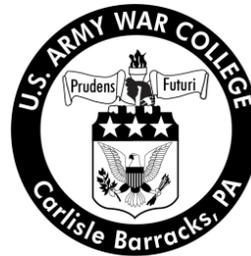


Strategy Research Project International Fellow

The Army of 2020 – Challenges, Changes and Chances

by

Colonel Dariusz Parylak
Polish Army



United States Army War College
Class of 2013

DISTRIBUTION STATEMENT: A

Approved for Public Release
Distribution is Unlimited

COPYRIGHT STATEMENT:

The author is not an employee of the United States government.
Therefore, this document may be protected by copyright law.

This manuscript is submitted in partial fulfillment of the requirements of the United States Army War College Diploma. The views expressed in this student academic research paper are those of the author and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the U.S. Government.

The U.S. Army War College is accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools, 3624 Market Street, Philadelphia, PA 19104, (215) 662-5606. The Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

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) xx-03-2013		2. REPORT TYPE STRATEGY RESEARCH PROJECT		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE The Army of 2020 – Challenges, Changes and Chances				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Colonel Dariusz Parylak Polish Army				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Dr. Adam Silverman Department of National Security and Strategy				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army War College 122 Forbes Avenue Carlisle, PA 17013				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Distribution A: Approved for Public Release. Distribution is Unlimited.					
13. SUPPLEMENTARY NOTES Word Count: 5444					
14. ABSTRACT It is commonly believed that the collapsing of the bipolar strategic environment at the end of the 20th century provided the opportunity to create a new international order. The world's society sighed with relief and began to design a new post Cold War strategic environment. Hardly had a new international order been shaped when the attacks of September 11, 2001 disrupted this process. This tragic event opened a new chapter of the international strategic environment forcing the world's authorities to review a national grant strategy and adjust it to the new challenges, coming changes and emerging chances (3Cs). The Army, as a vital component of the military power, must meet the expectations of a national security policy and strategy (NSPS). The Army of 2020's model must not only be adapted to the present strategic environment, but it should also advance to the 3Cs of the third decade of the 21st century.					
15. SUBJECT TERMS Model of Future Army					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES 32	19a. NAME OF RESPONSIBLE PERSON
a. REPORT UU	b. ABSTRACT UU	c. THIS PAGE UU			19b. TELEPHONE NUMBER (Include area code)

USAWC STRATEGY RESEARCH PROJECT

The Army of 2020 – Challenges, Changes and Chances

by

Colonel Dariusz Parylak
Polish Army

Dr. Adam Silverman
Department of National Security and Strategy
Project Adviser

This manuscript is submitted in partial fulfillment of the requirements of the United States Army War College Diploma. The U.S. Army War College is accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools, 3624 Market Street, Philadelphia, PA 19104, (215) 662-5606. The Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

The views expressed in this student academic research paper are those of the author and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the U.S. Government.

U.S. Army War College
CARLISLE BARRACKS, PENNSYLVANIA 17013

Abstract

Title: The Army of 2020 – Challenges, Changes and Chances
Report Date: March 2013
Page Count: 32
Word Count: 5444
Key Terms: Model of Future Army
Classification: Unclassified

It is commonly believed that the collapsing of the bipolar strategic environment at the end of the 20th century provided the opportunity to create a new international order. The world's society sighed with relief and began to design a new post Cold War strategic environment. Hardly had a new international order been shaped when the attacks of September 11, 2001 disrupted this process. This tragic event opened a new chapter of the international strategic environment forcing the world's authorities to review a national grant strategy and adjust it to the new challenges, coming changes and emerging chances (3Cs). The Army, as a vital component of the military power, must meet the expectations of a national security policy and strategy (NSPS). The Army of 2020's model must not only be adapted to the present strategic environment, but it should also advance to the 3Cs of the third decade of the 21st century.

The Army of 2020 – Challenges, Changes and Chances

Real generosity toward the future lies in giving all to the present

—Albert Camus

If one follows Camus' logic the future starts today not tomorrow, so current solutions are included in the concept of the Army of 2020. The action and steps taken will reflect the upcoming changes, opportunities, and challenges of tomorrow. It is commonly believed that the collapse of the bipolar strategic environment at the end of the 20th century provided the opportunity to create a new international order. The world's society sighed with relief and began to design a new post Cold War strategic environment. Hardly had a new international order been shaped when the attacks of September 11, 2001 disrupted this process. This tragic event opened a new chapter of the international strategic environment forcing the world's governments to review a national grand strategy and adjust it to the new challenges, coming changes, and emerging chances (3Cs).

The Army as a vital component of military power must meet the expectations of a national security policy and strategy (NSPS). Currently the international security environment is built around the coalition effort and necessitates building the common standard for each national Army capabilities. That is why a coalition Army must meet Minimum Capabilities Requirements (MCR) in order to present equal standards. Based on the arguments of Carl von Clausewitz one must ensure "a continuation of political intercourse, with addition to other means,"¹ in order to gain one's desired strategic ends.

