

# **The Development of Warfare Through Seven Generations: Cyber-Attacks and impacts on international Relations**

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## **Abstract:**

The paper demonstrate the development of warfare through seven generations, the characteristics and examples that distinguish each generation, and focus on cyber-attacks and its effect on international relations.

The paper uses two approaches to examine the topic, the descriptive approach and the systematical analysis approach.

## **Key words:**

Warfare generations, English Civil War, First World War, Second World War, Syrian Civil War, cyber-attacks.

## **1- Introduction:**

Warfare has been developed through many stages from first generation warfare till it reached the seventh generation warfare, the most common type of warfare that world faces now is fifth generation warfare, especially cyberwar.

In the 1980s<sup>1</sup>, the United States of America increased its dependence on computer networks thus, the world new focus was the foreign espionage<sup>2</sup>.

During the cold war between the United States of America and the Soviet Union, President Ronald Regan the 40<sup>th</sup> president of the United States who began thinking about the cyber war<sup>3</sup>, the idea occurred to president Regan in his attempt to overcome the Soviet Union nuclear weapon if the United States and the Soviet Union ever went to war<sup>4</sup>.

## **2- The approach:**

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<sup>1</sup> Lawson, Sean, **Beyond cyber-doom: Cyberattack Scenarios and the Evidence of History**, (Mercatus Center at George Mason University 2011), p.3

<sup>2</sup> Idem.

<sup>3</sup> Fred Kaplan, **dark territory: the secret history of cyber war** (United States: Simon and Schuster, 2016), pp. 1-4.

<sup>4</sup> Idem.

To analysis the development of warfare to cyber war and it is effect on international relations, the paper will demonstrate it through the usage of the descriptive approach and the systematic analysis approach.

The **descriptive approach** in social science refers to the description of the phenomenon characteristics that is being studied, “descriptive studies may be characterized as simply the attempt to determine, describe or identify what is, while analytical research attempts to establish why it is that way or how it came to be”<sup>1</sup>.

The **systematic analysis approach** by David Austen where the approach contains input, output, and feedback.

In this study, the **input** is the cyber-attacks that is caused by one country against another.

The **output** is the outcomes of those cyber-attacks on the country attacked.

And the **feedback** is the effect of the cyber war on international relations.

### **3- The development of warfare:**

#### **3.1- First generation warfare:**

The first generation warfare refers to typically the Napoleonic wars and types of engagement with the enemies<sup>2</sup>.

The first generation warfare was characterized by the tactics of line and columns to maximize the power of the army, smoothbore musket and conscripted armies<sup>3</sup>.

First generation warfare phase began at 1648<sup>4</sup>, the peace of Westphalia convention year, a convention which ended a 30 years of war that consists what we know now as Germany<sup>1</sup>.

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<sup>1</sup> Ethridge, D.E, “**Research Methodology in Applied Economics**” ( John Wiley & Sons, 2004), p.24

<sup>2</sup> GREG SIMONS, “**FOURTH GENERATION WARFARE AND THE CLASH OF CIVILIZATIONS**”, Journal of Islamic Studies, August 2010, p. 7.

<sup>3</sup> Ibid.

<sup>4</sup> William S. Lind, “**A Brief Overview of Fourth Generation Warfare**”,(January 1993), Military Society of the Marine Corps University, p. 1.

The Westphalia convection is also the beginning of usage of term Nation-State with it is conditions in the European affairs, replacing communal and tribal organizations as war-making entities<sup>2</sup>.

On the first generation warfare the concept of operational art did not exist as a formal concept yet, however it was widely practiced by napoleon<sup>3</sup>.

**There are a lot of examples for the first generation warfare:**

Such as: English civil war, Anglo-Spanish Wars, Seven Years' War, American Revolutionary War, Napoleonic Wars, War of 1812 and Mexican War of Independence.

### **1- English Civil War:**

The signs for the English Civil War started to emerge from the conflict between Charles the first and the parliament over the issue of the Irish rebellions<sup>4</sup>.

In October 1642, the first battel in the English Civil War, the Battle of Edgehill took place<sup>5</sup>.

The actual reason for the English Civil War was the Scotland and the Irish armies especially the Scotland army when Charles the first failed to defeat them<sup>6</sup>.

The war was marked by two phases, the first phase ended after the battel of Naseby 1645<sup>7</sup>.

While the second phase ended after the Battle of Preston in 1649, with Charles' defeat<sup>1</sup>.

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<sup>1</sup> McKenzie Jr, Kenneth F. "*Elegant irrelevance: fourth generation warfare*", (1993) HEADQUARTERS MARINE CORPS WASHINGTON DC, p.52.

<sup>2</sup> Ibid.

<sup>3</sup> Gazette, Marine Corps. "**The Changing Face of War: Into the Fourth Generation William S. Lind, Colonel Keith Nightengale (USA), Captain John F. Schmitt (USMC), Colonel Joseph W. Sutton (USA), and Lieutenant Colonel Gary I. Wilson (USMCR).**" (Marine Corps Gazette, 1989) p.22.

