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IS THE INTELLIGENCE FUNCTION, THE CORNERSTONE OF AN INCOMPLETE PUZZLE?

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The current environment around the world is changing in the demographic, in the politics, in the economic and in the security conditions inter alia. There are non-state actors, there is extremism that is more radical, terrorist groups, transnational criminal organizations, and it is possible to observe threats in cyber and asymmetric warfare as well. The world is more complicated, more complex and more interconnected as ever have been, and because of that, we are going to need more knowledge and a better understanding of the world which we are operating and one of the fundamental tools to get that is the Imagery Intelligence.

The necessity to clearly understand the ongoing security environment is very important for many reasons. The armed forces of a country must be capable of maintain their strength and readiness in the changing years ahead, they should be always trying to identifying what is are the changes that are happening. Lack of effectively assess the convenience between maintaining current capabilities and making investments for future emerging threats could result in activities that fall down on planning for past conflicts. A right evaluation of this balance will assist each force in maintaining a high level of awareness of current and emerging trends as well as improve their understanding of how these trends may affect their own readiness.

From the standpoint of warfighting, the terms accuracy and timeliness are very important in this complex environment. Accuracy is built by precision, the commanders at all different levels need precision in the information that they have, they need precision in terms of geolocation, they need precision for targeting efforts, and they need precision and accuracy in order to make the right decisions at the right time.

On the other hand, timeliness is so important given the nature of the warfighting which is changing, is very rapidly and very complex, the adversaries are more adaptable and more flexible and often times we have only one chance to get it right, to be successful and because of that, the information available must be timeliness in order to get advantage and to achieve success in the first term. And once again, the Imagery Intelligence has a fundamental role to enable the other forms of intelligence, has a key role for giving us the information first, the knowledge first and therefore the ability to act first.

The present work will analyze the way which the Intelligence function into the military have a great impact to achieve military objectives, through the study of cases where the imagery intelligence as one of its disciplines has been successfully employed; additionally, argues how the evolution of current challenges demands for technological improvements for military forces, considering economic, social and security aspects.

As a counterargument can be argued that despite the technological advances and therefore the means to obtain information, the discipline of human intelligence will continue to prevail over the others, as the most relevant and most reliable mean[1], which may result on assumptions with greater strength. This argument is somewhat valid if one takes into account that the end user and the means for information gathering and analysis is the people. Nevertheless, when the capabilities are limited, the description of a portion of the land can be distorted by a tired observer responsible to make a reconnaissance, on

[1] Robert R. Hoffman, Interpreting Remote Sensing Imagery: Human Factors, CRC Press, 2001, 3

the other hand, an image either aerial or satellite, shows the actual characteristics without the possibility of alteration. [2]

The analysis made in this work will provide through a few both historical and current examples, in part at least, an explanation of the importance of the intelligence using technological advances for the success of military activities. Given the focus of this paper, researching into the military intelligence, could not, of course, to give a full account of the success of this kind of activities, because it fails to take into considerations another relevant and important factors, such as the human intelligence role, training status, differences in levels of technological advances inter countries, to mention just a few of them.

Different countries include among their military doctrine with a classification of intelligence activities in different disciplines, based mainly on the means used for the collection of information, in this case it will be taken into account the classification that exists in the Canadian Armed Forces doctrine, referring to IMINT (Imagery Intelligence)[3].

The above, let's focus this study on examples where was have used the remote perception to analyze certain portions of the ground of military interest, mainly through the use of aerial photographs and satellite images, to get information that allows to get advantage.

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[2] Wesley K. Wark, *Twenty-First Century Intelligence* (London ; New York: Routledge/F. Cass, 2005), 4.

[3] Canada. Department of National Defence. CFJP 2-0, Intelligence. Ottawa, ON: Chief Defence Intelligence, October 2011, 2-7.

The application of technology to the art of war is something intrinsic to the man. From the earliest times the bow served either to combat or to hunt, thus being a technology of "dual use".[4] Does that mean that technology and defense have always been intertwined and that the capillaries of military applications to civilian applications and vice versa have been a constant that have passed in parallel.