The Army of 2020 model is a theoretical model which must not only be adapted to the present strategic environment but it should also advance to the 3Cs of the third decade of the 21st century. Furthermore, this model is not directly connected with any

specific country, but it is a NATO's Alliance Army model which may be able to meet expectation of potential future conflict. It is a kind of tool or theoretical pattern for each NATO member. Comparison between the Army 2020 model and NATO member's current armies allows one to recognize the alliance's capabilities gap, which should be filled in order to meet expectations of the future security environment. Thus, while analyzing four vital factors the implications for a potential future conflict, its potential character, the Army's capability requirements, and its transformation priorities, it would be relevant to establish the Army of 2020 model which should pursue future challenges, changes and chances.

First, the analysis of a strategic environment's evolution enables one to determine the implications for a potential future conflict. Moreover, by observing the key worldwide trends across a variety of domains, such as natural disasters, changes in demography, natural resources, globalization, ideological movements, international crime, and the risk of weapons of mass destruction (WMD) will lead one to better recognize changes and potential future global threats. As a result, it will enable one to categorize the root causes of a potential conflict as well.

Second, an assessment of the character of potential future conflicts will provide necessary information relating to the expected Army's capability requirements. These estimations, based on global trends and anticipated scenarios, will help to identify the technological, doctrinal, procedural and mental transformations which should be applied in order to meet the Army of 2020 model MCRs. Additionally, it is necessary to compare them with other instruments of military power so that coalition and multinational aspects can be taken into consideration.

Third, the identification of the army`s capability requirements is a very important part of the Army`s pre-transformation process. Theorists argue that some generic principles such as adaptability and agility, interoperability and standardization, concepts and doctrines, procurement, and the design for export and sustainment of existing capabilities² should be taken into consideration as well. Predominantly, the recognition of capability gaps makes it possible to determine the key areas for development in order to fill potential capability needs.

Finally, the transformation priorities and organizational principles of the Army constitute a very essential factor. The identification of specific capability areas for the Army and short, mid and long-term developments enable one to establish the transformation priorities of the Army of 2020. As far as specific capabilities are concerned, the key areas for development have been identified such as command, information, engagement, protection, deploy and sustainment³. These key areas of expansion should meet the crucial land capabilities requirements of the Army 2020 model.

Analysis of the Strategic Environment`s Evolution

The world we live in today is very different from what it was like just one or two decades ago. As described in the European Communities National Strategy Review, all countries operate in “an interdependent world where friends, allies, competitors, adversaries and enemies all hold the ability to affect the fate of other states.”⁴ The ongoing transformation processes within the global strategic environment have had their effects on the national interests of many countries. Facing intense geopolitical, social, and cultural changes, the ensuring of security, prosperity, human values, and what is most important, the international order by the present worlds power governments should

be guaranteed because they all constitute the ability to survive and develop international societies. Observing these processes, analyzing threats and opportunities, and monitoring important trends all make it possible to shape a global security landscape.

The Center for Strategic & International Studies (CSIS) identified seven areas of changes expected to be most “revolutionary” in the next decade. They are: population, resource management and environmental stewardship, technological innovation and diffusion, the development and dissemination of information and knowledge, economic integration, the nature and mode of conflict, and the challenge of governance.⁵

Falk, Moss and Shapiro assert that “by 2025 the global population is likely to reach 8 billion. Seven countries (India, China, Pakistan, Nigeria, Indonesia, Bangladesh, and Brazil)”⁶ are expected to account for the majority of the world’s population. In addition to this, the largest amount of population growth will occur in countries “in sub-Saharan Africa and South Asia”⁷, regions that include some of the poorest, least-stable and, in particular, the most suffering from the HIV/AIDS epidemic. With reference to the effects of globalization, such as migration and urbanization, this growth can become a serious threat. Workers move from one country to another partly for better employment and access to advanced economies, but such migration also generates increased social and cultural turbulence. National interests, such as prosperity and security can be disrupted. These facts and events can create major problems, especially in advanced countries such as the U.S., the European Union, Canada and Australia. These regions will be the primary destinations for the majority of international immigrants from China, India, Indonesia, and Pakistan.

Resource management and environmental stewardship are another strategic challenge, which can cause serious global problems. Falk argues that the management of food, water and energy “will affect economic development, poverty reduction, social welfare, geopolitics and the stability and security all over the world.”⁸ The contemporary changes in agricultural technology have dramatically increased eco-system degradation, and areas available for agriculture have also diminished. Moreover, water reserves are limited and as a result food prices are still increasing. This constraint could significantly delay economic development and it could cause serious tensions around the world. Additionally, shortages in energy sources and supply disruptions will continue to have an influence on oil, gas and coal prices, and, as a result could lead to new geopolitical crises. Scientists assume that “tensions will flare again in the future with changes in world energy demand.”⁹

In the information age, technical innovation and diffusion are incorporated into some vital areas of the society. On the one hand people are turning to technology in order to solve a number of problems or facilitate human beings. Technical innovations such as computing, nanotechnology, biotechnology and genetics impact almost all disciplines of human life. But on the other hand people are becoming more and more addicted to that technology, which makes society more vulnerable and can create unpredictable consequences and threats.