<sup>4</sup> History, "**the English civil war**", History, published in: June 7, 2019, seen in: March 9, 2020, at: 1.34 pm, available at: <https://www.history.com/topics/british-history/english-civil-wars>

<sup>5</sup> Purkiss, Diane, "*Literature, gender and politics during the English Civil War*", Cambridge University Press, 2005, p.32.

<sup>6</sup> Morrill, John Stephen., "*Reactions to the English Civil War, 1642-49*", Macmillan International Higher Education, 1982, p. 12.

<sup>7</sup> Ibid.

## 2- Anglo-Spanish War:

The Anglo-Spanish War passed through several phases or wars.

1- Anglo-Spanish War between Britain and Spain, the war took place between 1585 till 1604<sup>2</sup>.

After the English army managed to surround the Spanish army in the battle of Kinsale, the Spanish army agreed on terms of surrender<sup>3</sup>.

The battle ended the Anglo-Spanish War, or as it is also known as the Anglo-Irish Nine Years War<sup>4</sup>.

2- The Anglo-Spanish War took place between 1779 till 1783<sup>5</sup>, the war was between Great Britain and Spain<sup>6</sup>.

Spain had a sufficient gain from this conflict, for Spain it was about stopping Britain from its constant attacks on its land<sup>7</sup>.

## 3- Napoleonic wars:

In May 1803<sup>8</sup>, the Napoleonic wars began after 10 years of the British joining of the war against the revolution in France<sup>9</sup>.

The Napoleonic war came as a series of battles or wars some examples of them are:

In December 1805<sup>1</sup>, the battle of Austerlitz, it is also called the battle of the three emperors<sup>2</sup>.

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<sup>1</sup> History, "the English civil war", History, published in: June 7, 2019, seen in: March 9, 2020, at: 1.34 pm, available at: <https://www.history.com/topics/british-history/english-civil-wars>

<sup>2</sup> Rowse, Alfred Leslie, "The Expansion of Elizabethan England", (Wisconsin: University of Wisconsin Press, second edition, 2003) p. 241.

<sup>3</sup> Snow, Vernon F. "John J. Silke. Kinsale: The Spanish Intervention in Ireland at the End of the Elizabethan Wars", (New York: Fordham University Press. 1970). P.62.

<sup>4</sup> Guarino, Gabriel. "The Battle of Kinsale: study and documents from the Spanish archives". Irish Historical Studies, 39, no. 153, 2014, p.140.

<sup>5</sup> Torres-Sánchez, Rafael, "Possibilities and Limits: Testing in the Fiscal Military State in the Anglo-Spanish War of 1779-1783." 2006, p. 2

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

<sup>8</sup> Gates, David, "The Napoleonic Wars 1803-1815", (London: plimico,2003), p. 5

<sup>9</sup> Ibid.

In October 1806<sup>3</sup>, the battle of Jena-Auerstadt took place as a part of the Napoleonic wars in Saxons<sup>4</sup>.

In June 1807<sup>5</sup>, the Battle of Friedland took place as the aftermath of the Battle of Eylau, where Alexander, the Russian emperor was defeated and forced to accept the French terms in the treaty of Tilsit<sup>6</sup>.

### 3.2- Second generation warfare:

The idea of the second generation of the warfare first emerged after the industrial revolution which offered a various range of firepower options<sup>7</sup>.

The second generation warfare was developed in the mid of the nineteenth century due to the emergence of steam technologies and the methods of mass production<sup>8</sup>, as well as, a response for the wide range of the development of the rifled barrel, guns and indirect fire<sup>9</sup>.

The second generation warfare depended on the massive fire power and troops to occupy the enemies land as it was an essential condition to victory at that time<sup>10</sup>.

The concept of operational art began to emerge in this phase which gave depth to the battlefield, together with the deep penetration, combination and “cauldron battles”<sup>11</sup>.

But at the tactical level it was a warfare based on fire and movement, thus the basic principle for the second generation warfare was attrition<sup>1</sup>.

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<sup>1</sup> Encyclopaedia Britannica, **Battle of Austerlitz EUROPEAN HISTORY**, Encyclopaedia Britannica, published in: December 02, 2019m seen in: March 9, 2020, at: 3.25 pm, available at: <https://www.britannica.com/event/Battle-of-Austerlitz>

<sup>2</sup> Ibid.

<sup>3</sup> Encyclopaedia Britannica, **Battle of Jena EUROPEAN HISTORY**, Encyclopaedia Britannica, published in: aOctober 07, 2019, seen in: March 9, 2020, at: 3.32 pm, available at: <https://www.britannica.com/event/Battle-of-Jena>

<sup>4</sup> Ibid.

<sup>5</sup> Encyclopaedia Britannica, **Battle of Jena EUROPEAN HISTORY**, Encyclopaedia Britannica, published in: June 07, 2019, seen in: March 9, 2020, at: 3.45 pm, available at: <https://www.britannica.com/event/Battle-of-Friedland-1807>

<sup>6</sup> Ibid.

