I would like to then provide some notes to you as a reader and a summary discussion of the sections and chapters of this book.

WHY IS THIS TOPIC IMPORTANT?

Only once in a long time, does our military really transform itself to address fundamental change. Since the dawn of civilization, man has fought wars with each other and a lot of these battles have been recorded in our history books. These history books have described military commands in a hierarchical manner. Battlefield formations have usually been highly structured, with a commander in charge of a division, brigade, battalion, or a regiment. It takes real discipline, composure and a fighting spirit to win wars. The reason for all this structure is that men can then be grouped into action. In our past history, it has taken a massive compilation of physical forces to combat and defeat the enemy.

Well, times are changing. It is no longer necessary to just add up the number of soldiers to figure out the size and power of the military. One person or a small group of people can now be endowed with enough information, intelligence and lethal power to defeat large numbers of soldiers existing in a regiment or a brigade. It is also not necessary to have full command of all information at all times to defeat the enemy. Instead, it is better to provide real-time information and intelligence to the actual decision makers in the battlefield who are trying to actively combat the enemy. Here, it is important to recognize that today's soldiers are more intelligent and more able to take matters into their own hands and thereby – they can save their own lives and the lives of their comrades.

To take advantage of this situation, the military needs to proactively transform. This transformation is fundamental change that is very large in scope. Net Centricity is one word that defines this change. Net Centricity and the ensuing Network Centric Warfare intends to structure the military in a completely different manner to take advantage of today's power of human intelligence and the use of sophisticated technology.

The concept of Net Centricity engulfs within it a lot of new technologies and strategies that have been in the minds of administrators and the military for a long time. The concept includes within it, the ability to conduct incremental change. We all know that fundamental change is difficult, and changing

the perspective of our military planners, along with its effects on our citizens takes a long time. This is because people's minds change slowly. This also means that it is important for us to change our political mindset to make a difference as to how our military is administrated and governed.

After the disaster of 9-11-2001, one of the lessons learned that came out of our political consciousness was that our entire government and military infrastructure needs to be more interoperable. The big buzzword was how to "Connect the Dots" properly. The concept of Net Centricity works in tandem with the need for greater interoperability. We realize that if critical information is shared at the particular moment in time when we are all in danger, that it may be possible to avert that danger and eliminate that threat. So in turn, we would like to change our military and defense posture to fully address this need for communicating and networking with each other and within our own organizations.

Proliferation of Military Technology into Commercial Space

As Mr. Stenbit alluded to in his foreword, net-centric technology provides a military, civilian, commercial and personal component that make us enter into a new era of comprehension and decision making. This is similar in nature to how the Internet has transformed the Information Age in the past decade. Since the Department of Defense created the Internet, the rise of the World Wide Web and the information that it contains may be seen as a first installment of Net Centricity that has germinated within the commercial industry and information technology marketplace.

Just like the proliferation of Internet technology, the net-centric transformation is bringing forth a number of technology opportunities all incorporated within the net-centric enterprise umbrella –this is common for both government and commercial organizations. Challenges such as the implementation of a service-oriented enterprise, achieving effective information security, formulating a common data strategy, or the creation of a common information grid are all being tackled in the commercial market that have had its germination in the military space. This book intends to address this issue head-on, provide an understanding of government and military documents, and point out the appeal to a wider audience who is keen on making use of defense technology into their commercial enterprise.

The Nexus of Military and Politics

There is another component to this thought process and it is the interaction between the military and political spheres. Although this issue was not addressed directly within this book, it shaped the manner in how information is presented within this book. We all know that just because we come up with a great idea does not mean that this idea will be continually legislated and administered within the government. Net-centric activities within the military greatly depend on the presidential administration, the President's priorities, and Congressional legislation and oversight. The transformation of how our homeland is defended, and how we thwart our enemies overseas depends on Presidential direction, and the resources that we provide to our military and to our soldiers.

It is quite possible that the ongoing net-centric transformative activities will change radically in the future. The name, net-centric, itself may go away as new concepts and strategies take over. However, what will not go away is the current state of our technology, and how we intend to approach our target state. The information within this book is provided in an apolitical third-party manner, so that the advice that is given is more timeless in nature.

Public policy created by Congress and the President may sometimes be reactive, for example, to quell the latest incident that happens in the world. This is also the case for our federal budgetary needs and how the finances are appropriated in Congress. But fundamental change such as Net Centricity takes time,

and the fruits of this labor also may not be obvious immediately. So it is expected that a number of the net-centric initiatives within this book will happen in fits and starts. Incremental changes may progress to a point where research and development in technology is finally mature enough to be deployed in the field. We will then all wait as the future is redefined for the new way of doing things.

NOTES TO OUR READER

This book has been written to take into account all types of audiences. For the uninitiated who wants to simply use the book as a reference on the topic of Net Centricity, the book tries to objectively provide information such that it becomes a handy resource for look-up purposes. This book can be used for the purposes of teaching and as a supplementary text book for classes in military and defense technology.

For subject matter experts in the government and commercial contracting, this book allows you to aggregate a number of disparate topics all under the umbrella of Net Centricity. The book summarizes a lot of information from Department of Defense doctrines and instructions in a manner that is easily disseminated and understandable to everyone.

As a reader, it is best to be fully aware of security and information assurance concerns. If any of the topics discussed in this book is described in enough detail to contain military tactics, then the information sensitivity and the security classification increases. This book only uses information that is labeled as unclassified and for unlimited distribution. Deliberate measures have been taken to stay away from information that can be labeled as For Official Use Only (FOUO) or any information that can ever be labeled as Secret.

The book follows a modular manner where each section follows from the previous one. Each chapter is written in a self-contained manner that delves into a different topic within the same umbrella heading. The focus is on presenting the fundamental concepts, since if you can grasp the concepts and technical ramifications, then it allows you to delve further into tactical details.

