## NICOLAE TITULESCU UNIVERISTY OF BUCHAREST FACULTY OF LAW DOCTORAL SCHOOL

## DOCTORAL THESIS

# Cyber-attacks – a new form of aggression in international law

SUMMARY

Thesis coordinator: Professor Dr. Raluca Miga Beşteliu

> Doctoral student: Dan-Iulian Voitașec

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## Table of content<sup>1</sup>

## Introduction

The necessity and timeliness of the research topic

Research objectives

Methodology used to study and complete the thesis

Results of the research and their means of dissemination

## Chapter I – Cyber-attacks – Significance and legal qualification of cyber attacks

- 1. Attacks against information systems
- 2. Computer related crimes
- 3. Cyber-Terrorism
- 4. Cyber attacks
- 5. Cyber-attacks that represent the use of force in international law Conclusion

## Chapter II – Cyber-attacks as a form of aggression in international law

- 1. Aggression according to international law
  - 1.1. Historical overview of incriminating aggression Kellog-Brian Pact, Non-Aggression pacts, crimes against peace
  - 1.2. States' obligation not to resort to the threat or use of force in international relations
  - 1.3. Exceptions to the prohibition on the use of force according to the UN Charter
    - 1.3.1. The right to self-defense

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1.3.2. The use of force in accordance with Chapter VII of the UN Charter

1.3.3. Use of force in exercising the right to self-determination

- Aggression in the sense of UN practice. Cases of aggression according to art. 39 of the UN Charter
  - 2.1. Elements of aggression in accordance with Resolution 3314 of 14 December 1974 of the General UN Assembly
  - 2.2. Decisions of the Security Council based on Art. 39 of the UN Charter
- 3. The crime of aggression in the contemporary sense
  - 3.1. The international legal framework regarding the prohibition of aggression
  - 3.2. The crime of aggression according to the Statute of the International Criminal Court
  - 3.3. The constitutive elements of the crime of aggression
  - 3.4. The issue of exercising jurisdiction over the crime of aggression
  - 3.5. Exercise of jurisdiction under Article 15 bis
  - 3.6. Exercise of jurisdiction under Article 15 ter
- 4. Cyber-attack as a material element of the crime of aggression
- 5. Armed conflict triggered by cyber-attacks
  - 5.1. Armed conflict
  - 5.2. The statute of participants in armed conflicts triggered by cyber attacks

Conclusion

## Chapter III – Means and methods of cyber-warfare

- 1. Applying International Humanitarian Law to cyber-attacks
- 2. Means and methods of cyber-war
  - 2.1. Means of cyber war
    - 2.1.1. Cyber weapons as weapons of mass destruction
  - 2.2. Methods of cyber war
    - 2.2.1. Superfluous injury or unnecessary suffering

- 2.2.2. Indiscriminate means and methods
- 2.2.3. Cyber boobytraps
- 2.2.4. Perfidy
- 2.2.5. Improper use of the protective indicators
- 2.2.6. Reprisals
- 2.2.7. Starvation

Conclusion

## Chapter IV – People and objects protected against cyber attacks

- 1. Definitions
- 2. Protections of civilian population and civilian objects
  - 2.1. Special protection granted during armed conflict
    - 2.1.1. Special protection granted to women during armed conflict
    - 2.1.2. Special protection granted to children during armed conflict
    - 2.1.3. Special protection granted to journalist during armed conflict

Conclusion

## **Chapter V – Responsibility for cyber-attacks according to international law**

- 1. Forms of responsibility for international crimes
- 2. State responsibility
  - 2.1. Material responsibility of states
  - 2.2. Political responsibility of states
- 3. Responsibility of international organizations
- 4. International criminal responsibility
  - 4.1. Genocide
  - 4.2. Crimes against humanity
  - 4.3. War crimes
  - 4.4. The crime of aggression

## Conclusion

#### **Chapter 6 – Conclusions**

Annex I – The Tallinn Manual 2.0

**Bibliography** 

#### Introduction

#### The necessity and timeliness of the research topic

At the time of adoption of the UN charter and the Conventions that govern international humanitarian law, it seemed in the realm of science fiction that unmanned flying vehicles could be controlled using a device found in the pocked of the majority of the urban population. But today that technology is no longer in the realm of science fictions, it is reality.

