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**The Individuals' Right for Environmental Security: the
Civil Society Efforts in Environment Protection, Reality
and Perspectives
Algeria as Model**

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Abstract

Political and legal studies have always been defined as the strategic efforts undertaken by the state to protect its sovereignty and its people against foreign aggression. This concept has dominated modern studies in international relations and public international law, while recognizing the unity of the international and regional actor. Barry Poznan and Ole Weaver expanded the concept of security to other sectors, including political, cultural, food and environmental sectors in the early 1980s. Recent studies have created a common responsibility between the state and the individual to protect the environment and provide environmental security. This is what civil society organizations and environmental associations seek to achieve in the world of environmental pollution and its causes. However, the Arab World is still witnessing a frightening indifference to the issues related to its environmental security and the extent of the harm the environment is exposed to. North African countries have worked to devote effective strategies and plans to embody environmental policies that prevent from threatening the environment. In addition, environmental associations and organizations are cautioning against the governments negligence of the environment itself and accuses its practices that include the application of investment policies

threatening the environment in exchange for promises that do not have content for their protection.

Keywords: environmental security, environmental policies, civil society organizations, Algeria.

Introduction

Society and the environment are two variables, which have always been linked to each other's due to influence and vulnerability, especially in the postmodern stage and the emergence of security theories with its modern postulates. These theories, in some of its principles, have categorized the state as a danger to the individual as a result of its behaviors and policies stemming from the pragmatic vision. Considerably, these principles have accelerated the emergence of the social responsibility that seeks to protect human security in ways that are similar to the official state policies. In the twenty-first century, the society is the responsible for social awareness, work to develop common frameworks, and references whose sole concern is the protection of identity. In this way, it seeks to improve societal security, and in the same context, the society is considered as the principle basis for protecting cultural security. This is mainly what was imposed by the societal responsibility upon individuals and groups who share history, language and traditions for the sake of protecting, developing and observing originality and modernity while transmitting the culture of communities and groups in a manner that guarantees the security of their heritage and the consolidation of their beliefs. This is what thousands of languages, traditions and cultural heritages recommend throughout the world without being lost or diverted from its racial, religious, or philosophical references. However, this act has made the world a field of cultural challenge in which each side seeks to highlight the existing character of its own identity. Therefore, protecting the cultural security of people is our main concern.

Environmental security is considered as a contemporary concept emerged by the end of the Cold War, and is the product of critical reviews of security studies belonging to the international relations science in which the cognitive revolution that accompanied theoretical studies in international relations was considered a qualitative leap. As a result, the security variable widened from its narrow concept that included

the military capacity, border security and the protection of the state stability and its institutions in general. In addition, the variable of security entailed the threats that were related to wars, military interventions, and the race to armament. The variable part of security broadened to include a group of interconnected and integrated types of security working to define levels of individual well-being by providing military security with the presence of traditional protection in which the army, security elements, and the state institutions contribute together. Fundamentally, by maintaining economic security for the state to achieve self-sufficiency, economic budgeting and material well-being for the individual, cultural security as we mentioned is the result of cultural, historical and identity for the society, to reach societal security which has a great interest in the field of security studies. It is also concerned with social transformations within the state and sub-state conflicts; here social responsibility plays a major role in protecting this type of security. Thus, environmental security is part of the secretions of critical studies in international relations, where Barry Buzan has contributed by providing new frameworks and theories that include all human problems.

The principle of environmental protection is considered as the meeting point of a number of scientific fields, including nature and life sciences, education sciences as well as science of international relations and law, but the last two fields have dealt with environmental protection issues extensively. Significantly, the environment is considered as the fourth generation in human rights. It has extensive studies, especially as a single field in legal sciences, whether at the level of "human rights" or "environmental law and urbanization" as in some North African countries including Algeria. Concerning the international relations field, environmental security has been devoted independent theories on the level of the epistemological path within the framework of postmodern theories and postmodernism. The most important of which is the green theory in international relations, or environmental theory, which focused primarily on civil society and the extent of its role in disseminating environmental culture within society.

In addition to the role of the state in operating an effective environmental policy concerned with finding specific solutions to environmental problems, it has to be mentioned that the pioneers of the green theory carry all the traditional theoretical frameworks and philosophical references, which dominated the interpretation of international reality, especially the catastrophic state that the environment has reached. The past forty years are considered as a time space that translated the shortcomings of the international environmental policy in protecting the world from ecological disasters. This was due to its negligence of the basic unit of analysis, which is "sustainability", as well as the interest of theories that explained the international reality and the political units in the elements of strength, economy and society without taking into account the environmental risks that threaten the world. This inattention was the result of technological and economic competition between nations, (secretions of toxic gases, nuclear waste, ozone hole, pollution resulting from economic waste ...). These are all environmental threats and problems that the theory has focused on, and it is considered the most important principle for the green theory pioneers **“Thinking on a global level, working at a local level”**. Here comes the role of the civil society, associations and organizations interested in the field of environmental protection and human rights. They are considered as monitoring and educational tools, whose activities are covered by the legitimacy of social responsibility, which stems from the human right in a healthy environment.

Significance of the Study

The importance of the study stems from the fact that it is a measurement outcome of Algeria's experiences in the field of environmental protection and the effectiveness of environmental public policies implemented by political systems in these countries, in light of the growing interest in environmental and nature issues and considering them essential human rights.

In spite of this, the Arab countries in general and North African countries in particular, are still considered rather unqualified in comparison with the developed countries in terms of environmental protection and security programs. Similarly, civil society and the working organizations in this field are still considered immature

lacking material and moral capabilities in addition to the legal mechanisms through which it functions in protecting the environment. For this reason, the present investigation is considered as an analytical framework that translates the size of the deficit that exists at the level of civil society in the field of environmental protection. On the other hand, it is considered as a translation of the steps taken in order to generalize social responsibility and the extent of its spread in the countries concerned with the study.