<sup>7</sup> Subramaniam, Arjun, '**Strategies to Tackle Fourth Generation Warfare (4GW): An Aerial Perspective**', Strategic Analysis, 2010, p. 776.

<sup>8</sup> McKenzie Jr, Kenneth F., "**Elegant irrelevance: fourth generation warfare**", ( HEADQUARTERS MARINE CORPS WASHINGTON DC, 1993) p. 52

<sup>9</sup> GREG SIMONS, "**FOURTH GENERATION WARFARE AND THE CLASH OF CIVILIZATIONS**", Journal of Islamic Studies, August 2010, p. 7.

<sup>10</sup> LOC.CIT

<sup>11</sup> LOC.CIT

## **There are some examples for the second generation warfare**

Such as: World War 1<sup>2</sup> and the American Civil War.

### **1- American Civil War:**

The American Civil War lasted from 1861 till 1865<sup>3</sup>, it was a war located in the United States of America between the north and the south<sup>4</sup>.

Most of the people in the United States at that time believed that the war would be short just as a matter of battle or two until one of the two sides surrender<sup>5</sup>.

The northern leaders purpose when the initiated this war was to suppress the insurrection of the south with their confederation goal<sup>6</sup>.

### **2- First World War:**

The First World War was initiated in the aftermath of the assassination of Archduke Franz Ferdinand and his wife Duchess Sophie on June 1914<sup>7</sup>.

France, Russia, Germany, Britain and Austro- Hungarian leaders led their states into a war that lasted for several years, counter to what the United States leaders Imagined<sup>8</sup>.

In August 1<sup>st</sup> 1914, Germany declared war on Russia<sup>9</sup>.

In August 3<sup>rd</sup> 1914, Germany declared war on France<sup>10</sup>.

In August 4<sup>th</sup> 1914 Germany declared war on Belgium, soon Britain joined the war by declaring that it will fight against Germany<sup>11</sup>.

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<sup>1</sup> Ibid.

<sup>2</sup> Ibid.

<sup>3</sup> Foster, David R., "Land-use history (1730-1990) and vegetation dynamics in central New England, USA", (*Journal of ecology*, 1992), p.761.

<sup>4</sup> McPherson, James M., "The illustrated battle cry of freedom: The Civil War era", (oxford: Oxford University Press, 2003), p.332-333

<sup>5</sup> Ibid.

<sup>6</sup> Ibid.

<sup>7</sup> Zieger, Robert, and Robert H. Zieger, "America's Great War: World War I and the American Experience", (Rowman & Littlefield Publishers, 2001), p.7.

<sup>8</sup> LOC.CIT.

<sup>9</sup> OP.CIT., P. xv

<sup>10</sup> Ibid.

<sup>11</sup> Ibid.

In 1919, the international conference on the Treaty of Versailles took place, a peace treaty that ended World War I<sup>1</sup>.

### **3.3- Third generation warfare:**

The third generation warfare emerged due to the increase of the fire power<sup>2</sup>, the concept was developed the Germans in 1918<sup>3</sup>.

It was developed as the Germans were aware that one of the reasons for the defeat in World War I was because of their weak industrial base, thus they had to develop new tactics to protect themselves<sup>4</sup>, and they managed to develop the concept of operational freedom<sup>5</sup>.

The third generation tactics was maneuver in its principle rather than the attrition principle of the second generation warfare<sup>6</sup>.

The maneuver principle is based on qualitative maneuver over quantitative fire, it was also known as the blitzkrieg<sup>7</sup>.

#### **There are a lot of examples on the third generation warfare.**

Such as: World War II, Korean War, the war in Afghanistan and the Iraq war.

#### **1- Second World War:**

In September 1939<sup>8</sup>, the Second World War began when Germany attacked Poland after blaming it for the tension and the outbreak of the war in the German propaganda<sup>9</sup>.

Soon enough Britain and France joined the war to support Poland, although the two countries did not interfere directly in Poland<sup>1</sup>.

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<sup>1</sup> Baldwin, Faith, and Stig Förster, *"The Treaty of Versailles: a reassessment after 75 years"*, (Cambridge: Cambridge University Press, 1998), p.1.

<sup>2</sup> OP.CIT., P.24

<sup>3</sup> Ibid.

<sup>4</sup> McKenzie Jr, Kenneth F., *"Elegant irrelevance: fourth generation warfare"*, (HEADQUARTERS MARINE CORPS WASHINGTON DC, 1993) p. 52 .

<sup>5</sup> Ibid

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

<sup>8</sup> Taylor, Alan John Percivale, *"Origin of the second world war"*. (Simon and Schuster, 1996), p. 18.

<sup>9</sup> Weinberg, Gerhard L., *"A world at arms: A global history of World War II."* (Cambridge: Cambridge University Press, 1994), p.45

The war consisted of two wars that overlapped each other, the first battlefield was in Europe and North Africa and the second battlefield was in the far eastern, which began in December 1941<sup>2</sup>.