Additionally, the present world is defined more than ever before by its “knowledge based economy” where communication assets “are fueling this evolution by spreading new ideas and innovations to ever-greater numbers of people each day”¹⁰. The development of technology is decentralizing information access, and in accordance

with Falk, creates an “open-source society”¹¹. Individuals and companies on opposite sides of the globe with access to the Internet can cooperate and share information and ideas. However, Friedman argues that this technical innovation and access to open source technology “also exposes organizations, governments and citizens to the risk of fraud or even cyber-warfare”,¹² and what is important is that access to information should not only be available to all, but, without a doubt, it should also be modified and adopted by all.

At the same time, while the information revolution is ongoing, globalization has forced the process of economic integration. The flow of goods, capital, and human resources through the international market provides a lot of benefits, as well as costs to developed and developing countries alike. Nevertheless, this economic prosperity has not resulted in the same outcome for all people, and, according to Falk, creates poverty and inequality. He asserts that “high levels of income inequality are bad for growth and are associated with many of the negative effects, including high mortality, poor education, and crumbling infrastructure.”¹³ Finally, social stability can be threatened, which can lead to social and political unrest.

A number of environmental changes, resource competition and economic integration, in conjunction with the technological and information revolution, create challenges for governance. Political coalitions, economic alliances, and the engagement of non-governmental organizations and other narratives change the geo-political and economic landscape and affect many disciplines of a social life. Multinational corporations and transnational stakeholders have not only influenced the national economic system but they have also created new governance architecture. Klaus

Schwab, founder and executive chairman of the World Economic Forum, describes this imperative as “global corporate citizenship.”¹⁴ He states that this new management architecture “can be good both for the corporation and for society”¹⁵, but at the same time it can diminish a state’s influence, limit its political power, and cause a lack of global leadership. Finally, it has the potential to lead to a global political crisis.

Recently, the most important changes have occurred in the nature of conflict. Falk and Moss claim that today’s warfare is increasingly described as being asymmetric because traditional military powers “are confronted by increasingly atypical adversaries.”¹⁶ They argue that “non-state ideologies, transnational criminal syndicates, and rogue states employ unconventional tactics in wars ambiguous in both place and time”¹⁷, which creates a new nature and mode of conflict. It is justified here to speculate that conflict is currently more likely to occur between warring factions on residential streets than between armies on battlefields. Moreover, the size and scale of terrorist’s abilities, such as those of well-organized extremist groups like al Qaeda, have become truly alarming. Rachel Ehrenfeld - Director of the American Center for the Study of Corruption & the Rule of Law states that, “the huge revenues from the heroin trade fill the coffers of the terrorists and thwart any attempt to stabilize the region.”¹⁸ These two facts show that the modes of future conflict are still significantly changing and shaping a new character and overall characteristics of potential war. Subsequently, the growing prevalence and power of well-funded terrorists groups and transnational criminal networks may result in their increasing ambition to possess a weapon of mass destruction (WMD). Experts are warning that WMD in the hands of non-state actors like transnational criminal or terrorists groups can create serious asymmetric threats.

Further, these threats will cause militaries around the world to adapt to stay abreast of the new challenges posed by the novel conflict narratives.

The Character of Future Conflict: An Estimate

Although it is difficult to portray the future correctly and accurately, theorists stress that it is characterized by increasing: “volatility, uncertainty, complexity and ambiguity (VUCA)”¹⁹, which they base on the early indicators of the 21st century strategic security environment. A considerable analysis of the future global context suggests that possible causes of conflict may well emanate from one or more of a combination of the following factors: natural disasters, migration, an increasing demand for natural resources, particularly fresh water and energy, globalization, failed and failing states, ideology, trans-national crime, and WMD as “potentially the greatest threat to international security”²⁰ which may require military response. Subsequently, novel and crucial phenomena such as hybrid threats are potentially of great concern. The combination of a few of these factors can create a multi-causal threat, which could lead to a domino effect and may be very difficult to resolve.

Having identified potential causes of conflict by addressing future strategic drivers in the 21st century, the next necessary step would be to look at the form and character of potential future conflicts. UK Army Doctrine presents the opinion that the nature and mode of conflict are continuously developing because of human experience, innovation, and the sources of the conflict as well. This doctrine identifies five characteristics of conflict, which also gives some indicators for the near future, and it “can be better understood by describing it as congested, cluttered, contested, connected, constrained,”²¹ as well as coalition (C6).