Research Objectives

1. Determining the conceptual dimension of environmental security and environmental policies, and thus determining the level of social responsibility and the role of civil society and environmental protection organizations in educating the masses and disseminating an environmental culture consistent with the requirements of the human being and his right to a healthy environment.
2. Working to achieve effective recommendations adopted by environmental protection organizations and societies in Algeria, in order to announce security awareness in the field of the environment in light of the dangers, natural threats and problems of caused by human beings.
3. Make security studies more extensive by linking them with the state's environmental policies, and identifying the merging points between political endeavors and legal boundaries in the field of environmental protection.

Research Problematic

To what extent are civil society organizations contributing to protecting the environment and ensuring environmental security in Algeria ?, and what are the obstacles and problems that prevent achieving an effective environmental policy that provides environmental security in the region?

First, what is environmental security in light of the growing role of the individual (the individual as a basic unit of analysis in security studies)

The concept of security is among the concepts that are ambiguous, as it is known for decades that there is no agreement about its meaning within the scientific community. The field of security studies witnessed important epistemological and ontological discussions, which in turn formed revolutionary phases in terms of concepts and theories upon which the cognitive field depends. Nevertheless, the post-Cold War period is considered a new path in the field of security studies, and this is due to what it witnessed in terms of the development in the theoretical, conceptual and methodological fields, which expanded the field of security studies and made the levels of analysis in security research more focused. Research in security issues has shifted from traditional studies focusing on classical threats and state actors within the limits of wars and battles in human history to include perceptions and implications of the concept to embrace non-analogue problems that represent a direct and indirect threat to the individual as a reference analysis unit in security studies (M. Bounokta 2014: 20).

The concept of human security has emerged as the highest degree to which security research has reached in the modern era. It is the result of many transformations in the science of international relations and the field of security studies after the Cold War. It is a new concept that considers the human being as the basic unit in security studies and that the main topic of human security is to preserve and protect human dignity and his right to enjoy his rights and exercise his freedom. This stage required the specialists in the field to use methodological mechanisms and scientific tools that are different from their traditional counterparts.

Despite the fact that the concept of human security is not new in the field of international studies, but rather considered as the product of accumulative knowledge and research agendas that have not been endorsed by the scientific community. This is due to the conditions imposed on the international relations and the field of security studies by the realist, liberal, Marxist and behavioral schools at the level of political science. Indeed, these schools directed ontological and epistemological discussions through which the first three debates in international relations formed. It began calling for individual security since 1966 where a Canadian psychological theory emerged. By

the beginning of the seventies, voices calling for individual security followed, resulting in a set of reports on some of the committees, such as "The Club of Rome Club", "The Independent Commission for International Development" and "The Independent Committee for Disarmament and Security Issues". The reports of the committees stated the importance of achieving individual security, and working to overturn priorities and levels of analysis while dealing with security problems (A. Abdeldjebbar, 5).

Human security is often considered as a group including many fields of security such as food security, water security, social security and environmental security. The latter has a direct link with food security where environmental degradation is the result of carrying out anti-environmental actions by groups that suffer from the lack of food and water security, and this is in order to meet their needs, which threatens the base of agricultural natural resources (T.M. Sadik 19).

1. Environmental security from the perspective of security studies

This section aims at reviewing a number of definitions that dealt with environmental security from security studies perspectives, and what the modern paths have touched in the studies of international relations theories.

“The scientist Henry Thow is considered to be the first to formulate the ecology in 1858, but he did not mention its meaning and dimensions. However, the origin of ecology is derived from the Greek term oikos, which means home or house, and the word logos, which refers to the science of earth. The German scientist Ernst Heikal formulated in 1866 this science to denote the living beings and their environment”. (qtd. in Dire A. 2014:23)

The researchers Ibrahim Muhammad Al-Toum and Ahmed Hamad Ibrahim Al-Fayek (169-170) define environmental security as

“Environmental security is an old project totally excluded from the content of modernity that resulted from concepts and terms. The Islamic religion calls for it explicitly after it has been made clear that the need for it stems from the reality of deterioration resulting from corruption of natural resources. ALLAH Almighty says - and do not spoil the earth after its reform - as environmental

security is a new term dictated by the imperatives of accelerated development in environmental issues of a negative nature on life, and this concept includes the environment, security, disasters and wars leading to environmental destruction”

Many researchers have defined environmental security as **"environmental security is the safety valve of public security to avoid environmental risks caused by natural or human disasters, due to operations, ignorance, accidents, mismanagement, and errors resulting from the design and implementation of projects and that arise within the state, or across national borders"**. For others, it defined as **"an important and controlling tool in the issue of sustainable environmental rights, which includes restoring the environment affected by military operations and mitigating resource scarcity, environmental degradation and biological threats, which can lead to social unrest and regional conflicts"**. However, there are those who affirmed the link between environmental security and sustainable development. They argue that **"Environmental security is a binding document to preserve the elements of the biosphere from pollution, and to secure the needs of society to enable it to implement human development plans, taking into account the adequacy of natural stocks in its various forms for the duration and continuity of the development process"**. (M. Kisra and S. Tahri 2014: 89-90)

In fact, environmental security combines the concepts of security and the environment. It refers to the security problems caused by human societies and their negative impact on the environment, on the one hand. On the other hand, it indicates the crises and disasters caused by the environment in its natural form and its negative effects on the human community. Therefore, we stand here at an important point, which is the existence of a relationship of mutual influence between the environment and society, in other words, a causal relationship between the environment and the human community.

According to N.P. Gliditich, a researcher at the International Peace Research Institute in Oslo, environmental security is "freedom from environmental devastation and scarcity of resources."(qtd. in A. Dire 2014: 25-26)

According to Elizabeth Schalsky, environmental security is considered **"a reflection of the ability of a nation or society to resist the scarcity of environmental resources, environmental risks or counter-changes, or environmental-related tensions or conflicts"**. In this definition, Shaalsky focused on the factor of scarcity of resources as the main cause of the outbreak of conflicts. Noticeably, this topic has attracted a number of researchers such as Thomas Homer Dickson (ibid).