The real overlap occurred when the Japanese forces attacked Pearl Harbor, this attack which provoked Germany leader Adolph Hitler to declare war on the United States of America<sup>3</sup>.

In 1945<sup>4</sup>, the United States of America dropped two nuclear bombs on Hiroshima and Nagasaki in Japan, which led Japan to surrender<sup>5</sup>.

The Second World War ended by the victory of the Allies and the defeat of the Axis, but the war costed the humanity the loss of more than fifty million human being<sup>6</sup>.

## **2- Korean War:**

In June 1950<sup>7</sup>, North Korea initiated a war against South Korea, it was a matter of few days until North Korean soldiers arrived near Seoul “south Korea capital”<sup>8</sup>.

In June 27<sup>th</sup> 1950<sup>9</sup>, Seoul defense was about to collapse due to the evacuation panic<sup>10</sup>.

The Korean War was divided into three sections:

The war of South Korea in the summer of 1950<sup>11</sup>.

The war of the North Korea in the fall and winter of 1950<sup>12</sup>.

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<sup>1</sup> Ibid.

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

<sup>4</sup> Zipp, Samuel. "Raising The Wild Flag: EB White, World Government, and Local Cosmopolitanism in the Postwar Moment.," (Journal of Transnational American Studies 4, no. 1 ,2012), p.6

<sup>5</sup> IDEM.

<sup>6</sup> Keegan, John, “The second world war”. (Random House, 2011), p.2

<sup>7</sup> Stueck, William, “The Korean War: an international history”. ( Princeton University Press, Vol. 68.,1997), p.11.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

<sup>10</sup> Ibid.

<sup>11</sup> Cumings, Bruce, “The Korean War: A history.” (New York: Modern Library, 2010), p.XVIII.

<sup>12</sup> Ibid.



And the Chinese intervention that caused the agreement on demilitarization zone between the two parties<sup>1</sup>.

In June 1953<sup>2</sup>, the Korean War ended due to several reasons, first, Stalin death in March the same year<sup>3</sup>, second, the Eisenhower administrations air war escalation in May and July 1953<sup>4</sup>.

### **3- Afghanistan war:**

In October 7<sup>th</sup> 2001<sup>5</sup>, the United States of America and the United Kingdom initiate a war on Afghanistan as a response to the aftermath of the September 11<sup>th</sup> attacks on the United State of America by the terrorist group Al-Qaeda<sup>6</sup>.

The invasion occurred after the United States of America and the United Kingdom informed the United Nation security council of their right to use force for their defense under the Article 51<sup>7</sup>.

In September 2006<sup>8</sup>, Ronald Rumsfeld the United States secretary of defense announced the withdrawal of 3000 troops from Afghanistan, as the United States could not wage war in two countries at once<sup>9</sup>.

However, in December 2006<sup>10</sup>, the NATO announced an expansion of six thousand troops in the United Nation peacekeeping force in southern Afghanistan<sup>11</sup>.

In 2014<sup>12</sup>, the United States of America and the NATO international security force started the preparation of the troop's withdrawal from Afghanistan<sup>13</sup>.

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<sup>1</sup> Ibid.

<sup>2</sup> Ibid, p. 34

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

<sup>5</sup> Williamson, Myra, "**Terrorism, war and international law: the legality of the use of force against Afghanistan in 2001.**", (New York: Routledge, 2016), p. 5

<sup>6</sup> Ibid.

<sup>7</sup> Ibid. VII

<sup>8</sup> Gall, Carlotta, "**The wrong enemy: America in Afghanistan, 2001–2014**"., ( United States: HMH, 2014), p.131.

<sup>9</sup> Ibid.

<sup>10</sup> Ibid.

<sup>11</sup> Ibid.

<sup>12</sup> Huasheng, Zhao, "**Chinese Views of Post-2014 Afghanistan.**" (*Asia Policy*, no. 17, 2014), p.54.

<sup>13</sup> Ibid.

#### 4- Iraq war:

There was an international fear due to some intelligence reports that reported that president Saddam Hussein is developing weapons of mass destruction in Iraq<sup>1</sup>.

In 2002<sup>2</sup>, the United Kingdom prime minister Tony Blair announced that the United Kingdom will support and join the United States coalition against Iraq<sup>3</sup>.

In March 19<sup>th</sup> 2003<sup>4</sup>, the United States of America under President George W. Bush took the decision to attack Saddam Hussein's regime in Iraq<sup>5</sup>.

In March 20<sup>th</sup> 2003<sup>6</sup>, the British and the American armies cross the border to Iraq from the Persian Gulf<sup>7</sup>.

In 2010<sup>8</sup>, the United States of America declared the end of the combat mission in Iraq.

During the second term of president Bush it was announced that the deadline for the complete United States withdrawal from Iraq in 2011<sup>9</sup>.