Technological evolution plays a central role in every state existing in the 21<sup>st</sup> century. Information systems almost entirely control services that are indispensable to our current society, such as electricity, water, rail transport even personal vehicles. In order to better understand the current technological advances, in Romania there are approximately 22,9 million mobile phone numbers for a population of less than 20 million inhabitants, 3.47 million internet subscriptions and 5.1 million internet subscriptions<sup>2</sup>.

Given the cross-border nature of cyberspace, more and more states and international organization have begun to allocate more resources to develop cyber capabilities, both offensive and defensive.

This position was reaffirmed in the Declaration adopted by the Heads of State and Government participating in the NATO Summit held in Wales in September 2014. In art. 72 of the Declaration the Enhanced Cyber Defense Policy it is highlighted that cyber defense is part of NATO's core task on collective defense. Under this new policy,

<sup>&</sup>lt;sup>2</sup> Asociația Națională pentru Administrare și Reglementare în Comunicații - <u>http://www.ancom.org.ro/numarul-de-abonamente-de-telefonie-mobila-a-depasit-pentru-prima-data-numarul-de-cartele-preplatite-active 5762</u>

launching a cyber-attack against a NATO member state could lead to invoking art.5 of the North Atlantic Treaty. Also, art. 72 of the Declaration mentions that international law, including international humanitarian law and the UN Charter apply in the cyber field.

Although cyber security has begun to develop and national and international policies have been adopted, there are no international specific instruments developed to restrict or prohibit the use of certain types of cyber-attacks. Due to this situation, the rule on international public law and international humanitarian law applicable to cyber-attacks has to be identified. It is also necessary to identify situations in which the use of cyber-attacks reaches the threshold of use of force in violation of the provisions of art. 2 paragraph. 4 of the UN Charter. In the case of launching cyber operations during armed conflicts we have to identify the international humanitarian law rules applicable, the limits of using such attacks and the legal status of participants in the armed conflicts.

The necessity and timeliness of the proposed theme is in the research of the latest form of aggression, namely cyber-attacks and the latest international crime on which the International Criminal Court will have jurisdiction - the crime of aggression. During the research the most recent materials available at the time were used, for example, part of the paper is focused on researching the rules set out in the first edition of the Tallinn Manual, but when the second edition of the Manual was released, the thesis was revised to reflect the new rules set by the international group of experts. Another element of novelty is the merging of international public law, international humanitarian law and international criminal law with certain elements from the field of information and telecommunication technology. The combination of these elements will allow the analysis of cases where the use of cyber-attacks can be categorized as aggression, may lead to an armed conflict, or situations in which a cybercrime will entail individual criminal responsibility for committing an international crime.

#### **Research** objectives

The main objectives of this research are:

- 1. Identifying the evolution of the process of defining the crime of aggression and aggression in general;
- 2. Defining and identifying cyber-attacks in general;
- 3. Defining cyber-attacks that reach the threshold of use of force;
- 4. Identifying the law applicable to cyber-attacks;
- 5. Identifying situations where recourse to cyber-attacks can lead to armed conflict;
- 6. Identifying and analyzing the elements of the crime of aggression with cyberattacks as the material element;
- 7. Identifying and analyzing forms of international responsibility for the crime of aggression and aggression;
- 8. Identifying and analyzing situations in which the launch of cyber-attacks may entail individual criminal responsibility for committing aggression;
- 9. Drawing up conclusions

## Methodology used to study and complete the thesis

In order to develop the thesis, different methods of scientific research where used, among which we can mention the historical, comparative and logical method.

The historical method has been used, for example, to present the evolution of incrimination of aggression, the crime of aggression and the development of international criminal jurisdiction.

The logical method has been used to express conclusions and interpretations based on the study of relevant doctrine, legislation and jurisprudence in the field of international humanitarian law, international criminal law and emerging forms of aggression.

The comparative method has been used to present the formation of the doctrine on the applicability of international humanitarian law rules to the new means and methods of waging armed conflicts, in this case putting emphasis on cyber-attacks.