Moreover, there are those who went to the definition of environmental security as, "an important and ruling means in the area of sustainable environmental rights, which includes restoring the environment affected by military operations and mitigating resource scarcity, environmental degradation and biological threats, which can lead to social unrest and regional conflicts" (H. Hachem, 2017)

Despite its significance, environmental problems were not the main topic in the agenda of learners of traditional international relations. However, in light of the growing field of security studies and the emergence of critical theories, the environment has become a priority in the generalization and expansion of security. Natural disasters such as hurricanes, floods, tsunamis, earthquakes and forest fires have generated outstanding humanitarian problems (Stephanie Lawson and Abdul Hakam Ahmed Al-Khuzami 2014:149). On the other hand, the war and its bloody remnants posed an important environmental threat and challenge in many stages of human history. Extensively, this is the result of the human negative behaviors in their endeavor to preserve their acquired or natural values.

Climate change as one of the biggest human problems in the twenty-first century, and the global warming caused by the poisonous emission are considered as the essence of the political agendas of industrialized countries and the international community alike. Thus, the sense responsibility dictates taking decisive steps regarding the environmental risks that mainly come as a result of the political and economic units seeking to satisfy its needs. The most important chapter in these needs

is the competition for energy (petroleum, natural gas, shale gas, fuel and gas production from major factories ...) (ibid 149).

Thus, environmental security is a relational component that includes the individual, society and state. It is also based on organizing effective mechanisms and means from governmental policies, popular initiatives and a high political and environmental culture. These mechanisms works at protecting the environment and providing a healthy environment free from material and moral damage that would threaten the human right to life. It should be nurtured by a real will originating from a sense of shared danger from the international level to the individual level.

2. Environmental security from the perspective international relations theories.

Researchers in the international relations have interpreted the ecological crisis in a variety of ways according to variables that have contributed to discussions about whether the environmental crisis is capable of bringing about a broad systemic change at the international level. Nonetheless, some researchers have gone to deny the existence of any environmental crisis that requires a total response. Most importantly, the goal of the theoretical debates in the field of the international relations includes a chapter on the pursuit of green theory pioneers, to change global policies. At this level, it has to be mentioned that the aspirations of the pioneers of this theory are widely acknowledged, but their proposed concepts and goals are considered far beyond the narrow understanding of environmental issues. This is by transcending the classical postulates of the science of international relations from the causes of peace, balance of powers, governance and cosmic justice. All these postulates are passing through an important stage in the history of international relations. It is deliberated as an argumentation link between the convictions and the criticism of fixed assumptions that considers the green theory as an important part due to the importance of the ecological challenge that has become a problem of contemporary security problems (Matthew Patterson 2014: 390).

According to philosophical references, the shift in the unit of analysis in international relations has contributed to the emergence of new theories and approaches that have imposed its interpretative capacity of international reality. The green theory is said to be the one that limits the destruction of the world as a result of environmental problems and the continued indifference behavior of decision makers and business men controlling the international economy. This indifference would destroy a human right that is security. The latter is said to have several intertwined dimensions. In contrast, the theory of the role in international relations has emerged. It considers the individual whether as decision maker whose behavior is greatly influencing the behavior of the state, or the natural individual who has a direct connection with the environment and society. The theory may be considered as explanatory theory that studies the behavior of the individual within his social limits, and measures the degree of influence and vulnerability within the external environment, whether political, social, economic or ecological. Especially if the environmental policies resulting from the state as behavior are considered as an interaction of individual behaviors representing decision makers. It takes into account in this analysis the political personality and psychological role, as well as the level of awareness starting from the stage of receiving the problem to the stages of decision-making and issuance (<http://political-encyclopedia.org/2017/06/03>).

The early reports that explained the global political nature of environmental problems were summarized only on its security side. However, as problems of collective responsibility, which were expressed by Jarrett Hardin in the terms of "general tragedy", indicates that the structural incentives of political units that compete for resources permanently fall into the problem of misuse of resources. At the same time, a greater problem is encountered. This problem impedes the political units' collective efforts to mitigate the consequences of misuse of resources. Thus, it can be stated that the Hardin thesis is a basic premise for understanding environmental security from the perspective of international relations. Substantially, the political units are in the context of their race to possess material or moral strength, or investing

natural resources. In this sense, the pragmatic view of the state and decision-makers are more important than the future of humanity (Matthew Patterson 2014: 392).

Climate change, soil erosion, environmental change and lack of resources from water and oil are all variables that are going to be the causes of armed conflict between political units in the near future. These variables will also lead to international instability that causes a bloody reality. Therefore, the postulates of green theory lack the vision that can deviate from the realistic framework of international politics (ibid).

The state of the CFCs that affect the ozone layers, affirms the required awareness towards ozone depletion and the need to reduce the release of CFCs. In this context, the problem was discussed in a number of meetings including the Vienna Convention for the Protection of the Ozone Layer and its protocols annexed in Montreal 1987 and London 1990, and the discussions that took place at the United Nations Conference on Environment and Development, UNCED, in Rio in 1992 and in a number of other forums. At this level, one may wonder: How did this awareness develop and why? To answer this question, it should be noted that there are valid reasons for some countries, and limited reasons for other countries that are disconnected from common responsibility towards protecting the environment from pollution. This disconnection is caused by its failure in addressing some issues including carbon production, i.e., the production of carbon CFCs is carried out using technologies that bring environmental risks due to pollution resulting from the process. Nonetheless, carbon production is attractive to political units economically as it generates considerable profits due to low costs (Chris Brown 2004:268).