The evolution that the conflicts and threats have experienced with the irruption of new ways of conceiving the violent action and the challenges to the stability of a state, causes that the governments look forward, not only for investments in technological developments in the traditional fields but in those that can provide a clear supremacy in the fight against the potential risks. [5] The intelligence as an essential and integral military activity[6] takes relief and becomes important in this case, as well as other civilian organizations engaged in this kind of activities for the collection of information, the generation of products of intelligence and foresight of possible offensive actions.

The future will be replete with increasingly creative, sophisticated, and injurious asymmetric attacks on both military and civilian (including infrastructure, economic, and iconic) targets, as was stated in the Future Security Environment 2008-2030:

> The future security environment will be characterized by potential state-on-state conflicts, by ever-evolving asymmetric threats, by non-state actors and rogue states, and by social, economic, environmental, and resource problems that could possibly lead to instability. Although states recognize that economic well-being, international trade, and nuclear

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[4] Van Creveld, Martin L., *Technology and War: from 2000 B.C. to the present*, 1st. Free Press ed. 1991, 2.

[5] Wesley K. Wark, *Twenty-First Century Intelligence* (London ; New York: Routledge/F. Cass, 2005), 2.

[6] Canada. Department of National Defence. CFJP 2-0, Intelligence. Ottawa, ON: Chief Defence Intelligence, October 2011, 1-1.

> weapons are major deterrents to state-on-state conflicts, tensions rising from economic, social, and resource competition will always exist and could possibly motivate attacks on fellow states. Asymmetric attacks by non-state actors or smaller, discontented states have proven to be an effective means of enabling weaker powers and entities to push their agendas on the world stage. [7]

Unfortunately, the importance of the technological advances used in the field of Intelligence is often strongly criticized highlighting the several actual or perceived shortcomings compared with the costly invest that it represents. As an example of this, it is possible to mention the problems surfaced publicly in the early 1990 as a result of the perceived inability to provide timely imagery intelligence to combat troops during the Persian Gulf War[8]. The above, paired with the "legality of the means" to get this kind of information, given the concern about the effect of intelligence activities on personal privacy and civil liberties. [9]

The military needs during the armed conflicts throughout the history, have driven major technological advances of use not only in the military but also for general purposes.[10] On the other hand, technological advances have changed tactics and procedures used in the military forces, such as is possible to observe tangibly in the

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[7] Canada. Minister of National Defence, FSE 2008-2030, current and emerging trends. Ottawa, ON: Chief of Force Development, January 2009, 103.

[8] Glenn P. Hastedt, editor, Spies, *Wiretaps and Secret Operations: an encyclopedia of American espionage*, Vol. 1 2011, 539

[9] Brian A. Jackson, editor, *Considering the creation of a domestic Intelligence agency in the U.S.: lessons from the esxperiences of Australia, Canada, France, Germany and the UK,RAND Corporation,* 2009), 7.

[10] Jefrey T. Richelston , *The U.S. Intelligence Community*, Westview Press 4th. Edition, 1999, 67.

transformation of the traditional cavalry and armored forces in the armies[11]; This argument can be extended also to the intelligence field.

In today Defense environment, the US Military are using technology, specifically Imagery Intelligence, to handle the situation when they are dealing with their adversaries in counterinsurgency and counterterrorism operations around the world, as well as peace and stability operations, given that there are places where the forces deployed have not bases or a total support, and because of that, it is necessary to give them all the information to get advantage on the battlefield. It should be added that in this struggle against terrorism, the latest technology has not always been able to distinguish the terrorist from its surroundings, and the most sophisticated weapons could have not discriminate him of those around him, so the surgical attacks have not been possible and the collateral damage has been inevitable, with the corresponding tribute face of public opinion.

Technological advances are characterized by innovation and quick changes. There are also potentially serious aftermaths of these technologies being available commercially to both friend and foe alike that has the economical resources. Science and technology have historically contributed significantly to the development of defence-related capability and will continue to do so in the future as well as the threats is changing. In the past, advances in science and technology have been driven to a large extent by massive investments by national governments in their military programs.

[11] Van Creveld, Martin L., *Technology and War: from 2000B.C. to the present*, 1st. Free Press ed. 1991, 19.

Future advances in science and technology will continue the current trend of being driven by massive investments from private and multinational companies.