Although an Army (land forces) seeks freedom of movement, recent experience from the operations in Iraq and Afghanistan indicate that forces may not avoid being involved in conducting ground operations into urban areas where most political, economic, and military activities are concentrated. With reference to using non-military assets and as it concerns non-state actors it all seems to be a tremendous challenge for the Army 2020 model to conduct joint operations in multinational or coalitional environments. Additionally, the proliferation of satellite and cyberspace military assets joined with the commercial use of that environment makes the future conflict congested and more complex as well.

However, a congested operational environment, characterized by a density of combat narratives and actors, creates an extremely cluttered conflict architecture, which can be perceived as advantageous, because it provides good opportunities for concealment. On the other hand, significant amounts of kinetic and non-kinetic assets may bring a negative impact as well. UK Army Doctrine argues that the demands for legitimacy and the avoidance of collateral damage make targets difficult to find, track, select and engage²² in such a cluttered environment. It will likely require a selective attack with a high-probability of success and it may also provide the opportunity for small-size combat structures to achieve strategic effect, particularly against powerful opponents or adversaries.

Modern trends make it possible for potential adversaries to try to contest in all environments and force their will onto their opponents. British Ministry of Defense Doctrine asserts that “technological diffusion and the innovative use of existing technologies underpin this threat.”²³ The authors of that publication assert that

“adversaries will try to hold and exploit significant ground for political and military purposes.”²⁴ Additionally, state and non-state actors seek to possess the CBRN capability in order to change the balance of power which may affect regional security and stability.

On the other hand, “global activity will continue to gravitate towards inter-connected nodes”²⁵, which seem to be included in the centers of activity. We perceive nodes as critical strategic means. For example communication centers, logistic infrastructure, centers of governance, locations of WMD, mass media facilities, ethnic concentrations, as well as other considerations that can include various kinds of networks (common relations) such as well-organized communication, efficient logistics, and effective protection. In other words, the nature of inter-connected nodes is such that it should be cohesive, and without a doubt, very sensitive and receptive to any act of disruption.

Today the geopolitical environment creates various legal, economic, social, ethic, moral and human norms which constitute an enormous impact for a potential conflict, and place constraints on the conduct of an operation. The international community, supported by mass media, demands transparency in the conduct of combat operations. Therefore, “the increasing difficulty in distinguishing between combatants and non-combatants requires targeting preparation and restraint in execution,”²⁶ which, on the one hand can limit a risk, but subsequently, it can reduce a combat capability as well.

The process of ongoing globalization forces foreign nations to build coalitions, alliances, and mergers for political, economic, and/or capability reasons. Moreover,

nations decide to sacrifice their military independence in order to create a strong, international security organization capable of meeting the expected combat standards. However, conducting an operation in a multinational and joint environment may entail many challenges in the planning and execution of a mission, and it necessitates relevant physical and mental adjustments.

Identifying Required Army Capabilities

The assessments of the security environment in which forces may fight in the future are included in the characterizations of a global VUCA environment. Moreover, Nathan Freier of the Center for Strategic & International Studies (CSIS) has reaffirmed that “ground centric operations”²⁷ will be the future challenge for the Army. In his team’s surveys and studies there is “a list of fourteen future operational types and their basic characteristics”²⁸ summarized by Table 1 (see Figure 1). In order to determine most probable and challenging ground-centric operations, the future capability requirements should be measured against three crucial kinds of operation types: Major Combat Operations (MCO), Stabilization Operations (SO) and Non-combat Evacuation Operations (NEO).

Major Combat Operations are defined as “large-scale military operations focused on the defeat of an enemy state’s conventional and irregular military capabilities.”²⁹ It is believed that MCO involves diplomatic, military and economic actions and the full resources of the engaged states and actors may be included as well. Undoubtedly, MCO tends to be distinguished by intense combat activities, like battles and engagements, which require high logistic consumption, which in turn necessitates the regeneration of combat power. Additionally, the complexity of future combat missions results in the integration of high-intensity of maneuver, firepower, force (means)

protection, and several levels of command. The consequences of such an integration is that a full spectrum of capabilities will be needed in order to fulfill this kind of mission.

A literature review focusing on material in the public domain includes a recent doctrine which describes Stabilization Operations as: “longer term, mainly land-based operations to stabilize and resolve conflict situations primarily in support of reconstruction and development partnership with others.”³⁰ Moreover, Stabilization Operations might require the use of force, which should be able to face different forms of irregular activities by criminals, insurgents, opportunists, and terrorists. It might be necessary to maintain combat and non-combat capabilities with economic, and information power and political influence assets in order to build security, confidence and expectations of the local population in the area of responsibility.