On the other hand, the field of international relations tackled the issue of the environment as being the primary victim of the remnants of war or the race to armament and the possession of contemporary technologies. In addition, environmental studies have addressed the danger of radioactive contamination resulting from uranium fertilization and plutonium production. Being destructive of all living things, killing the living cells of organisms, and causing deformities due to the change in the DNA of the organism, uranium fertilization creates risks to the

biological capabilities that the living organisms enjoy from proliferation, growth and nutrition. Indeed, the danger of radioactive contamination may not lie at the moment of its occurrence but it may take a long time to show its effects as a result of the decomposition of radioactive elements in the air, soil and water within an unknown time frame that reaches hundreds of years. These results make the environment dependent on unknown risks that may occur any time. (<https://www.ts3a.com/bi2a/> 2017)

The uranium and its degrees of fertilization are mainly one of the aspects of the race to armament in its warfare side. In addition, it is a facet to race towards possessing alternative energy for technological development. However, states and economic units forget its negative effects on human beings and nature in the framework of their pursuit to material gains. As an example of the effect of nuclear radiation on the environment during and after wars, Asef Drakovich, the director of the Medical Center for Uranium Research in Washington, stressed, "... the scientific evidence says that in the Balkan War - when Serbia and Kosovo were bombed, the radioactive soil moved to Greece and Hungary. The distance between Greece and Kosovo, and Hungary and Kosovo is hundreds of miles away. It was discovered that a large percentage of radioactive soil movement was due to the wind. We are talking about Yugoslavia and Kosovo, which are mountainous counties. In the second Gulf War and the 2003 Iraq war, the remnants of advanced weapons resulted in the production of nuclear radiation that harmed the environment and the human being alike. Since the nuclear radiation moves thousands of miles within the course of mountainous lands, we agree that the Gulf and Iraq are flat countries. Thus, within such flat countries and in the presence of large winds, it is very likely to assume that uranium dust will travel to Riyadh or to Bahrain. However, this depends on the speed of the wind and the available amount of uranium dust". Thus, large regional fields are supposed to be harmed as the result of uses being restricted to a limited geographical area (Asef Drakovich, 2017).

Other examples that result from the direct negative effects of war on the environment are mismanagement and the absence of clear environmental policies

during and after periods of war. This almost relates to landfill, which Baghdad knew after the war in 2003, from the accumulation of military and other waste in the streets of the city. This action caused unhealthy symptoms on citizens on the one hand and on the urban environment with its environmental dimension on the other hand. The most dangerous of type of these wastes are radioactive wastes leaking from the Tuwaitha military site south of Baghdad (O. Almansouri, 2017).

On the other hand, the impact of advances in military technology has affected the environment at the international level. This is evident in the size of the forests that have been destroyed in the last two decades, and the increasing systematic killing of biological diversity through the use of explosives. As a result, deforestation and the killing of livestock resulted in an imbalance in the ecosystem services, including soil erosion, water quality, and food productivity. For example, about 35 percent of Cambodia's forests were destroyed as a result of two decades of civil war. In Vietnam, the bombs alone destroyed more than 8000 square kilometers of farmland (ibid).

The issue of the environment has mainly fallen into security generalizations during the last two decades due to a variety of circumstances. First, the presentation of some environmental risks that the international relations studies dealt with in the framework of their defense for the human right in a healthy environment. Second, the environmental risks resulting from the extraction of traditional energy including oil and gas. Third, the international units' efforts to meet their economic needs at the expense of the natural biological component. This is mainly in light of the growing influence of the green theory on the international scene. Essentially, the human rights groups and organizations, or associations embraced the theory's principles for the defense of the environment or environmental friendliness as it is called. Simultaneously, the role of civil society and international non-governmental organizations increased in this area, despite the lack of capabilities at the level of implementation that is linked to the sovereignty of states and their internal policies. However, they have succeeded in being pressuring actors fighting for environmental protection and preventing the occurrence of the humanitarian catastrophe. In this vein, the ideas and principles of the green theory in international relations are the main

reference for the work of these organizations at the local level. Furthermore, awareness of the danger of the existence of threats exceeding what it was mentioned, including chemical and petroleum leaks or the spread of toxic waste at the soil, water and air levels, or the danger posed to the atmosphere, is extensively increasing. Moreover, studies have reached genetic risks including the genetic modifications in the living organisms of all kinds. The studies have also dealt with the emergence of alien species of plants and animals, the environmental problems threatening lunch sources, and the decrease of groundwater as a result of exploration of minerals and energy sources. All these results are risks and problems that deny the individual's right in a healthy environment, and threaten his health, food, water and environmental and societal security. In this manner, it has to be mentioned that the main predictors of wars in the near future are of water and food (Stephanie Lawson, 2014).

Second, societal rules for environmental protection.

Civil society is considered as a framework for individual behavior. Therefore, the international legislation, and even international governmental and non-governmental organizations, have stressed the need to involve civil society organizations and associations in firming environmental policies for the state, and this is to create a harmony between the society's needs and the state policies.

1. Civil society as a representative of the social responsibility for environment protection.

After the serious deterioration that the environment witnessed, it became necessary to search for ways and strategies to protect it from the dangers of pollution and toxic leaks. Instead, legal and societal frameworks have to organize all activities necessary to ward off any danger or harm threatening these elements (A. Khantache, 2011). Thus, what is meant by the concept of environmental protection is **"the necessary maintenance for its constituent elements in order to keep them in their natural state without causing distortion in order to create an environmental balance in accordance with the law of environmental equilibrium."** (S. Abou Fassa and A. Khalile 2006: 9)

For a long time, the task of protecting the environment and working to control the environmental balance were considered as the state functions, carried out by its central and decentralized institutions within the framework of legislation and laws related to the environment and urbanism. However, this matter is no longer confined to the environmental policies produced by the state only. Hence, great importance was attached to societal contributions to promote environmental culture within plans and projects led by civil society organizations.