In December 2011<sup>10</sup>, the United States ended the war in Iraq officially after lowering the United States flags<sup>11</sup>.

#### 3.4- Fourth generation warfare:

The fourth generation warfare ideas started to have a great importance after the September 11<sup>th</sup> attacks on the United States, followed by the Bali, London, Madrid

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<sup>1</sup> Murray, Williamson, and Robert H. Scales, **"The Iraq war: A military history"**. (The United States: Harvard University Press, 2003), p.131.

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

<sup>4</sup> Harvey, Frank P., **"Explaining the Iraq War: counterfactual theory, logic and evidence."**, (Cambridge University Press, 2011), p.1

<sup>5</sup> Ibid.

<sup>6</sup> Ibid. 132

<sup>7</sup> Ibid.

<sup>8</sup> BBC News, "Barack Obama: All US troops to leave Iraq in 2011", BBC News, published in: October 21, 2011, seen in: March 10, 2020, at: 4.45 pm, available at: <https://www.bbc.com/news/world-us-canada-15410154>

<sup>9</sup> Ibid..

<sup>10</sup> Independent, **"US lowers flag to end Iraq war"**, independent, published in: December 15<sup>th</sup> 2011, 12.22, seen in: March 10, 2020, at 4.51 pm, available at: <https://www.independent.co.uk/news/world/middle-east/us-lowers-flag-to-end-iraq-war-6277340.html>

<sup>11</sup> Ibid.

and Bombay attacks, which made the traditional use of the armed forces useless in preventing those attacks<sup>1</sup>.

The concept of the fourth generation warfare was mentioned for the first time in the changing face of war: into the fourth generation article published in 1989 by William S. Lind, Nightingale, Gary I. Wilson, Jhon F. Schmitt and Joseph W. Sutton<sup>2</sup>.

The fourth generation warfare came as indirect result of the rapid development in the social, economic, political and technological transformation caused by the globalization<sup>3</sup>.

The fourth generation has several names such as Insurgency, terrorism, the long war, guerrilla warfare, non-state actors and the global war against terrorism (GWAT)<sup>4</sup>.

There are three main ideas that affected the emergence of the fourth generation warfare<sup>5</sup>:

The first idea is that the nation states lose it is monopoly in controlling war<sup>6</sup>.

The second idea is that the new face of conflict is changing in to cultural conflict that is identified by religion and ideology<sup>7</sup>.

The third idea concerns with the concept of multiculturalism, which is marked with the United States abandonment the western of Judeo-Christian values<sup>8</sup>.

There is a specific agenda that govern the fourth generation warfare that includes the identification of the problems caused by contemporary security issues and the recommendation of the right path to overcome those issues<sup>1</sup>.

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<sup>1</sup> Karp, Aaron, Regina Karp, and Terry Terriff, eds., **"Global Insurgency and the Future of Armed Conflict: Debating fourth-generation warfare"**, (New York: Routledge, 2010) p.3

<sup>2</sup> Ibid.

<sup>3</sup> Knopf, C., and E. Ziegelmayr. **"Fourth Generation Warfare and the US Military's Social Media Strategy."** (ASPI Africa & Francophonie-4to bimestre 2012), p. 7.

<sup>4</sup> Karp, Aaron, Regina Karp, and Terry Terriff, eds, **Global Insurgency and the Future of Armed Conflict: Debating fourth-generation warfare"**, **optic**, p.4

<sup>5</sup> Lind, William S., John F. Schmitt, and Gary I. Wilson, **"Fourth generation warfare: Another look."** (Marine Corps Gazette 85, no. 11 ,2001), p. 69.

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

<sup>8</sup> Ibid.

The fourth generation warfare changed the face of war from destroying the enemy in the battlefield to destroying it internally, which includes collapsing its society from the cultural aspect not just as a physical entity<sup>2</sup>.

In order to defeat the fourth generation of warfare (4GW) the fighting parties need a combination of military, political, diplomatic, economic and technological aspects, unlike the traditional war that only required military and political aspects<sup>3</sup>.

### **There are some examples for the fourth generation warfare:**

Such as: Syrian Civil War and the Libyan Civil War.

#### **1- Syrian Civil War:**

The Syrian Civil War started as a revolution by the people in 2011<sup>4</sup>, to enhance the political, economic and social situation in the country as part of the Arab Spring movement in Tunisia, Egypt and Libya<sup>5</sup>.

Soon the revolution turned to a civil war when the Free Syrian Army rebel movement attempted to overthrow the Syrian president Bashar al-Assad from the office<sup>6</sup>.

ISIS, Hizbollah, and Jabhat al-Nusra forces joined the war afterward which made the civil war last for several years without an expected ending<sup>7</sup>.

In 2014<sup>8</sup>, President Barack Obama ordered to launch a United States air campaign against ISIS in Syria as it was the biggest player in the Syrian civil war<sup>9</sup>.