The concept of *remote perception* in the widest sense, is concerned with the technique or set of techniques that allows getting information of an object by analyzing the data acquired by a device which is not in physical contact with the object "reconnaissance at distance" [12], detecting and recording the reflected or emitted electromagnetic energy from the target areas and relate these measurements with its nature and distribution[13]. Extrapolating the concept to guide the purpose of this paper, it refers to the generation of intelligence through the collection of information on a particular area of military interest, through the use of aerial photographs or satellite images.

The importance of having sufficient information prior to the deployment of military forces highlights the relevance of having adequate means for obtaining it; the fact that a commander has an overview of the land on which he will operate, through an aerial photography or a satellite image, without discarding of course the usefulness of a military map, empowers him at all levels to make better planning with as much certainty as possible, based not only on assumptions, but also on reliable data, which guarantees greater security and thus greater freedom of action. [14]

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[12] James B. Campbell, *Introduction to Remote Sensing,* Third Edition, The Gilford Press, 2002, 7.

[13] Robert R. Hoffman, Interpreting Remote Sensing Imagery: Human Factors, CRC Press, 2001, 3.

[14] Wesley K. Wark, *Twenty-First Century Intelligence* (London ; New York: Routledge/F. Cass, 2005), 17.

Aerial photographs were for many years one of the remote sensing products most used; functioned as the main input for the development of military cartography.[15] However, with the advent of satellite technology in the exploration of natural resources and development of computer equipment with high capacity and processing speed, the digital satellite images became one of the most suitable options for working large areas in a quickly and relatively inexpensive way.[16]

Undeniably aerial photographs represent one of the means of providing greater spatial detail, and even the ability to see in third dimension with a couple of them (stereoscopic-pair). This is an invaluable skill, but its analog nature makes them difficult to process by automated means, which results in increased processing times, costs and in some cases, topicality loss.[17]

The increase in the use of intelligence generated from satellite imagery in the contemporary context is not only due to the inherently multifaceted nature of challenges and risks that today military forces face, but otherwise due to the relative scarcity of resources allocated for the forces involved in such efforts in relation to the magnitude of the responsibility involved to successfully achieve results in this complex environments makes difficult their task.[18]

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[15] Terence J. Finegan, *August to late 1914: The evolution of Aerial Reconnaissance as a Force Multiplier*, Washington D.C. National Defense Intelligence College Press, 2007, 8.

[16] James B. Campbell, *Introduction to Remote Sensing*, Third Edition, The Gilford Press, 2002, 7.

[17] Ibid, 9.

[18] Chester A. Crocker, Fen Osler Hampson, Pamela Aall, editors. *Rewiring Regional Security in a Fragmented World*. (United States Institute of Peace Press, Washington D.C. 2011), 49.

A clear example of this it is possible to find it in Mexico, where the untypically of its armed forces go beyond its genesis, its composition and its traditional subordination to the political system. The nature of their missions also makes a difference to other countries in America, if one takes into account arguments like:

> …I don't think that our troops ought to be used for what is called nation-building activities. I think our troops ought to be used to fight and win war.[19]

Given the geostrategic position of Mexico located between the countries, which together constitute the main cocaine producers and the principal consumer of drugs in the continent, engaged to the region as a whole in a serious problem in terms of the combat to transnational criminal organizations, trying to avoid serving as a trampoline of these criminals.

As a result, this situation puts Mexico in a uncomfortable position with regard to his relations with other countries of America, speaking in terms of security, since trying to contain the problem, violence remains in these countries, considers himself as a futile effort in terms of favorable outcomes, such as was mentionated by Christopher Paul, Agnes Gereben and Colin P. Clarke in their book *The Challenge of violent Drog-Trafficking Organizations*:

> …the United States should be considered a bad neighbor from the standpoint of access to guns and the predominant drug market target of Drug-Trafficking Organizations.[20]

[19] George W. Bush, The Second Presidential Debate, 11 October 2001.

[20] Chirstopher Paul, Agnes Gereben and Colin P. Clarke. , The Challenge of violent Drog-Trafficking Organizations. National Defense Research Institute 2011, 50.

Throughout its short institutional history of just over a century, the military apparatus of Mexico has been directed to confronting threats and internal problems. The ineffectiveness of the bodies of public safety and justice has generated an expansion of the Armed Forces that have led them to perform tasks that correspond to civilian authorities in greater degree, tasks that are linked with economic development and possessing social sense, for instance, civilian aid in disaster and combating drug trafficking.