Civil society has been given a development dimension through the United Nations, the World Bank and the International Monetary Fund. It is regarded as an area that produces citizen engagement in sustainable human development as it is defined as **"organized people assembly working in a legal framework to promote activities of a professional, social, scientific, religious, educational, cultural and sports nature"** (A. Tharouat 2007: 8). In this vein, Saad Eddin Ibrahim defined civil society, **"it is that space between the family and the state, so that all the institutions or organizations, to which an individual freely belongs, are considered a civil society"** (qtd in S. Irnaten 2015:7).

The importance of civil society and the maturity of its institutions in preserving the environment increases with the spread of environmental culture and the creation of self-initiated creativities to raise the level of environmental awareness. In addition to its importance in providing decision makers with the necessary information that translates contemporary environmental problems. Civil society organizations have become one of the most important means aiming to achieve realistic results in the area preserving the environment. Furthermore, the importance of civil society has been widely increased in the light of the growing interest in participatory democracy, and the individuals' allegiance to the idea of social responsibility that enables them to contribute in the formulation of decisions and design policies related to the future of the environment (ibid).

The social responsibility to protect the environment stems from the level of environmental education in the society, in addition to the level of environmental

culture, which is in itself an essential component in the political and social culture of the individual. Regarding the effective role that environmental education plays in creating environmental awareness, many definitions aimed at presenting it. This is mainly due to the multiplicity of the educational process and its objectives on the one hand, and the significance of the environment on the other hand. R. Legendre defines environmental education as, **"an open system consisting of activities and knowledge whose aim is to make the human being able to develop his conditions, and to obtain his independence in an evolutionary manner towards the search for meaning to his environment-related existence"** (qtd in S. Irnaten 2015:19). According to Ibrahim Esmat Al-Tawa, environmental education can be defined as, **"the process of forming the values, attitudes, and skills needed to understand and appreciate the human being's relationship and civilization with the environment. It is also a process of demonstrating the imperatives of preserving the natural environmental resources, and the need for its rational exploitation for the benefit of the human being in order to preserve his life and develop his standard of living"** (Rabie, Adel Mishaan, Hadi Mishaan, and Ahmed Mohamed Rabie 2006:103)

According to what has been presented, environmental education is the training of the human being to understand his relationship with the environment in which he lives. This process urges him to preserve the environment and exploit it for his benefit in light of environmental principles and concepts. It also educates him the necessary ideas to develop skills and to understand the mutual relationship between the person, his culture and his surroundings. It can also be defined as process of preparing citizens who are interested in their environment and its problems and who are equipped with knowledge in order to reach effective solutions to environmental problems, especially within the emergence of new future environmental problems. (R.A. El Tantaoui, 2012).

Thus, without civil society organizations and environmental associations, there will be no healthy environmental culture within the community. Further, there will be no community activities to protect the environment deriving from social responsibility. Without these institutions, there will be no real development within the community as

it is an effective contributor to scientific activity within the society. It also provides real life experiences, sheds light on the difficulties of the environmental, social and cultural work. Moreover, it explores the best solutions to these problems. Predominantly, the role of these private associations is highlighted in the areas where government presence is weak or in post-conflict situations. The associations' experience in environmental work plays a complementary role to government work represented in environmental policies. In addition, its role in public monitoring cannot be overlooked, and this is related to the environment in which it operates geographically. This always contributes to achieving sustainable development and spreading environmental culture because it has the experience and ability to implement environmental development (I. Bouchankir, 2013).

2. The role of the partnership principle in establishing environmental governance

The international dedication of the partnership principle, or environmental participation, has become official in the document issued by the Earth Summit known as the "Rio Declaration". The Rio International Summit has cherished the principles of information and public participation in the decision-making process in the field of the environment, as specified by the 10th principle of the Rio Declaration in this regard:

The best way to address environmental issues is to ensure the participation of all interested participants according to the appropriate level. Every citizen should be able to see the information related to the environment, which is essentially owned by the official authorities. Among these, is the one related to dangerous materials and activities that threaten society. In addition, every citizen has the ability to participate in the decision-making process and notify public authorities. Furthermore, the declaration text assigning the encouragement of states and facilitating the process of people's participation by creating spaces that are at the disposal of the citizen. Most importantly, actual enforcement of judicial and administrative cases related to environmental issues must be ensured. (Principle 10 of the Earth Summit Declaration, Rio de Janeiro, 1992).

The principle of partnership is based on certain conditions that work to build an atmosphere based on coordination and joint cooperation between civil society organizations on the one hand, and official bodies that work to implement state policies on the other hand:

- a. Freedom and rights of associations and civil society organizations: Working to adopt the appropriate legal framework in a way that guarantees full partnership and real participation includes the following elements:
 - Legitimacy: This includes the government recognition of the civil society role, in accordance with the principles and human rights and the international law. In addition to adopting the principle of freedom of association, and the guarantee of its free activity.
 - Independence: it is at two levels: independence of mission, vision, and goals in accordance with interests, priorities and needs, in light of national policy. The second level embraces administrative and organizational independence, including decision-making mechanisms and authority transition (K. Bouhannia, 2008).
- b. Formulating a general framework for developmental principles and concepts that rise from public policies in various developmental sectors, such as the environment, health, education and social wellbeing
- c. Developing the concept of professional cooperation based on the principle of full participation, i.e., the civil sector has to be a full development partner through participation in setting policies, developing visions, implementation, follow-up and evaluation.
- d. Developing a mechanism for discussion between the government and civil society through:
 - Developing the capacities and the institutional organizational structure.
 - Discussing the approaches, methods, styles and strategies for the sake of the institutional development.
 - Adopting collective leadership.
 - Administrative hierarchy

- Relationship with local communities: the transformation of civil organizations into agencies of a professional nature that do not have an organized and appropriate relationship with citizens, has led to the formation of a fuzzy vision about its role and mission. A peaceful relationship with people is the true guarantee for the continuation of work, whether in terms of the relationship with public bodies or with donors (K. Bouhannia, 2008).

Third: The reality of environmental policy in Algeria "between government programs and civil society endeavors."

