

# THE TRANSFORMATION OF DEFENCE

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## Abstract:

We are presently in the transition period of world armies which either some olders are getting in collapse or some olders and news are in contest to survive. A little time later from the 2010, a great amount of military weapons and military materials produced in the last quarter of 20 th century for the purposes of Cold War period are to be well older and in need of refreshing or out of inventory. With the end of Cold War, it is required to transform the military as the mass conventional threat against to Europe disappears. In this study, it is aimed to focus on the findings regarding interactions between the war and tecnology, possible form of the modern war, and finally the future armies in terms of transformation of defence in the 21 st century.

**Key Words:** War, Technology, Defence, Transformation, Force.

## 1. INTRODUCTION:

By the last quarter of the 20 st century, the world armies are used to utilize more or less same weapons and ammuniton. The 21 st century starts with the three primary developments in the defence area<sup>1</sup>; evolution of destruction or destroy chracteristics, emerging of extraordinary platforms, and creation of great systems in the military technology. Now the simple high explosives are obsolete, and we are presently at the time of missiles with the multiheads adjustable for the selected targets (tank, bridge etc.). On the other hand, the modern platforms used in the surface and deep of the sea, air and space displace the systems from land to land. It is the third evolution that the complicated military systems come out. Cencors, command control centers and weapon systems are integrated within a network system.

In the new security environment, as the missions such as the regional and civil wars, humanitarian aids, peace keeping operations, counter-terrorism are arisen, the present armies are in need of being more mobile and flexible in comparison to the past. With the 1990s, the West Europeans being budget focused inclined to buy based on a priority list as much as their money can afford. In addition to the transition into full professional army, the wars in the Balkans and Iraq dictated to the developed Western countries to obtain the following capabilities in order to be a world power<sup>2</sup>; (1) Intelligence. (2) Power projection. (3) Strategic lift capability. (4) C4ISR<sup>3</sup>.

## 2. THE WAR AND TECHNOLOGY:

### The New Technologies:

The new technologies increase the range of weapons, decrease the response time, and change the theater conditions exceeding the human capacity. Armed forces to adapt itself to multidimensional and synchronized operations predominantly require the means such as the Cruises, theater

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<sup>1</sup> John Baylis, James Wirtz, Eliot Cohen, Colin S. Gray: "*Strategy in the Contemporary World*", Oxford University Press, (Oxford, 2002), p.245.

<sup>2</sup> Alain Faupin: "*Defense Sector Reform: The French Case Study*", in Istvan Gyarmati and Theodor Winkler: "Post-Cold War Defense Reform", Brassey's Inc., (Washington D.C., 2002), p.52-53.

<sup>3</sup> C4ISR: Command, Control, Communication, Computer, Intelligence, Surveillance, Reconnaissance.

missiles, attack helos, aircrafts, rockets, and unmanned air vehicles<sup>4</sup>. Technological developments show that the future systems are to be based on the 3D radars and the precision-guided ammunitions for the point and air defence needs. The future combat environment in strategic, operative and tactical level is to stage a kind of missile and counter-missile war sophisticated by the dominant qualities. Stealth technology will increase the depth of battle area by profoundly utilizing the helicopters and combat ships in addition to aircrafts.

In the 21 st century, it is evaluated that the four primary technologies are to gain more importance in the defence area. They are the informatics, biotechnology, alternative energy and space technology. Expectations from the new technologies are basically the followings; increase in strike, decrease in casualty, and the less harm for innocents. It is a fact that the innovations like the transistor, micro-electronic, computer, film-optic cables, super conductors has contributed into satellite communication and image intelligence. Use of space expands the capabilities in the area of particularly situation awareness, communication, navigation, meteorology, guidance systems, missile defense and the space dominance is being crucial beyond the air superiority. Other technologies promising great innovations in the military are listed as the nanotechnology, robotics and artificial intelligence. The most dangerous expectation within them is to invent the little, autonomous and intelligent machines for aggression. It is considered to fabricate the live and super intelligent mines in order to halt the movement of rival conventional troops.

### **Digitization, Info War and C4ISR:**

Information technology achieves the speed and the sensitivity into defence systems in the modern battle field. Information technologies (micro-electronic, info ops, telecommunication) suggest the automation capabilities, minimization of the man mistake, and high precision possibility<sup>5</sup>. Within the info technologies, micro-chips and band width emerged as key technologies in developing the new modern war doctrine. Command and control technologies that based on the three new technologies (computers, satellites, and sensors) revealed or caused the improvement of the new ISTAR<sup>6</sup> methods, long range and precision-guided ammunitions, stealth or hardly identifiable platforms as well<sup>7</sup>.