Non-Combat Evacuation Operations (NEO) are another type of representative military activities. U.S. Joint Publication 3-68 defines NEO as military activities which are conducted in order to evacuate civilian personnel, designated host nation, and third country nationals whose lives are in danger from locations in a foreign nation to an appropriate safe haven.³¹ In other words, NEO is a category of operation conducted in order to reposition selected non-combatants threatened in a foreign country to safety. It can be classified as a limited intervention operation to evacuate non-combatant personnel. Moreover, a characteristic feature of the NEO is that it usually should be conducted under the auspices of the UN, and it may be required for natural disaster or conflict threat or a combination of both.

Having identified and characterized the representative military activities with relation to the detailed analysis of global trends and estimation of potential future

threats, it appears quite obvious one must consider the key military capabilities which may be the challenge for the Army of 2020. Most of the lessons learned have confirmed the necessity for the development of capabilities and requirements for future land forces. It is becoming clear that this capability needs to be established in a more permanent fashion. However, in order to be successful, the Land Force requires such capabilities that should be defined as persistent, pervasive, and proportionate,³² and with the three main domains such as doctrine, technology, and training should be included.

Military theorists recommend that collaborative planning, assimilation and coordination of activities between combat and non-combat assets in conjunction with other narratives and operating in the JIIM environment necessitate many doctrinal, procedural and organizational adjustments. Moreover, the integration of intelligence, Military Information Support Operations (MISO), and Civil-Military Co-operation (CIMIC) activities also entails an adequate modification in these spectrums of operations. Other observations that are noteworthy have also been made, which proves that battle group (BG) size elements are still vital, efficient, and suitable combat components for potential future military activities. Finally, tactics, techniques and procedures (TTP's) should meet the expected conditions, including the congested character, of future operations and the JIIM landscape of the ground operation. All these factors may be considered overall as one common denominator of interoperability and standardization.

Present surveys and lessons learned confirm that interoperability and standardization of capabilities are vital to enable one to conduct a military operation in the JIIM (Joint, Intergovernmental, Interagency, and Multinational) and the combined

environment. Acquisition, material and weapon standardization should correspond to civilian standards and, the “interoperability and standardization will be greatly facilitated by harmonization of concepts and doctrine”³³ as well. It necessitates creating common, transnational, and multinational mechanisms to exchange information between the military organizations in order to achieve efficient development and validation of concepts and doctrines by nations and alliances.

Current studies confirm that military technology is still a crucial domain of the Army of 2020`s capability requirements. The density of combat narratives, particularly the strong presence of non-military actors, global governmental and non governmental organizations, the constant presence of media, and the need for transparency of action create a cluttered conflict architecture, which demands the avoidance of collateral damage. Furthermore, the character of contemporary conflicts is distinguished by the difficulty of applying force in a congested and cluttered environment which brings about constraints placed on the commander`s freedom of action, and apart from that, often leads to highly restrictive Rules of Engagement. Particularly, the requirement for transparency, within the bounds of operational security, will put greater pressure than ever before on commanders at all levels. Every decision and operation may be “scrutinized in real time by media whose independent access to information will be virtually impossible to restrict.”³⁴

Moreover, the information environment is more and more connected and accessible, which results in the proliferation of mobile and digital technologies. This connected character of future operations demands several improvements in command, communication and information systems in order to integrate all available assets

including cyberspace threats. Authors of Australian Army publications concerning Future Land Force Operations assert that a complex informational terrain, which is described by multiple sources for the exchange of information, increasingly involves modern technologies for communication, data, or information transfer. The force operating in such an environment must be able to control all streams of information in its operational area.

However, in order to meet the potential expectations of a future battlefield structural design, the Army of 2020 model must also be capable of conducting integrated, both kinetic and non-kinetic, activities so that it can eliminate the negative effects of warfare. What is more, the present improvement of weapons is not well-suited to urban operations, which seems to be important with reference to combat activities in the future for army operations. Achieving a better balance between kinetic and non-kinetic assets requires creating a full spectrum of effects by using lethal to less-than lethal weapons. Moreover, nonlethal rather than lethal capabilities seem to be very useful to deal with asymmetric threats because it minimizes the risk of fatalities and harm done to the critical infrastructure. It means that a non-lethal weapon, unmanned aerial vehicles (UAV's), unmanned combat platform (UCPs), combat robots, laser-based directed energy weapons³⁵ (DEW), and automation and visualization's systems constitute challenges for the Army of 2020. These should be considered to fulfill future expectations. This will allow the Army of 2020 to be able to engage in conventional and also asymmetric combat against other armed forces and non-combatant players of an operational background.

On the other hand, the Army 2020 operating in the connected and information-dependent combat environment is very sensitive to cyberspace threats. Michael N. Schmitt, Professor of International Law, points out that the Computer Network Attack³⁶ (CNA) is a principal form of non-lethal effect dedicated to disrupt, disable or degrade an adversary's command and control systems. These attacks have been used in recent conflicts. David Hollis, a senior policy analyst with the Office of the Undersecretary of Defense for Intelligence, asserts that "Russian cyberattack upon Estonia in 2007 and Russian cyberattack on Georgia were accompanied by a physical domain combat between Russian and Georgian military forces."³⁷ It illustrates that the CANA may expand in future conflict if the Army of 2020 cannot deal with cyberspace aspects as well.