Algeria is facing an acute ecological problem and crisis caused by increased pollution (air, soil, continental and marine waters), urban and industrial waste generation, corruption of the livelihood framework, in addition to desertification, forest damage, weakening of biological diversity, and degradation of water resources. Therefore, Algeria chose to take up the challenge, and prepared a national strategy for the environment and set a national plan for environmental action. This strategy seeks to achieve three goals:

- Incorporating environmental sustainability into social and economic programs
- Working on sustainable growth to decrease the phenomenon of poverty
- Protecting the general health of the population

To reach these goals, the Algerian decision-makers must give civil society a significant space to exercise environmental defense activities as a step to recognize the principle of community participation. In this manner, the Algerian legislator recognized the payment rights for the benefit of environmental associations in their endeavor to protect the environment. In addition, the associations have been given the authorities that derive their legitimacy from society in the context of defending the citizens' rights.

1. The role of Algerian civil society in protecting the environment:

The first initiative of the Algerian environmental associations was represented by national sessions. Being the first of this kind, the sessions were held in June 5, 1996. Thirty active associations in the field of environmental protection, at the national level, participated in the national sessions. The associations introduced some recommendations that serve their noble goals in protecting the environment taking into account the obstacles and bureaucratic problems that may be encountered during the implementation of their environmental projects. Among these recommendations, the associations proposed the setting of a comprehensive and coherent national strategy to protect the ocean, In addition to promoting the study of the impact of projects on the ocean. They suggested also the setting of a national policy for the management of household waste. Principally, they urged the setting up of offices and educational organizations that publish environmental and social responsibility and promote environmental education. Furthermore, the associations have given special importance to the concept of environmental communication, and recommended that all sectors have to ensure the implementation of the rules related to Environmental Protection Law, in addition to coastal protection from possible deterioration because of tourism projects, and stressed the need to pay attention to the problem of audio pollution (A. Khantache, 2011).

As an affirmation of the Algerian legislator on the principle of participation, consultation and coordination, and its importance in upgrading the environment, mechanisms have been established and extensive consultation and participation of both the citizen and civil society has been established in the creation of programs related to the living environment. Besides, the legislator has given the citizen roles in the preparation, planning, reconstruction and land filling plans. Nonetheless, the head of the Municipal People's Assembly has to present the project for public investigation (a form of public consultation) within 45 days for the planning and development guidelines, and 60 days for the land occupancy plan, to enable civil society representatives to express their opinion and observations (S. Haouasse, 2015).

According to the legal side of the Algerian civil society in the field of environmental protection, civil society organizations working in the field of

environmental protection play the roles of an observer and speaker to expose violations that affect the environment through their membership in some sectors. In this manner, environmental societies contribute to environmental decision-making through expressing opinions and participating in the work of public sectors as defined by law. However, the association's membership within the sectors supervising the protection of the environment is still very weak. Its membership is confined to the Legal and Economic Committee of the Supreme Council for Sustainable Development. The legislator also identified the exclusive cases of environmental associations' membership in some institutions of an industrial and commercial nature, including the Algerian Water Corporation, the National Sanitation Authority (S. Haouasse, 2015).

In light of the openness towards the economy market and the increasing interest of the authorities in environmental issues, the Algerian public institutions have sought to draw a new strategy to rationalize the use of natural resources. The authorities tried also to search for ways to reach sustainable development and maintain luxury opportunities for future generations without affecting environmental components or posing any risk to it. The National Plan of Action for the Environment and Sustainable Development, which was adopted in 2001, aimed at proposing a national strategy for the environment and sustainable development, in the medium and long term. The development process, the action plan seeks for, is based on extensive consultations that include all sectors and all fields, including civil society. The plan focuses on four basic areas: improving citizen health and quality of life, preserving natural resources, reducing natural losses, improving competitiveness and protecting the overall environment (Report: National Plan of Action for the Environment and Sustainable Development, December 2001).

2. The legal framework for the right of civil society to pursue judicial activities against actions harmful to the environment.

In addition to their right in participating, discussing and consulting with the administration in achieving its goals, the associations have the right to recourse to justice as one of the basic guarantees to activate social control. This is in order to

induce the administration to respect the environmental rules, especially when the associations are not able to achieve their goals in a preventive manner through participation because of the weakness or inefficiency of this method.

The Associations Law preserves its rights to be salaried in order to defend legitimate interests linked to its goals. Further, it imposes respect for the rules associated with it, whether by resorting to the ordinary or administrative justice.

The Environmental Protection Law 10/03 has specified the environmental associations with special requirements for being paid, in Article 36.

It enabled every association whose main subject includes the protection of nature and the environment to file a lawsuit in front of the judicial authorities when noting any harm to the environment. This right operates even in cases that the noted harm does not affect the persons affiliated with it regularly. The associations can also exercise the right to civil prosecution in relation to the rights recognized by the civil side, with regard to activities that directly or indirectly harm the collective interests that defend it, or with a written authorization of at least two people.

In addition, specific legislations included the associations' right to be incorporated as a civil party, including the Law on the Protection of Cultural Heritage 04/98 in Article 91, and the Law of Preparation and Reconstruction 29/90 (12), related to preparation and reconstruction, in Article 74.

Contemporary environmental legislation has attached great importance to confronting various forms of material encroachment on the environment by recognizing the validity of environmental actors, especially environmental regulations. This is to initiate judicial follow-up procedures in order to request compensation for the environmental damages. The associations' right tend to claim for civil compensation in some national legislations extending from the regular judiciary to the criminal judiciary. Some legislations recognize the possibility of these organizations, in accordance with the conditions established by law, to exercise the rights recognized by the civil party in all criminal cases related to acts that take the description of

environmental crimes. In Algerian legislation, Law 10/10 in Article 38, as mentioned above, approved the authority of environmental associations to work as a principle element in front of any criminal judicial authority regarding the activities that take the form of environmental crimes, whether under environmental law or other laws. (Articles from 81 to 112 of the Law 10/03 relating to environmental protection in the context of sustainable development).