## Results of the research and their means of dissemination

The results of the research will materialize in a unitary work. Also, the information obtained was and will be disseminated through participation in various scientific events: congresses, scientific sessions, conferences, as well as publication in various specialized journals. Thanks to my collaboration with the Romanian Red Cross Society, one of the main partners of the Romanian state in the field of international humanitarian law dissemination, I will try to share the results of the work during the training courses organized by SNCRR, both for volunteers and for other partners.

#### Paper structure

Conflict is a constant of mankind. Since the appearance of the first human settlements and hunting weapons, conflicts have also emerged. This is evidenced by archaeological discoveries, in 1964 a team of archaeologists discovered, near the Egyptian-Sudan border, a cemetery containing 59 whole human skeletons and several partial skeletons. The discovered skeletons are over 13,000 years old and show wounds caused by arrows and spears.<sup>3</sup>

This paper, structured in five chapters, aims to analyze the latest form of aggression in international law, namely cyber-attack. However, in order to deal with the most recent forms of aggression, various aspects of public international law, international humanitarian law and criminal international law must be considered. For this reason, the thesis is structured in one part.

Each chapter of the paper analyzes a different aspect of these branches of law, so the **first chapter of this paper** analyzes cyber-attack in general terms. The role of this chapter is to distinguish between different actions that can be directed against infrastructure and information systems. This initial chapter is structured in six subchapters, each of which deals with another aspect of current technological development.

<sup>&</sup>lt;sup>33</sup>http://www.ancientmilitary.com/

Within this chapter various actions directed against information systems are analyzed, from cybercrime, cyber terrorism to cyber-attacks that reach the threshold of use of force according to international law. The scope of this chapter was to create a distinction between the various illegal actions directed against information systems to better understand the damage that can be caused by cyber-attacks. Cyber criminals can steal information or money from bank accounts while state sponsored cyber-attacks may cause damage to critical infrastructure, or even destroy uranium-enhancing centrifuges as was the case with the Stuxnet virus. There is no specific information on the origin of the virus but it is speculated that it was an operation of the United States of America and Israel directed against Iran, an operation known as Olympic Games. In this chapter the conditions that a cyber-attack must fulfill in order to be qualified as use of force according to international law are also presented.

The second chapter of the paper is also the most consistent and deals with the issue of cyber-attacks as a form of aggression in international law. The chapter is structured in five subchapters and deals with aggression in public international law, aggression in the sense of UN practice, the crime of aggression, cyber-attacks as a material element of the crime of aggression, and armed conflict triggered by cyber-attacks.

The first subchapter deals with the problem of aggression during the Middle Ages and up to the current regulation. A series of important international treaties such as the Statute of the Nurnberg Tribunal, the 1919 Treaty of Versailles, the International General Treaty for Renunciation of War as an Instrument of National Policy, also called the Kellogg-Briand Pact of 1928, the Titulescu-Litvinov Conventions aimed at defining aggression are presented and analyzed. These treaties have led to the definition of aggression in UN General Assembly Resolution 3314 from 1974. This subchapter analyses the obligation of states not to resort to the threat or use of force and also the exceptions to this rule. The second subchapter analyzes the elements of aggression set out in the United Nations General Assembly Resolution 3314 and presents the decision of the UN Security Council under art. 39 of the UN Charter.

The horrors of the Second World War have changed the way states use force. This is reflected in the prohibition of resorting to the threat or use of force by art. 2 of the UN Charter and the definition of aggression found in the UN General Assembly's Resolution. But states are abstract entities, some political, economic or military measures can be taken against states that violate these norms, but the responsibility for making these decisions lies with the de facto ruler of the state. For this reason, the third subchapter analyzes the crime of aggression as defined in art. 8 bis of the Statute of the International Criminal Court. The first part presents and analyzes the international legal framework that allowed and led to the definition of the crime of aggression following the Diplomatic Review Conference of the ICC Statute held in Kampala in 2010.