In 2019<sup>1</sup>, President Trump claimed a complete defeat of ISIS in Syria and ordered a complete withdrawal from northern Syria which was considered as a green light for President Erdogan to interfere in Syria<sup>2</sup>.

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<sup>1</sup> Ibid.

<sup>2</sup> Knopf, C., and E. Ziegelmayer, *optic*, p.8

<sup>3</sup> Subramaniam, Arjun, 'Strategies to Tackle Fourth Generation Warfare (4GW): An Aerial Perspective', *optic*, p.757.

<sup>4</sup> Cohen, Erez. "From Arab Spring to Economic Winter—examination of the relationship between politics and economics as evident in the Syrian civil war during 2011-2015." *Journal of International Studies* 9, no. 1 (2016), p12.

<sup>5</sup> Ibid.

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

<sup>8</sup> Megan Specia, "winners and losers in Trump's troop withdrawal from Syria", *the New York Times* (Oct. 15, 2019), available on <https://www.nytimes.com/2019/10/15/world/middleeast/trump-syria-troop-withdrawal.html>

<sup>9</sup> Ibid.

## 2- Libyan Civil War:

In January 2011<sup>3</sup>, Libyans started protesting against the Libyan president Muammar Gadhafi regime as a part of the Arab spring movement<sup>4</sup>.

The protesters were demanding an economic and social development, even so president Muammar Gadhafi tried to enhance the economic situation to meet the protest demands, the protest started to expand to a large and violent demonstration in Benghazi<sup>5</sup>.

In February 17<sup>th</sup> 2011<sup>6</sup>, the protesters organized a day of rage where the protesters violently broke out in several major cities including the Libyan capital Tripoli<sup>7</sup>.

From March to October 2011<sup>8</sup>, the North Atlantic Treaty Organization (NATO) and some countries from the outside the coalition launched an air campaign against the Libyan regime to help in the overthrow of President Muammar Gadhafi.

In 2014<sup>9</sup>, the violence escalated in Libya after the election dispute between al-Sarraj and Haftar, where al-Sarraj took over the GNA in 2016<sup>10</sup>, while Haftar launched several military campaigns that helped him take over a large territory, soon Isis joined the battlefield which led to the division of the country between two regimes<sup>11</sup>.

## 3.5- Fifth generation warfare:

The fifth generation warfare emerged due to the state were struggling to maintain it as a monopoly over the war and organization, as a result of the interference of the non-state actors<sup>12</sup>.

It is also defined as a pseudo operation, which is known as “a terrorist act done by one group in such a manner that they are blamed for another action”<sup>1</sup>.

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<sup>1</sup>Peter Feaver, will Inboden, “the realist was wrong about Syria”, *foreign policy magazine* (Nov. 4, 2019), available on <https://foreignpolicy.com/2019/11/04/the-realists-are-wrong-about-syria/>

<sup>2</sup> Ibid.

<sup>3</sup> Stottlemire, Steve, and Sonia Stottlemire. "Crisis mapping intelligence information during the Libyan civil war: an exploratory case study." *Policy & Internet* 4, no. 3-4 (2012): 24-39.

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

<sup>6</sup> Ibid

<sup>7</sup> Ibid.

<sup>8</sup> Mueller, Karl P., ed. “Precision and purpose: Airpower in the Libyan civil war”. Rand Corporation, 2015, p.1.

<sup>9</sup> ZIA WEISE, “The Libyan conflict explained”, politico, published in: Jan 17, 2020, seen in: April 2, 2020, at: 4:59pm, available at: <https://www.politico.eu/article/the-libyan-conflict-explained/>

<sup>10</sup> Ibid.

<sup>11</sup> Ibid.

<sup>12</sup> A. J. Piscitelli, “Generational Warfare” White Paper”, Presented at: The Pittsfield 3C Congress, p.9

The pseudo operation is defined as “describes the act of a software sending instructions or code to a hardware device that has not been compiled. Afterwards the hardware device translates the instructions into machine language”<sup>2</sup>.

The fifth generation warfare are seen as a mixture between the barbarism and the guerrilla warfare<sup>3</sup>.

The fifth generation warfare aircraft consists of four generic elements or approaches:

Networks, combat cloud, Multi-domain battle and the fusion warfare<sup>4</sup>, the order of those generic elements or approaches reflect concatenation that formed the concept of fifth generation warfare<sup>5</sup>.

## 1- Definition of cyber war:

Cyber war is a digital attacks for espionage that targets the enemies strategic and tactical structure, it aims to steal information that is valuable to the enemy such as data about the army, or even take down the server of the government site<sup>6</sup>.

Cyber-attacks targets both military and civilian, which may cause a civilian deaths and casualties, a cyber-attack on a government system that may cause it to shut down may results traffic accidents<sup>7</sup>.

Cyber-attacks is defined as it is an information network system that consists of commands, controls, communications, computer intelligence, surveillance and reconnaissance, electronic and information warfare, campaign support and fire power<sup>8</sup>.

## 2- History of cyber war:

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<sup>1</sup> Idem.