The Algerian legislator has also explicitly recognized under the Article 38 of the same law that ordinary persons who have suffered individual damage caused by the same person belonging to a common source in the fields mentioned in Article 37 can delegate to a legally accredited association to sign a compensation claim. The association can also file a lawsuit to exercise the recognized rights of the civil party in front of a criminal judicial authority.

However, despite this wide acceptance for establishing environmental associations to defend collective interests, or even the interests of persons who are not affiliated with them through delegation, the environmental conflict has not flourished and the issues discussed by researchers are limited. The environmental issues did not enter into public opinion cases due to the lack of legal practice by associations. Besides, the environmental issues lacked of media support that allows civil society to move forward in order to reap popular support that enables it to fight environmental problems under the umbrella of social responsibility (Y. Ouannase, 2007).

COCLUSION

In light of the increasing environmental threats, the political units seek to find real solutions that protect the world from these threats. Most of which have been proven to be humane origin, as international legislation and all conferences and international summits emphasized the role of decentralized sectors and civil society associations in protecting the environment. This is mainly because these actors are the closests element to environmental problems. The political units have also affirmed the need for all these actors to participate in setting national environmental policies and making deterrent decisions, in order to preserve the common human heritage.

Algeria, like other countries of the world, has endeavored, through its legislation, to give civil society a wide space of power in order to work in the field of environmental protection. Nonetheless, environmental associations in Algeria suffer from material and moral deficits, in terms of limited powers and the absence of the right to direct notification to the executive services. In addition, there is the length of procedures and bureaucratic obstacles facing civil society organizations during the implementation of its tasks. All of these are obstacles added to the total internal organizational obstacles that associations and organizations suffer from. It is also the result of the Algerian associations' short experience. All these factors still have a long time to be more effective and professional in the field of environmental protection and defending societal interests.

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Cybernetic Security: the Algerian Strategy of Security and Defence in the Cyber Space

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Abstract

Cyber security is considered one of the contemporary security challenges that have faced many difficulties by several factors when it comes to application, in particular, the states. It became a conceptual dimension to be examined by the academic community, and creating a knowledge-based framework that makes it easier for decision-makers to find out solutions and prospects at the empirical level. Therefore, Algeria is considered to be one of the countries that have set foot in field of the electronic management and cyberspace. This has resulted in repercussions for the Algerian state to adopt reforms and a security strategy in order to achieve its cyber security in cyberspace.

Keywords: Algerian strategy, cyber security, cyber defence, cyberspace.

1. Introduction

The security dimension has witnessed the emergence of unprecedented challenges in general and strategic and military affairs in particular since the end of the Cold War. The emergence of many security challenges and

threats that have become an important focus in maintaining national security for countries have contributed tremendously to the development of the security and strategic studies in the field of political sciences and international relations in terms of expansion (the expansion of security challenges) and depth (multiple units of analysis and challenge).

At the empirical and strategic level, states and their security institutions have ceased to depend on promoting the traditional areas that threaten their existence in the land, maritime, air, and space spheres. The fifth field, cyberspace, has become more exposed to attacks and cyber piracy mainly with the informatics revolution that the world has witnessed since the twentieth century where most countries have become virtual and electronic-based in their transactions and infrastructures. At the academic level, however, it was necessary to examine new conceptual and strategic tools whether in the field of security studies or cognitive fields such as economics, etc., that enable them to study the cyber world.

It is worth noting that African countries have adopted the approach of electronic management, without taking into consideration the strategic repercussions on its national security, such as setting precautions and preventive aspects for that. Algeria is considered among the countries that broke into the field of electronic management and cyberspace, in which its internal and national security had repercussions that need to address security challenges through setting a security strategy in the field of cyberspace through legal, institutional and procedural mechanisms that go on a par with technical uses in this field.

Significance of study

The virtual world represented in the field of cyberspace, has become an interactive and active environment by many actors such as countries, individuals, companies ... etc. With the emergence of the World Wide Web, it was necessary to generalize most of the interactions and processes through cyberspace because of its tremendous advantages in terms of easy and fast communication between all people in a world that became a small village. Thus all aspects of life, including political, economic and social areas operate with the technologies of the cyber world, which has obviated the

traditional means in order to achieve the interest and services easy and quickly. But in parallel with these tremendous privileges, this world has accompanied negative repercussions, especially in the field of preserving the national security of states and ensuring that the personal freedoms of individuals are not violated. Algeria is considered an empirical model for adopting the virtual world which resulted to the emergence of repercussions that brought about the country to take procedures regarding consistent reforms that go on par with the nature of the virtual world. In what follows the aims of this study are presented:

Aims of study

1. Explain the most important concepts used in the context of the interactive relationship of cyberspace and conceptual dimensions in the cyber context.
2. Identify the most important policies taken to ensure the environment of cyberspace in which the Algerian state interacts.
3. Highlighting the most important security institutions that play a strategic role in achieving cyber security in Algeria

Problematic

To what extent has Algeria been able to achieve security and cyber defence in the Cyberian space?

Hypothesis

Algerian reforms have achieved a high level of security and cyber defence in cyberspace

Previous study

Raghda Al-Bahi: Cyber Deterrence: Concept, Problems, and Requirements, Journal of Politics and Law, First Issue, January 2017, Issued by the Arab Democratic Centre, where the researcher tackled this study relying upon the increasing number of cyber attacks and their relation with the theory of deterrence which has been dealt with by researchers. The researcher, then, studied the extent of the application of that theory to cyber space whose aim is cyber deterrence. The researcher was also concerned in his study with the necessity of spreading strong defences and relying upon

flexible systems that lead systems to recover quickly from cyber attacks through all necessary means.