The end of the Second World War led to the appearance of the two international military courts in Nurnberg and Tokyo, representing an important moment for defining the crime of aggression. For the first time, senior officials have been held responsible for committing an international crime. In art. 6 of the IMT of Nurnberg Statute defines crimes under the jurisdiction of the tribunal, among which we find the crimes against peace. After Nurnberg and Tokyo, no one was held accountable for committing a crime of aggression. The adoption of the ICC Statute in 1998 brought back the crime of aggression. Initially, the definition of this crime was not found in the ICC Statute, it was just specified in Art. 5 that the jurisdiction of the Court extends to the crime of aggression was adopted. This subchapter also deals with the sanction of the crime. As a result of the Kampala conference, two new articles have been adopted regarding the way in which jurisdiction is exercised is dealt with in the final part of this subchapter.

The Statute of the International Criminal Court is not recognized by all states, it is not even recognized by all the permanent member states of the UN Security Council and the Kampala amendments have been ratified by only 32 states, but the role of the ICC should not be underestimated. It is precisely this limited role that the ICC plays at the international level that allowed states to bring into discussion and define the crime of aggression after 60 years of inactivity in this field. The definition of the crime of international law and an alarm signal send to all leaders who believe they will not be held accountable for their actions.

The last subchapter analyzes the issue of armed conflicts triggered by cyberattacks. The subchapter presents the ways that an international and non-international armed conflict could be triggered by resorting to cyber-attacks, it also deals with the legal statute of combatants, prisoners of war, unlawful combatants and direct participation in hostilities.

The third chapter of this paper presents the cyber means and methods of armed conflict. The first subject analyzed is the applicability of international humanitarian law in the case of cyber-attacks. International law rules were designed in order to protect both persons directly participating in hostilities (combatants, members of organized armed groups, civilians involved in the conduct of hostilities), medical and religious personnel accompanying the armed forces and the civilian population. The right of states to resort to the threat or use of force is forbidden, but there are some exceptions to this rule. In 1949 the Geneva Conventions were created in order not to reach the situations encountered during the Second World War. From 1949 until now, a number of international treaties have been adopted that prohibit the use of certain means and methods of warfare. The norms of international humanitarian law have increased the protection offered during armed conflicts, but have not led to the eradication of abuses. Even though these rules exist, the way in which armed conflict are conducted has evolved, if at the moment of adoption of these treaties armed conflicted took place

between two or more states using conventional means and methods of warfare, in modern times most armed conflicts no longer have an international character and the means and methods of warfare have been adapted to these new situations. Technological advances have led to the emergence of new means and methods of waging war and therefore the current rules of international humanitarian law have to been analyzed to see if they apply irrespective of the space in which the conflict takes place. The last part of this chapter presents the prohibited methods of cyber conflicts and attempts to answer the question can cyber-attacks qualify as weapons of mass destruction?

**Chapter Four** presents the categories of people and objects protected from cyberattacks, the protection offered to the civilian population and the special protection offered in the armed conflicts, as well as the protection of civilian objects such as indispensable goods, hazardous-force installations, cultural goods and the environment.

The fifth chapter deals with the institution of international law responsibility. The first part of this chapter presents the forms of responsibility in international law. The next part of the chapter analyzes the responsibility of states and international organizations and the second part analyzes the international criminal responsibility for committing war crimes, genocide and crimes against humanity. Criminal responsibility for committing the crime of aggression is dealt with in the previous chapter. There must be repercussions for the acts committed, otherwise some states or certain individuals would not be sufficiently motivated to respect them. Even in this situation, where there is the institution of liability, there have been numerous cases in which the rules of international law have been violated, and some individuals have ordered the commission of offensive crimes such as genocide in Rwanda.

The fifth chapters analyses the institution of international responsibility. The first part of this chapter presents the forms of responsibility according to international law. The second subchapter presents the material and political responsibility of state for committing international offenses attributable to them. This chapter also discusses the international responsibility of international organization. The last part of this chapter analyses individual criminal responsibility for the war crimes, genocide and crimes against humanity committed using cyber capabilities. There must be repercussions for acts committed, otherwise some states or individuals will not be sufficiently motivated to respect international legal norms. Even if the institution of responsibility is deeply rooted in international law there are many examples where these rules have been violated and individuals have ordered the commission of horrific crimes such as the genocide in Rwanda.

The final portion of the thesis is dedicated to the conclusions formulated by the PhD candidate following the research process that materialized in this study.

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