<sup>2</sup> , “Pseudo-operation”, computer hop, ( November 16<sup>th</sup> 2019), available at:

<https://www.computerhope.com/jargon/p/pseuoper.htm>

<sup>3</sup> Wayne Madsen, “Fourth and Fifth Generation Warfare Arrives on European and Middle Eastern Battlefields”, (Centre for 5th Generation Warfare Studies, April 21, 2015), available at: <http://www.daic.org/5gen/2016/07/09/fourth-and-fifth-generation-warfare-arrives-on-european-and-middle-eastern-battlefields-wayne-madsen/>

<sup>4</sup> IDEM.

<sup>5</sup> Peter Layton, “Five fifth-generation warfare dilemmas”, ( the strategist, ASPI, Jul 2017), p. 1.

<sup>6</sup> Steve Ranger, “What is cyberwar? Everything you need to know about the frightening future of digital conflict”, ZDNet, published in: December 4, 2018, seen in: April 8, 2020, at: 4.35 pm, available at:

<https://www.zdnet.com/article/cyberwar-a-guide-to-the-frightening-future-of-online-conflict/>

<sup>7</sup> Ibid.

<sup>8</sup> Lunceford, Brett. “CYBERWAR: THE FUTURE OF WAR?”, War and the Media: Essays on News Reporting, 2009, page 240.

In 1980s<sup>1</sup>, the United States of America increased its dependence on computer networks thus, the world's new focus was the foreign espionage<sup>2</sup>.

It was Ronald Reagan the United States of America president who first came with the idea of cyber-attacks and cyber war<sup>3</sup>. The idea came to President Ronald Reagan in the middle of the cold war with Russia as he thought of it as the way to win the nuclear war against Russia if they ever went to such war<sup>4</sup>.

In the 1990s, the concept of cyber war starts to expand including the attacks that might be triggered by the non-state actors<sup>5</sup>.

During president Bush's administration cybersecurity theorist identified the dominant threat as the state actors rather than the non-state actors<sup>6</sup>.

After the September 11<sup>th</sup> 2001 attacks against the United States of America the dominant threat shifted back to non-state actors such as the terrorist organizations<sup>7</sup>.

China is considered a pioneer in cyber space, attacks and cyber espionage.

- **State actor cyber-attacks:**

- In 2004<sup>8</sup>, several attacks were performed targeting the United States military laboratories called the Titan Rain attacks<sup>9</sup>, the attack was caused by a group located in southern China, the group managed to hack hundreds of the United States computers and steal sensitive information<sup>10</sup>.
- In April 2015<sup>11</sup>, the United States government accused the Chinese government of conducting a cyber-attack against the United States office of personal management and stealing over 4 million of the United States citizens' personal records<sup>12</sup>.

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<sup>1</sup> Lawson, Sean, **Beyond cyber-doom: Cyberattack Scenarios and the Evidence of History**, (Mercatus Center at George Mason University 2011), p.3

<sup>2</sup> Ibid.

<sup>3</sup> Fred Kaplan, **dark territory: the secret history of cyber war** (United States: Simon and Schuster, 2016), pp. 1-4.

<sup>4</sup> Ibid.

<sup>5</sup> Lawson, Sean, **Beyond cyber-doom: Cyberattack Scenarios and the Evidence of History**, (Mercatus Center at George Mason University 2011), p.3

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

<sup>8</sup> Green, James A., (ed.) "Cyber warfare: a multidisciplinary analysis" (Routledge, 2015), p.8

<sup>9</sup> Ibid.

<sup>10</sup> Thornburgh, Nathan, **Inside the Chinese Hack Attack**, Times, August 25 (2005).

<sup>11</sup> Barrett, Devlin, Danny Yadron, and Damian Paletta. "US suspects hackers in China breached about 4 million people's records, officials say." *The Wall Street Journal* (2015) p.1.

<sup>12</sup> Ibid.

- In 2018<sup>1</sup>, a cyber-attacks was conduct on the international chemical weapons watchdog headquarter of the Netherlands, but it was stopped by the Netherlands intelligence<sup>2</sup>, the Netherlands government accused Russia of the attack but they had no evidence to support their claims<sup>3</sup>.
- **Non-state actor cyber-attacks:**
- In November 2014<sup>4</sup>, an Iranian cyber espionage group was activated known as Advanced Persistent Threat 39 (APT39) or Chafer, the group worked on stealing information in the Middle East, North America and Europe telecommunication, travel and high tech companies<sup>5</sup>.
- In August 2015<sup>6</sup>, a Russian hacking group known as Cozy Bear attacked the United States department of defense email system<sup>7</sup>.
- In January 2017<sup>8</sup>, the Cozy Bear group attacked both ministry of defense and ministry of foreign affairs of the Norwegian government<sup>9</sup>.
- The Cozy Bear group is also known as the Cozy Duke, the group was linked to a number of cyber-attacks against companies and governments and political groups in the United States, South Korea and Germany.