Those technologies collectively ensured the approximation of the location and time factors which were the elements of modern military theory integrating diverse war levels. In that way, the linear battle field of the past staging conflicts in various blocks is replaced with a new theater that the commanders utilize their instruments and options at the dimensions of width, depth and height in increasing simultaneously physical contact and

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<sup>4</sup> Gordon R. Sullivan, Anthony M. Corrales: *"The Army in the Information Age"*, Strategic Studies Institute, US Army War College, (Carlisle Barracks, PA, 1995), p.12.

<sup>5</sup> Ryan Henry and C. Edward Peartree (Eds): *"The Information Revolution and International Security"*, CSIS Press, (Washington DC, 1998), p.87.

<sup>6</sup> ISTAR: Intelligence, Surveillance, Target Acquisition, Reconnaissance.

<sup>7</sup> Zalmay M. Khalizad, John P. White (Eds): *"The Changing Role of Information in Warfare"*, RAND, Corporation, (Santa Monica, CA, 1999), p.11-36.

engagement with the enemy<sup>8</sup>. The most evident feature of the 21 st century is that the info war is prevalent. Info technology will either increase the tempo of ops or ensure the superiority in psychological term. The innovations of info technologies that make possible to utilization of listening and mixing systems of communication are the radar recognition capability, navigation and intelligence means in sophisticated and active manner.

In the present time, computerized fire support systems facilitate the complicated procedures and minimize the man mistake essentially for the precision fires of heavy systems such as all kinds of artillery, missiles in the inventory of land, navy and air force. C4ISR and weapon systems with high precision have been crucial in assesment of the strength and deterrence of an armed forces<sup>9</sup>. Foundation and maintenance of an integrated system that unites C4ISR activities and the transmission of the acquired information to appropriate addresses as assessing rapidly will play a key role in winning the war.

Everything in battle field is now in the process of computerization and integration to each other with a swift communication system. In stead of hierarchy, furthermore the network mechanism prevails in the 21 st century. The notion of the simultenaous use of combat power in all dimensions of the battle field revealed the approach of a cencor for each shooter in the theater integrating weapons systems and surveillance technics as electronically or digitally. That caused the maturing of the digitilization, situation awareness (real-time intelligence on the friend and hostile forces) and synchronization of combat power in the theater<sup>10</sup>.

The countries manufacturing sophisticated weapons and systems envisage to add some hidden supplements into computer programs in order to avoid from the undesired use of those systems. In the meantime, the war slips the cyberspace. With the widespread of info technology, the wars in cyberspace will gain the new concepts, tactics and instruments to destroy the info systems of rival. With the reflection of the experienced revolutionary developments in the computer and info technologies into battle field, command and control system that ensures the collection of intelligence and dissemination of orders is in the process of a great change. It is aimed to develope an internet in order to integrate all units from the sole soldier to above using network with digital maps<sup>11</sup>.

Unless we are unable to control the space, it is rather possible to lose the war against the those may control it. Space based capabilities will provide not only general situation of the friend and hostile forces but the realization of real weapons and individuals one by one and situation awareness as well. In the future years, the space will be more benefited with the purpose of command-control and intelligence. It is foreseen that the effects of space particularly to recognition, identification, intelligence and increase the percent

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<sup>8</sup> United States Army: "*FM 100-5, Operations*", Government Publishing Office, (Washington, DC, June 1993), p.6-12.

<sup>9</sup> Rebecca Grant: "*Air and Space Power Led the Way, Gulf War II*", The Air Force Association Special Report, (arlington VA, 2003), p.12-17.

<sup>10</sup> John L. Romjue: "*American Army Doctrine for the Post-Cold War*", Military History Office, United States Army Training and Doctrine Command, (Fort Monroe, VA, 1997), ch. 5.

<sup>11</sup> Defense News: "*U.S. To Share Intelligence With More Allies*", (Nov 24, 2003), p.12.

of precision strike of weapons are to change the execution forms of the conflicts, necessitate to refresh the current thoughts in attack and defense understanding, depth and width of the targets. Opening the space to war may cause the crucial changes in the war doctrines and instruments. Lasers may make the satellites blind, create the massive effects with kinetics energy spreaded by the metal piles thrown from the space.