Since the net-centric concept is in increments and layers, it is important to provide a perspective to show how it all fits together. Even though technology terms and implementations change over time, the hope is that some of the topics mentioned will stay static long enough, for further research and development from the military to the civilian world.

HOW IS THIS BOOK ORGANIZED?

The full title of this book, *Net Centricity and Technological Interoperability in Organizations – Perspectives and Strategies*, is certainly a mouthful. But as the name states, the book tries to provide you with a set of perspectives and strategies as to how the net-centric transformation is taking place, along with tackling the concept of interoperability.

The book has been organized into four sections and seventeen chapters. Each chapter has been written so that they can stand on their own, and each of them introduces new concepts that are distinct in nature. The sections provide a theme as you, the audience read through the book. This allows the book to appeal to multiple types of audiences – from the uninitiated to the subject matter expert who needs to surmise the knowledge base.

Section I: Becoming Net-Centric

This is the first section that introduces the topic, provides a description of the concepts of Net Centricity and Interoperability, and how organizations can become net-centric.

Chapter 1: Net Centricity: What Does It Mean?

This chapter provides you with a definition of Net Centricity, discusses terms such as Global Information Grid and Network-Centric Warfare, discusses the Net-Centric Data Strategy and Information Assurance Strategy and provides you with a literature review of current publications.

Chapter 2: Today's Information Enterprise

This chapter steps back and provides an understanding of today's information enterprise, it discusses information types and terms such as data, information, knowledge and intelligence. It discusses decision making in a collaborative setting and an information sharing strategy.

Chapter 3: Measures of Interoperability

This chapter focuses on the concept of interoperability, defines the term, discusses specific types of interoperability, and introduces how to measure interoperability levels, and the effects within a distributed enterprise.

Chapter 4: Net-Centric Operational Environment

This chapter discusses the challenges of today's military, provides a model for a net-centric operational environment and how information should be managed within a theater of operations. It also provides a real-life scenario of an upcoming net-centric environment.

Section II: Transformational Perspectives

The second section addresses the book's objectives to provide perspectives and strategies by focusing on the transformation aspects, and presents viewpoints from guest authors.

Chapter 5: Target State for Defense Information Enterprise

This chapter addresses the defense transformation to a target information enterprise, it discusses the vision, goals and objectives, provides a guest author perspective, offers a reference model and how it meets all of the net-centric goals.

Chapter 6: Net-Centric Military to Civilian Transformation

The chapter specifically provides information on how military to civilian information transfer can take place, describes command-and-control principles of today and how it can be transformed to a net-centric model. It then provides a guest perspective on net-centric computing.

Chapter 7: Healthcare Transformation in a Net-Centric Environment

This chapter focuses specifically on the healthcare sector, and the transformation of the Military Health System and Veteran's Health Administration. It provides a guest author perspective on military health and discusses the Theater Medical Information Program.

Section III: Configuring for Net Centricity

This third section provides you with a number of technology topics that all together provide a better understanding of Net Centricity.

Chapter 8: Use of Enterprise Architecture as a Net-Centric Discipline

This chapter describes the expertise of enterprise architecture; address enterprise architecture planning, implementation, and transitioning to the future state. It then discusses DoD enterprise architecture views and how to meet net-ready key performance parameters.

Chapter 9: Net-Centric Information Assurance Strategy

This chapter defines information assurance, its basic tenets, and how security controls are implemented, discusses DIACAP procedures, Common Criteria standards, and net-centric information assurance goals.

Chapter 10: Adhering to Open Technology Standards

This chapter discusses the proliferation of open standards, discusses standards organizations, provides the DoD technology reference model, and then offers a technical standards profile that can be used by any organization.

Chapter 11: Service-Oriented Architecture and Net-Centricity

This chapter discusses the concept of Service Oriented Architecture, how it is crucial to net-centric principles, provides an understanding of web services, service producers and consumers and the advent of a service-oriented enterprise.

Chapter 12: Transition to IPv6-Based Networks

This chapter discusses the transition to a IPv6-based next generation Internet, discusses all of the IPv6 specifications, transition to an IPv6 network and a set of IPv6 standards, then it discusses mobile IPv6 strategies.

Chapter 13: Storage Strategy for the Distributed Enterprise

This chapter discusses storage technologies, how to address digital storage requirements for a distributed enterprise, discusses different enterprise storage design and evaluates network considerations.

Section IV: Assessing Net Centricity in Organizations

The final section looks at each of the different topics from an assessment perspective. The last chapter then provides an understanding of the upcoming state of Net Centric Service Oriented Enterprise for government and civilian organizations.

Chapter 14: Architecture Assessment of the Federal Enterprise

This chapter reviews enterprise architecture mandates within the federal government, discusses Clinger-Cohen mandates for information technology investment reform, OMB enterprise architecture assessments, and maturity of organizations.

Chapter 15: Net-Centric Assessment and Interoperability Testing

This chapter focuses specifically on assessment questionnaire for net-centric and interoperability compliance. This includes data assessment, information assurance, networks and transport mechanisms along with interoperability testing.

Chapter 16: Technology Evolution Assessment for the Future

This chapter addresses the topic of technology evolution, how to assess organizations with regard to technology standards forecasts, and how to conduct a trade study to acquire hardware and software.

Chapter 17: Achieving a Net-Centric Service Oriented Enterprise

This last chapter provides the audience with an understanding of the target state after the net-centric transformation. It provides a transition mechanism to get to a net-centric service oriented enterprise, the life cycle processes and how it will benefit different industry sectors.

At the end of the book, there is a set of acronyms and a full glossary of terms to describe each of the nomenclature that have been used throughout the book.

Enjoy,

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