### 3- The impact of cyber-attacks on international relations:

- Cyber conflicts is described as a cool war, as it represent the dynamic changes in state interactions after the end of the cold war between Soviet Union and the United States of America<sup>10</sup>.

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<sup>1</sup> The guardian, “**Russia accused of cyber-attack on chemical weapons watchdog**”, October 4, 2018, 15.48 BST, seen in: March 7, 2020, at: 5.45, available at: <https://www.theguardian.com/world/2018/oct/04/netherlands-halted-russian-cyber-attack-on-chemical-weapons-body>

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

<sup>4</sup> model United nation, “**Global Hacking Groups**”, university of central Arkansas, available at: <https://uca.edu/politicalscience/cyber-security-and-international-relations-csir-project/global-hacking-groups/>

<sup>5</sup> Ibid.

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

<sup>10</sup> Maness, Ryan & Valeriano, Brandon, “**The Impact of Cyber Conflict on International Interactions**”, Armed Forces & Society, 2015, p. 2.



- Cyber threats are considered as one of the most dangerous threats to the states -nowadays, President Barak Obama declared that cyber-attacks is the most obvious threat on the American national interest<sup>1</sup>.
- In 2011<sup>2</sup>, the United States of America announced that cyber-attacks will be consider as a traditional act of war that requires a military response<sup>3</sup>, although till now the united states of America never responded on a cyber-attack by military forces.
- Cyber-attacks may be practiced by both official and non-official actors and levels, in the unofficial level the cyber war and attacks it allows non-state actors to participate in foreign actions and affairs<sup>4</sup>.
- Cyber-attacks mainly targets government agencies, political organizations, companies and power grids, cyber-attacks can cause significant loses for the country under attack economically, politically and it can even cause death.
- Cyber-attacks are hard to track as they may be define the country that lunched the attack but they cannot prove whether this country's government is involved or it is just an attack by an independent group.  
Which made it hard for the country under attacks to held responsibility against the attackers.

### 3.6- Sixth generation warfare:

Sixth generation warfare is about non-contact warfare through the usage of high accuracy gunnery, it is also about making the enemy do what you want them to do without making them realize that fact<sup>5</sup>.

For example: operation desert storm<sup>6</sup>.

Sixth generation warfare was first developed by soviet union theoretical military thinking since 1920, with the aim to perform it is operation in air, land, sea and space platforms by the usage of long range and high accuracy weapons<sup>1</sup>.

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<sup>1</sup> IDEM

<sup>2</sup> Ibid, p. 3

<sup>3</sup> IDEM.

<sup>4</sup> Hearn, Kay & Williams, Patricia & Mahneke, Rachel, “**International Relations and Cyber Attacks: Official and Unofficial Discourse**”, Australian Information Warfare and Security Conference, 2012, p.8

<sup>5</sup> Edit Zgut, Jānis Bērziņš, “**New Generation Warfare**”, (2017), Visegrad insight, available at: <https://visegradinsight.eu/new-generation-warfare/>

<sup>6</sup> Ibid

Sixth generation warfare has three objectives which are<sup>2</sup> :

- 1- Defeating the armed force of the enemies.
- 2- Destroying its economy.
- 3- Changing the enemy political system.

Sixth generation warfare attacks are attacks within the psychological and informational warfare through coordinated strikes and attacks in the most favorable time inside the opponent territory<sup>3</sup>.

### **3.7- Seventh generation warfare:**

Seventh generation warfare is a natural development for the sixth generation warfare, it is an automatic warfare in its best meaning, the seventh generation warfare uses electronic and cyber warfare and weapons to shut down the opponents financial and military communication networks, their power grid and water utilities<sup>4</sup>.

The next step after shutting down the enemy system is to control their airspace through the usage of swarms of the flying weapons platforms, creating a no-fly zones<sup>5</sup>.

### **4- Conclusions:**

- Warfare is a wide spectrum that moves through seven generations each of them is distinguished with specific characteristics, from the column and line wars in the first generation to the ability to shut down the enemy system from far away automatically in the seventh generation warfare.
- The most used way of attacks nowadays is cyber-attacks which are part of the fifth generation warfare.

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<sup>1</sup> Mattsson, Peter. (2015) “**Russian Military Thinking – A New Generation of Warfare**”, (Journal on Baltic Security, vol.1) p-p.62-63.

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

<sup>4</sup> Ray alderman, “**Looking toward 7th and 8th generation warfare**”, military embedded system, available at: <http://mil-embedded.com/guest-blogs/looking-toward-7th-and-8th-generation-warfare/>

<sup>5</sup> Ibid.

- Cyber war was first mentioned during the cold war in the 1990s by the president of the United States of America, Ronald Regan as a way to win if the two powers (U.S.A and Soviet Union) went to a complete war.
- Cyber-attacks are used by both state and non- state actors which had a big impact on the international relations as it gave non- state actors a significant part in international relations.
- China is considered as a pioneer in the field of cyber-attacks and cyber espionage.

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