The last domain which should meet the persistent, pervasive, and proportionate Army 2020 capability requirements is training and excellence. A modern army training system should transform the army from a decade of enduring operations, especially counterinsurgency (COIN) operations, and transform it to face the future. Today's military training is a blended one which uses real, as well as virtual and constructive simulations and multiple online gaming systems to achieve a realistic operational training environment. Paul F. Gorman, the U.S. Army training pioneer, asserts that over the last decade, the US Army has been primarily focused on major combat operations, and he points that the training of the army was concentrated on COIN operations. He argues that combat operation oriented training allows the Army to meet capability's requirements and allow it to deal with complex security environments. The COIN operation oriented training based on the limited capabilities and some Army branches

such as Air Defence, Artillery and the CBRN training core are limited. Whatever the disputes of various future indicators and threats, the future remains uncertain, it simply cannot tell and know for sure whom it will have to confront next and preparing for such a future uncertainty is the biggest challenge. It is clear that the Army of 2020 must avoid being merely focused on one type of warfare.

Rickey E. Smith, Director of the Army Capability Integration Center, defines the following revolutions in training: ownership by commanders, regional alignment of units, real-world training, blended training using live, virtual constructive and gaming systems scenarios, combat training centre capabilities at home station, network training domain accessible anywhere, and scalable high-fidelity replications of complex operational environments.³⁸ These seven training revolutions should meet the expected future capability requirements and allow the Army of 2020 to adapt to any potential future VUCA conflict environment. However, Gorman stresses that each conflict is unique, the army training system must emphasise a full integration of the JIIM environment.³⁹ It must also build the adaptability into the Army of 2020 in order to train soldiers, units and leaders to transform rapidly to meet any contingency.

Establishing Army Transformation Priorities

An effective decision-making process encompasses a full spectrum of Command Control, Communication and Information (C3I) management. Future commanders will operate in the 6C (congested, cluttered, contested, connected, constrained and coalition) operational architecture in connection with the JIIM environment, and their ability to make informed and timely decisions are now more challenging than ever. Modern commanders should be able to estimate, analyze and solve problems, and plan solutions in the complex area. It needs to be supported by network enabled capability

(NEC), which gives commanders the opportunity to assess and visualize a situation. Additionally, a key area for development is information management and information exchange. If these key elements of the C3I system are achieved to a satisfactory level, then interoperability and standardization will gain suitable progress.

The character of contemporary conflicts and evaluation of engagement mark a significant shift in the balance of offensive capabilities into the future. The principal issue is that present engagement has been focused on a precision effect and this is set to continue into the future. An emerging technology can support this concept of evaluation by offering a wide spectrum of lethal and what are now more important non-lethal assets in order to meet the assumed future engagement assumptions.

Moreover, the ongoing lessons learned processes from recent conflicts are indicating a primary role for Army's force protection. It is crucial that the Army 2020 model should be able to reduce its own combat casualties. It generates the key lines of effort in order to design a future generation of combat equipment, platforms and assets. The dynamic nature of threats has grown rapidly and unpredictably, which can be illustrated by the development of improvised explosive devices (IED). Additionally, the difficulty in predicting the scale of threats, both conventional and improvised, is now so diverse that it is no longer possible to protect against every known threat which can affect soldiers, vehicles, or the bases. Therefore, protection of personnel should be enhanced in the near future in order to reduce the potential for casualties and combat fatalities and to increase combat effectiveness capabilities.

However, the Strategic Concept for the Defence and Security of the Members of the North Atlantic Treaty Organization agrees with the argument that the Army of 2020

will need to be expeditionary with the ability to project and sustain itself over strategic distances.⁴⁰ Finally, logistic activities in the land environment are becoming more and more challenging and complex, but the requirement to sustain a land force will still be a vital aspect of the Army of 2020's capabilities. The evidence from current operations in Afghanistan and the Lessons Learned from Operation Iraqi Freedom suggest that the logistics footprint should be reduced in order to decrease a major logistic burden. It is believed that shifting the emphasis from reactive to predictive supply and maintenance planning can improve sustainment capabilities, which seems to be the most challenging context of the Army of 2020's transformation process.

Conclusions

The modern strategic environment described through the prism of seven revolutions identified by the CSID has been characterized by VUCA and it will likely be more complex in the next decade than in the recently completed post-cold war period. The collapse of the Iron Curtain towards the end of the 20th century created a new dynamic, which has allowed for the development of a new geopolitical status quo. Subsequently, the ongoing process of globalization joined with the evolution of technology has rebalanced the strategic security architecture as well. Moreover, the impact of the events of 9/11/2001 showed that security was not ensured forever. At the beginning of a new millennium the enduring geopolitical, social, and cultural changes moved the pivot point of the strategic environment from international to transnational dimensions involving other narratives of the strategic security milieu. Additionally, the evolution of existing risks and the diffusion of other newly-identified ones have brought about some innovative hybrid threats which will require new methods of analysis.