Currently, the challenges have changed at the same time that the international relations, due to the favorable conditions that the lines of communication have and the significant increase of the international trade, between other factors, which has provided of the same way that the problems and threats of a country at the same time became in a domestic issue, as was stated by Raul Benitez Manault and Ricardo Cordova Macias:

> The problem of insecurity in Mexico and Central America has transcended borders. Economic disparities, internal social problems, varying security policies, corruption and weak justice systems contribute to making the security situation complex. It is exacerbated by the geography of the region, which allows for porous borders. [21]

In terms of combating drug trafficking, the Mexican Armed Forces found on the usefulness of satellite images a great relevance, given that one of the tasks mentioned above is the location and destruction of illicit crops (marijuana and poppy) as well as clandestine airstrips, which is a task that requires the use of a large number of troops

[21] Chester A. Crocker, Fn Osler Hampson, Pamela Aall, editors. *Rewiring Regional Security in a Fragmented World*. (United States Institute of Peace Press, Washington D.C. 2011), 518.

deployed throughout the national territory.[22]. With the use of these kind of images, it is possible optimizer the employment of military forces on the ground facilitating the activities of search and subsequent destruction and minimizing risks. Given the usual paucity of means, and the multiple developed tasks, decision-makers require a detailed knowledge of the situation they face in order to draw the maximum effect that can be generated by the forces assigned to achieve the mission's objectives.

However, despite the benefits and advantages to be gained through technological advances in intelligence terms, often present obstacles to their development, among these, one of the main difficulty experienced by intelligence organizations in adopting the technological advances for production of intelligence, sometimes resides in the process involved for assigning economical resources, given the another budgetary priorities. Far from creating a stagnant mentality, the technical instruments mean that military forces can be more proactive, since they could benefit from greater knowledge of local areas and take more preventive tactics when they go to areas less known.

As was discussed, the use of technological advances including remote perception for obtaining satellite imagery, for information search and subsequent analysis and generation of intelligence for military applications, has acquired great importance, which will increase such as the improvement of the technological capabilities, facilitating the fulfillment of the mission, which in turn continue expanding its reach and diversify its spectrum.

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[22] Mexico, Presidencia de la Republica. Segundo informe de gobierno 2013-2014, 58. http://cdn.presidencia.gob.mx/segundoinforme/Segundo_Informe_escrito_completo.pdf.

Intelligence, in one respect, is intended to warn, to give decision makers time to take action, to change the course of events and, in turn, change an unfavorable potential future into a more favorable actual one. Should responsible decision makers receive such a warning (born, of course, from a true process), they should take action to prevent the unfavorable potential future. Should this action be successful, the warning that spurred the action will, of course, turn out to be incorrect. Clearly, this will be a true process that, ultimately, yields a false product, but the decision makers will congratulate their intelligence professionals for their fine work in warning them in time to take action.

Recent history shows that sometimes, the technology has been the cause of the evolution of the concepts of the art of the war, and in other times, has been the technology that has had to advance to be at the height of operational requirements. Although advances have facilitated technological changes in the form of driving the war, and in intelligence acquisition, not seem to have influenced strict sense-in on the causes of conflict, regardless of interest that may have weapons manufacturers in selling their products.

The technology, in some cases, would not result in the use of fewer troops, but in a more effective use of them. Most of the missions of the armed forces are over saturated, with very few soldiers in charge of all the tasks that the situation demands. The robust multidimensional military operations are particularly difficult in terms of personnel and logistical support. In most cases, the technology could get rid of the tedious routine of observation and reconnaissance and enable the troops to canalize their efforts to more

proactive roles as rapid reaction forces. By enabling greater situational awareness, including early warning, technology that would allow reaction forces involved in a more focused way in a critical situation or volatile situations.

The armed forces have become the need to address the complexity, uncertainty and risk that the actual security environment has raised. This transformation effort is aimed at that armed forces are more agile, interoperable, joint, capable of performing their missions covering a broad spectrum of different operations in very dynamic environments in order to have the ability to remain strategically relevant, operationally responsive, and tactically decisive in the years to come.

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