## **2. THE FUTURE OF THE WAR ART:**

### **Future Wars:**

The age we are in is a transition period; preference the quality to quantity, digitization of wars, increasing role of commercial technologies for the defence. We are at the era of troops with the technological dominance, donated with appropriate weapons and equipments, integrated in systems, and well educated. The people desire to develop an attack strategy in the battle field will design their micro-chips in accordance with the new generation maneuver elements and platforms in order to use in case of contact with the enemy. Future victories will be won by the commanders who integrate the precise fires with rapid maneuvers.

As a result of the technological developments the western countries, primarily USA presently accepted a new military force concept based on the full dimensional attack. Instead of a heavy and bulky combat power, the future strategy form the basis of a new approach foreseen utilization of versatile, more effective, and more agile power. A new war concept using small and mobile forces in the battle field has a birth integrating weapon platforms which are effective from the far distances, more fatal fires with precision ammunition, info systems and air support in order to overcome against an enemy, huge in numbers and well equipped<sup>12</sup>. The assumption here is that the technology is the determinant to the winner of the war.

Essential forces for the future wars will be more in consideration based on their physical agility and flexibility. Those new forces and capabilities will form the future strategy by uniting high quality personnel and well trained forces. The forces in the battle field are to be sensitive with the influence of air attacks, missile fires, info ops and special forces. For that reason it is vital to ensure the survival of the forces. Those are in the agenda as survivability measures; setting up the units as small groups instead of stable facilities, being in action permanently, avoiding from the electronic or thermal tracks. Simultaneously and parallel war is to be the basis of the future wars to capture the strategic targets.

### **Battles of the 21 st Century**

Battles of the 21 st century is foreseen in three categories<sup>13</sup>; conventional conflicts, nuclear operations and the special war methods. The first factor to affect the structure of the future wars is the possibility of the long distant battle fields from the home. So we will face the emergence of the new strategies either based on the armed or disarmed forces. The force structures in the 21 st century must win the combats by fighting essentially in

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<sup>12</sup> Defense News: "The Art of War. Precise Thinking", (June 17-23, 2002), p.28.

<sup>13</sup> Sait Yılmaz: "National Defense: Strategy, Technology, War (Ulusal Savunma: Strateji, Teknoloji, Savaş)", Kum Saati Yayınları, (İstanbul, 2009), p.224.

all forms of the future wars that are in all air conditions and in all types of battle fields. Innovations in technology will develop those capabilities forementioned above. However, at the final stage, the war is the fight of determination and will of the human beings, not the machines. Determinant of the victory is to be the well trained and hard units. Determination, patience and sacrifice himself emerge as the most effective qualities to react the technologically dominant and huge forces but unable to durable for the long term conflicts.

The combat environment of the 2020s will be no linear, dispersed in structure and changing intensity. It will be shaped by the utilization of the space increasingly as battle field with the cellular and versatile features. In the future, the major changes in execution of the operations will be sourced by the prevalent implications of the weapon and info technologies. It is foreseen that a synergy will be created by the integration of the numerical real-time cencor-weapon connections, unmanned air vehicles, long distance sensitive arms, cencor networks and data operations. That synergy will improve the continuity in the battle field by shortening the distance among the strategic, operative and tactical levels of the war<sup>14</sup>. In the 21 st century, strategic and tactical attacks will be made to sensitive sides of the enemy with three dimensional fires simultaneously<sup>15</sup>. The secrecy of their effectiveness are the precision systems, digitilization and the seamless engagement.

The wars in the future will be certainly different from the ones in present time in some aspects. All in all, we will have the weak enemies like non governmental, terrorist organizations lunching dirty war as asymmetricly. The modern war necessiates many tactical instruments in order to defeat, weaken or deter the enemies from their intentions. Those tactics include the asymmetric agression methods less based on the conventional force but using the advantages of the technology more. For that reason, land, navy and air force units must be in harmony with the special forces. The wars in the Afghanistan and Iraq have been the proof of that how much the members of the special forces perform the crucial missions. The new wars is to cover the special war methods more and the role of the central army will be limited for those kind of conflicts in general.

### **3. THE NEW ARMED FORCES:**

#### **Force Structure:**

Operational elements of the force structures formed in the future will prevail the time, place and the space with the dominant fire power and survivability capability, maintaining high tempo of operations. In order to protect themselves from the effects of the more fatal and the long range weapons, smaller, more rapid, versatile and active troops dispersed on vast area will quickly move to battle field and scatter again when completing the mission. The success at the strategic, operative and tactical levels in the future will increasingly depend on the rapid and agile forces using the info

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<sup>14</sup> Montgomery C. Meigs: "*Operational Art in the New Century*", Parameters: US Army War College Quarterly, (Spring 2001), Vol. 31, No.1,p. 4-15.