Over the past decade the expansion of democracy, the building of economic powers, other sources of regional and international competition, and religious tension have all combined to create the potential causes of threats and political turbulence in different places around the world. As a result the character of future conflict has changed as well and this requires new ways, means, and ends to meet the expectations of modern societies. The authors of the Strategic Concept for the Defence and Security of the Members of the North Atlantic Treaty Organization argue that, “the threat of a conventional attack against NATO territory is low; however, they also stress the fact that the conventional threat cannot be ignored.”⁴¹ Following these analyses, the Army of 2020 model must be adjusted to deal with oncoming global changes and the potential conflict capability requirements. This is especially so in regard to the doctrine, technology, and training domains. Some characteristics such as adaptability, agility, interoperability and standardization are the key elements of the expected model that in concert with the JIIM background and coalition context seem to be the most vital and challenging elements of the future 2020 Army model.

Finally, establishing transformation priorities in specific areas such as command, information, engagement, protection, deployment, and sustainment makes it possible for us to determine the key areas of the Army of 2020`s development plan to meet the expected capability requirements. In conclusion, turning to the present strategic environmental changes and the indicators of the future environment, the Army of 2020 should be able to face the defined challenges. However, this transformation process involves a number of serious, persistent, pervasive, and proportionate modifications

which would enable meeting the expectations of the Army of 2020, the Army of the Future.

Operational Characteristics								
	Scale (operend)	Scale (range)	Probability (operend)	Probability (range)	Strategic Warning	Duration	Adversary Types	Permissiveness
Shock of force	Medium	Medium to Large	High	Moderate to High	Extremely Short	Short to Moderate	M, L, S	Uncertain
Humanitarian assistance/relief	Small	Very Small to Large	Extremely High	Extremely High	Extremely Short	Short to Moderate	C, T	Permissive to Uncertain
Foreign internal defense	Very Small	Up to Medium	Extremely High	Extremely High	Moderate	Long to Very Long	C, T, L, M	Permissive
Stf to foreign assistance/relief	Very Small	Up to Medium	Moderate	Low to Moderate	Long	Short to Long	T, L, M, L, S	Semi-permissive
Peacekeeping	Small to Medium	Very Small to Large	High	Moderate to Extremely High	Extremely Short to Moderate	Short to Long	C, T, L, M, L, S	Permissive to semi-permissive
Non-combatant evacuation	Very Small	Up to Medium	Extremely High	Extremely High	Extremely Short	Very Short to Short	T, L, M, L	Semi-permissive to Uncertain
Peacekeeping	Small to Medium	Very Small to Medium	High	High to Extremely High	Moderate	Long to Very Long	L, M, L, S*	Semi-permissive
Relief and secure	Medium	Medium to Large	Moderate	Low to High	Extremely Short	Moderate to Long	L, M, L, S	Non-permissive to Uncertain
Humanitarian operation	Medium	Small to Large	High	Moderate to Extremely High	Moderate	Long to Very Long	M, L	Permissive to semi-permissive
Opposed stabilization	Large	Medium to Large	Moderate	Low to High	Short to Moderate	Long to Very Long	L, M, L	Semi-permissive to Hostile
Sanctuary denial	Medium	Very Small to Large	Moderate	Moderate to High	Moderate	Short to Long	C, T, L, M	Non-permissive to Hostile
Bald	Very Small	Very Small to Small	Extremely High	Extremely High	Extremely Short	Extremely Short to Short	C, T, L, M, L, S	Non-permissive to Hostile
Counter-outbreak campaign	Small	Very Small to Small	Extremely High	Extremely High	Long	Long to Very Long	C, T, L	Uncertain to Hostile
Major combat campaign	Large	Medium to Large	Low	Low to Moderate	Long	Moderate to Very Long	M, L, S	Hostile

Keys		
Scale	Probability conditions will occur over next decade	Strategic warning/Duration
Very Small	Low	Extremely Short
Small	25 percent or lower	Short
Medium	36 to 50 percent	Moderate
Large	51 to 75 percent	Long
	76 to 95 percent	Very Long
	Extremely High	One to several years

Adversary	
C - Criminal	L - Limited
T - Terrorist	Capability military
I - Insurgent	S - Sophisticated
M - Militia	Capability military

Figure1: Operational Types and Key Characteristics.⁴²

Endnotes

¹ Carl von Clausewitz, *On War* (New Jersey 1989), 605.

² European Land Defense Industry Group, *Future Land System Study. Capability Analysis Report* (Brussels 2011), 13.

