Chapter 39
Information–Based Revolution in Military Affairs

Rafal Kopec
Pedagogical University of Krakow, Poland

ABSTRACT

The subject of the chapter is the information-based revolution in military affairs (RMA). The concept of RMA is identified as a way to increase combat capabilities based on a synergy between three spheres: information acquisition, information processing and transfer, and making use of information in order to enhance firepower. RMA includes the following key elements: technological change, doctrinal, strategic, operational and tactical change, and transformation of military organizational structure. Paradoxically, military transformation takes place while the pace of military technology development decreases, which poses a significant inhibitor. Consequently, only the first RMA stage—computerization—might be recognized as a relatively advanced one, whereas its second stage—networking—is far from this level. The chapter's aim is to present the RMA concept and its practical application in transformation of military forces. The chapter examines to what extent expectations emerging from RMA have been fulfilled in armed conflicts over the last two decades.

INTRODUCTION

Revolution in Military Affairs (RMA) is a general term describing a fundamental change in the character and conduct of armed conflicts. The majority of RMAs rely on the development of new technologies, however, they also include different aspects. RMAs typically consist of three elements: technological change, innovative operational concept, and organizational adaptation (Krepinevich, 1994). The RMA term was introduced by Michael Roberts in the context of revolutionizing the methods of waging war based on changes in tactics and technology between 1560 and 1660 (Roberts, 1956).

The subject of this article is the last RMA. The crux of it is to apply information technology (IT) in warfare. Being precise, the last RMA should be called Information-based Revolution in Military Affairs (Davis, 1996). However, the RMA term has been commonly attributed to Information-based Revolution in Military Affairs since the 90s. In 1993, Andy Marshall, the Pentagon's Director of Net Assessment,

replaced the previous term "military-technical revolution" with "Revolution in Military Affairs" to underline a comprehensive change in military. It not only represents a technological change, but also a change in doctrine and organization (Watts, 2011).

BACKGROUND

Looking for the roots of RMA, it is necessary to recall a number of technological breakthroughs, whose synthesis provides the foundation of the revolution. RMA – similarly to the majority of military revolutions in the history – it is not based on one groundbreaking innovation, but it takes advantage of a number of technological changes. In this case, the miniaturization of computer hardware and creation of highly efficient, decentralized data communication networks are the crucial technologies.

Applying these technologies in military was for the United States and others NATO countries the way to overcome the Warsaw Pact's quantitative dominance in conventional forces. A number of new types of weaponry were developed in the 80s, and they are generally divided into two groups: reconnaissance systems and striking systems (U.S. Congress, Office of Technology Assessment, 1986). The JSTARS (Joint Surveillance Target Attack Radar System) airborne reconnaissance system was the example of the first group, whereas the MGM-140 ATACMS (Army Tactical Missile System) surface-to-surface missile system represented the second one. These two elements were based on new technologies and cooperated closely thanks to highly-efficient data communication networks. They built together the innovative reconnaissance-attack system, and created background for further transformation.

The roots of RMA go to a given strategic problem, that is, anticipated confrontation with outnumbered Soviet forces. It is typical for military revolutions, which occur at a certain time and place just because they offer solutions to actual, not hypothetical, problem (Cohen, 2002; Bjerregaard, 2012).

The assumptions of the new concept were successfully tested during the Desert Storm operation in 1991. Hence, RMA indicated the direction of transforming the American army, and afterward other modern forces. In simple terms, the transformation was aimed at converting armed forces into one coherent reconnaissance and striking system. It should be based on all available sensors and effectors connected with decentralized data networks (US Department of Defense, 2005).

REVOLUTION IN MILITARY AFFAIRS: ASSUMPTION AND PRACTICE

The Key Elements of RMA

The core of RMA consists of the following interpenetrated elements:

1. Computerization and Networking

Battlespace awareness would replace traditional determinants of dominance like firepower, survivability and mobility. Constantly updated knowledge about location of friendly and foe forces should become a critical factor which determines the military success. The quest for the information superiority has been the leading motive of military transformation. Implementing the new types of weapon is not considered as the essence of the revolution. The integration of all elements of battle formation with information

10 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/information-based-revolution-in-military-affairs/215888

Related Content

Web 2.0 and Government Transformation: How E-Government and Social Media Contribute to Innovation in Public Services
Jon E. Glasco (2012). *Public Service, Governance and Web 2.0 Technologies: Future Trends in Social Media (pp. 201-222).*
www.irma-international.org/chapter/web-government-transformation/61860

Open Government: The Line between Privacy and Transparency
Maryam Al-Jamaland Emad Abu-Shanab (2018). *International Journal of Public Administration in the Digital Age (pp. 64-75).*
www.irma-international.org/article/open-government/201153

The Four Paradigms of Archival History and the Challenges of the Future
Ivan Szekely (2015). *Management and Participation in the Public Sphere (pp. 1-37).*
www.irma-international.org/chapter/the-four-paradigms-of-archival-history-and-the-challenges-of-the-future/131215

E-Business: Concepts and Context with Illustrative Examples of E-Business and E-Commerce in Education
Raid Al Dabbagh (2011). *Handbook of Research on E-Services in the Public Sector: E-Government Strategies and Advancements (pp. 450-462).*
www.irma-international.org/chapter/business-concepts-context-illustrative-examples/46281

Gender Sensitivity of Adult Education Activities of Community-Based Organizations in Ghana
Louis Caleb Kutameand Abigail Aryeh-Adjei (2020). *International Journal of Public and Private Perspectives on Healthcare, Culture, and the Environment (pp. 41-51).*
www.irma-international.org/article/gender-sensitivity-of-adult-education-activities-of-community-based-organizations-in-ghana/243477