<sup>15</sup> Jonathan Bailey: "*The First World War and the Birth of the Modern Style of Warfare*", Strategic and Combat Studies Institute, Occasional Paper No. 22, (Camberley, 1996), p. 31.

systems in the best way instead of big and powerful armies. It would be necessary to have a force structure; smaller, with more deployment capability, able to see the far distance before the enemy, can operate in the bad weather conditions, harmonized with the land, air and navy elements in a joint operational concept.

The technology will gradually ensure the commanders the ability to operate with less forces and will use the one by one ships instead of fleet, mechanized battalions instead of the divisions and brigades. The future infantry troops will be formed by the rapid reaction forces lighter, with high speed of deployment capability including armored elements. Support the military troops engaged closely in the enemy in the future wars will be easily ensured by the new emerging sensitive and effective weapons using advanced technology in addition to the new artillery versions, the bunch bombs launched from the ground, and mobile arms using ammunitions against armor. As a result of those developments, the need for the close air support will gradually decrease.

To complete the mission in Afghanistan and Iraq, three basic elements were seen as crucial; (1) Long range B-2 and B-52 bombardment aircrafts. (2) Digital communication systems facilitating harmonization of the forces. (3) Unmanned Predator aircrafts which is the small weapon of the new battle field. That trio of the high technological weapons emerges as the effective and permanent fire support capability of the modern armies. The key technologies for the modern armed forces are the global positioning system (GPS) and the satellites. Particular interest is given to unmanned air vehicles due to the expectations for their new roles in the area of the logistics, medical support, transportation, communication and CBRN detection in addition to present intelligence missions.

### **Increasing Roles of the Armed Forces:**

The modern armies can no longer see the war as a fact that the pure professional soldiers fight in a symmetric battle field. The war should be now seen as a mix of joint conflicts in a complex environment of either asymmetry or overlapping the peace, crisis and war periods (operating with the land, navy, and air forces together)<sup>16</sup>. In that respect, use of the elements of the armed forces must be considered in joint concepts as much as possible. Joint operations and effect based warfare have been the basic strategy of the western military experts in the 21 st century.

Those are great requirements to meet in the future; joint training of the three forces either for fire support or in the maneuver dimension, cooperatively preparation of the associate publications inpreating the joint operations, determination of the basic rules of engagement, standardization in the logistical organization and materials as possible. In addition to multinationality factor, the necessity for the interoperability and the interlogisticability should now be considered, and the combined doctrines and methods must be clarified for the coordinated operations. In this term, the joint and combined training programs need to be prepared.

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<sup>16</sup> Michael Evans: “*The Continental School of Strategy: The Past, Present and Future of Land Power*”, Land Warfare Studies Centre, (Duntroon-Australia, June 2004), p.vii.

Since the declared wars has been mostly disappeared, the present armed forces have forced to obtain many engagements and commitments (shaping the security environment) for the national interests indeed but pretending to ensure the multinational cooperation and securitization in various geographies. Military strategy in the future will focus on developing the essential organizations and capabilities to put in order the crisis regions intervening with none military forces. The armed forces in the 21 st century should be prepared to obtain many security missions from the deterrence to waging war, from the counter-terrorism to the natural disasters. In the new century, armies will have more out war of missions (other operations at the peace time). Armies must get ready to operate within the wide spectrum of conflicts such as simultenaously wars, peace keeping and humanitarian aid in front of the electronic media.

#### **4. CONCLUSION:**

In the post-cold era, the importance given by the westeners to the weapon technology has caused the radical changes in the art of war beginning from te Gulf war. The parameteres in the technological searches for the weapon systems were the pecision, range, and target detection (including the target selection). Some others has been added to them as supplementary technologies such as invisibility of the launcher platforms (like stealth aircrafts). As seen in the NATO operations at the Balkans, precision guided ammunitions greatly increased the effectiveness of armed forces in the war. In similar way, on the other hand, in Afghanistan, use of precision amnition of aircrafts, special forces and unmanned air vehicles has been determinant.

As conclusion, we need of a new armed forces for the new century. In the future battle field there will be no bases to arrange the forces, no enough time to form the sophisticated force structure and besides the enemy will try to destroy you with no engagement. An appropriate force for that battle field requires the capabilities; new, using the cutting edge of the technologies, light, with high maneuver and survivability, against the any type of the enemy, in all complicated combats, able to work with the minimum infrastructure and support. In that respect, the main combat vehicles and weapons of the land, air and navy should be devleoped based on the those characteristics and reinforced with the other systems initially as being space systems.

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