³ European Defense Agency, *Future Land System*, August 16, 2012, <http://www.eda.europa.eu/migrate-pages/Howweareorganised/workinglevel/idtsandpts> (accessed November 08, 2012).

⁴ National Strategy Forum, *The U.S. national security strategy 2010*, Winter 2009: Volume 19, Issue 1, <http://nationalstrategy.com/NSFReview/Winter2009Vol19No1USNSS2010.aspx> (accessed October 20, 2012).

⁵ Dennis Falk, Susan Moss, and Martin Shapiro, *Educating globally competent citizens. Tool kit for teaching seven revolutions* (CSID 2010), 6.

⁶ *Ibid.*, 2.

⁷ UN General Assembly Resolutions in 2010, *Definition of major areas and regions, World Population Prospects: The 2010 Revision* (UN, NY, 2011), defined the 49 the poorest countries, 33 are in Africa, 10 in Asia, one in Latin America and the Caribbean, and five in Oceania.

⁸ CSID, *Seven revolutions*, 5.

⁹ *Ibid.*, 5.

¹⁰ Falk, Moss, and Shapiro, *Educating globally competent citizens. Tool kit for teaching seven revolutions*, 24.

¹¹ *Ibid.*

¹² Thomas L. Friedman, "It's a Flat World After All," *New York Times*, April 3, 2005, <http://query.nytimes.com/gst/fullpage.html?res=9F06E7D8153FF930A35757C0A9639C8B63&sec=health> (accessed November 15, 2012).

¹³ *Ibid.*, 30.

¹⁴ Klaus Schwab, *Global Corporate Citizenship. Working with Governments and Civil Society* (World Economic Forum 2010), 108, <http://www.globalgovernancewatch.org/resources/global-corporate-citizenship--working-with-governments-and-civil-society> (accessed November 12, 2012).

¹⁵ *Ibid.*

¹⁶ Falk, Moss, and Shapiro, *Educating globally competent citizens. Tool kit for teaching seven revolutions*, 34.

¹⁷ *Ibid.*

¹⁸ Rachel Ehrenfeld, *Stop Afghani Narco-Terrorism*, (The Terror Finance), http://www.terrorfinance.org/the_terror_finance_blog/2009/02/stop-afghani-narcoterrorism.html (accessed February 26, 2009).

¹⁹ Bob Johansen, "Listening for the Future", lecture, U.S. Army War College, Carlisle Barracks, PA, October 4, 2012, cited with permission of Mr Johansen.

- ²⁰ EU, *European Security Strategy: A secure Europe in better world*, Brussels 2003, 3.
- ²¹ UK MOD, *Army Doctrine Publication*, Nov 2010, 3-3.
- ²² *Ibid.*, 3-7.
- ²³ *Ibid.*, 3-8.
- ²⁴ *Ibid.*
- ²⁵ *Ibid.*
- ²⁶ *Ibid.*, 3-9.
- ²⁷ Nathan Freier, *U.S. Ground Forces Capabilities through 2020*, (CSIS 2011), 12.
- ²⁸ *Ibid.*
- ²⁹ *Ibid.*, 14.
- ³⁰ Stephanie Blair and Ann Fitz-Gerald, *Stabilization and Stability Operations: A Literature Review*. (Centre for Security Sector Management, Cranfield University 2009), 5.
- ³¹ Headquarters, Department of the Army, *Non Combat Evacuation Operation*, Joint Publication 3-68, (Washington, D.C. November 2009), 10.
- ³² Alex Ruff, Andrew B. Godefroy, *Forging Land Forces for the Army of tomorrow – The Battle Group 2021*, Canadian Army Journal vol.11, March 2008, 18.
- ³³ European Land Defense Industry Group Workshop Conference, *Future Land Systems Study*, (Brussels, EDA, 2010), 14.
- ³⁴ Australian Army Headquarter, *Army's Future Land Operating Concept*, 2008, 38.
- ³⁵ European Land Defense Industry Group Workshop Conference, *Future Land Systems Study*, 2010), 5.
- ³⁶ Michael N. Schmitt, *Wired warfare: Computer network attack and jus in bello*, IRRC June 2002: 365.
- ³⁷ David Hollis, *Cyberwar Case Study: Small Wars Journal*, April 4, 2008, <http://www.smallwarsjournal.com> (accessed November 10, 2012).
- ³⁸ Rickey E. Smith, *Adapting the Army for 2020*, (US Army Training and Doctrine Command, 2012), 12.
- ³⁹ Paul F. Gorman, speech: *Training The Army of 2020' with retired Gen. Paul F. Gorman*, <http://www.youtube.com/watch?v=NunhDUpw-8g> (accessed November 11, 2012).

⁴⁰ *NATO Active Engagement, Modern Defence. Strategic Concept for the Defence and Security of the Members of the North Atlantic Treaty Organization* (Lisbon, NATO, November 2010), 21.

⁴¹ *Ibid.*, 10.

⁴² *Ibid.*, 13.