Barra Samira, National Defence and National Policies for Cyber Security in Algeria: Role and Challenges. Communication at the Second International Conference on National Defence Policies between Sovereign Obligations and Regional Challenges, Kasdi Merbah University 30 and 31 January 2017 where the researcher tackled the role of the national defence of Algeria through its devices to achieve cyber information security within the contemporary security system, by examining the basics of cyber security and cyber crime, national defence in achieving cyber security, and obstacles to achieving cyber security, and finally concluded with some recommendations adopted by the Arab Observatory for Safety and Security in cyberspace, such as adherence to United Nations resolutions and the development of a strategy and framework for cooperation that guarantees the exchange of information.

Design of the study

A brief sketch of the outline of this study can show the following:

First: Dimensions and conceptual frameworks of cyber security

- Cyberspace: concept, actors
- Cyber security: the Interactive Relationship
- Cyber security, conceptual format and dimensions

Second: Legal and institutional mechanisms to combat cyber crime in Algeria

- Procedures to combat cyber crime in Algerian legislation
- Cyber crime Investigation Structures
- Cyber Crime Difficulties: Cyber Terrorism

Third: Defence strategy and cyber security for the National People's Army

- Cyber Defence Models in Military Strategies
- Popular National Army: Cyber Defence Service and Systems Security Control
- Cyber Defence Axes in the National People's Army Strategy
- **First: Dimensions and conceptual frameworks of cyber security**

- Cyberspace: concept, actors

Cyberspace can be conceptualised as the virtual world that connects with the physical world, via interdependence and the influence between the two worlds with an interactive, integrated view that has advantageous and disadvantageous consequences

The term cyberspace emerged in the eighties of the last century in one of the science fiction novels of the famous American-Canadian writer William Gibson, where this field rests upon computer systems and Internet and a wealth of information. Networks are, then, connected via phones, computers and others without being bound by geographical boundaries.¹

It is worth noting that the definition of the concept is a relative issue, because definitions depend on the strategy adopted by each country or entity in dealing with the field of cyberspace with its military and civil dimensions, and its ability to exploit the advantages by facing the inherent risks in this field.

There are many definitions of cyberspace which are as follows: “cyber space is the fourth pretexts of modern armies ” .This is alongside land, air and naval forces and with the escalation of the intensity of the interference by means of battles in this virtual field.² The French Agency that is considered a government agency for Security of Information Systems ANSSI has defined it as “the communication space formed by the universal interconnection of automatic processing equipment for digital data.” It should be said that the last definition came as a focus on the technical side of cyberspace, where consideration is given to “` equipment ”, and that the space dimension is the result of world environmental connectivity and communication, while its composition is made of two factors; technical and mathematical, which makes this definition not readily available to the general public. And it can be said that: ““ Cyberspace is a comprehensive field consisting of a network, which includes technological facilities for the media, including Internet and wired and wireless communication

¹ ربيع محمد يحيى ، إسرائيل و خطوات الهيمنة على ساحة الفضاء السيبراني في الشرق الأوسط ، رؤى إستراتيجية ، المجلد 1 ، العدد 3 ، 2013 . ص 67 .

networks..., as well as on-line service.” The Americans also understand it as the field that contains the digital environment built of interconnected networks that allow people to communicate through media and technologies, including Internet, communication networks, computers, integrated circuits, and monitoring tools.”¹ There are those who see cyberspace as the fifth field of war, after land, air, sea, and space. It is also defined as the material and non-material fields of several elements, such as computers, communication devices, networks and software, computerization of information and content and data for transmission and control, and users of all these mechanisms and elements. It is worth noting also that these elements are the common factor for all uses of the axes of cyberspace.² This latter is considered a virtual space for many actors, which can be categorized into two groups:

1. **State actors:** the state is considered the authority that can be exercised over people in cyberspace, by using a lot of means such as: security forces, administrations, government ... etc. The internal policy of the state in the cyber sphere rests upon the management of dynamic facilities and organizations that enable network access. The state is the pivotal actor par excellence in this virtual world because of its prestigious position in the field of technology and qualifications as well. Cyber power, then, is the new field of warfare in the style of military in addition to the nuclear and economic power.
2. **Non-state actors:** since the internal interests of states deal with the outside and the academic world, and companies specialized in developing cyber security and security of information systems, we may find individual and collective actors.

The individual “ Web User ”: cyber attacks can in most cases harm the individual more than provide aid to the states such as leaking information ... etc.. To put it differently, the individual is the main component that contributes to the development of cyberspace and cyber

¹ بلفرد لظفي أمين ، الفضاء السيبراني : هندسة و فواعل ، المجلة الجزائرية للدراسات السياسية ، العدد الخامس ، 2016 ، ص 151-152.

² ربيع محمد يحيى، المرجع السابق، ص 67-68.

security and making transformations. Mark Zuckerberg, for example, has managed to lure more than one billion users in his Facebook network, which germinated from a simple idea.

-Non-governmental organizations: Many non-governmental organizations often seek to establish training programmes for some individuals for the sake of technical assistance programmes on the use of Internet and new technology.

- Virtual groups: the hackers who are active in cyberspace freely, each according to its goals and its ideological motives... etc.¹

Cyber Security: The Interactive Relationship

The term security is one of the ancient concepts. Its origins have a deep historical extension. The features of its philosophical origins appeared in Greece. The word "Securita" in Latin is synonymous of "absence of care," Sine means "without" while "Cura" means "care"².

The term security has two contradictory meanings; either the state of security as an intended meaning, or the state of insecurity. It was expressed in Greek origins as the Greek term "Asphaleia" which stands for security, safety and certainty; and derived from the word "Sphallo" that denotes the stumbling and falling.

The word "secure" also means "careless" (se+cura) that is, freedom from anxiety and turmoil. Larousse Modern Dictionary states that the French use does not integrate security as a feeling of fear. Vavre De Vaugelas says that security differs from certainty and trust, but it is close to trust. As for the "Oxford English Dictionary", the word is attributed two meanings; the first is represented in the conditions that make people safe, the second, however, is represented in the means. In his analysis of the genealogy and etymology of the term, Michael Dillon tried to show that there is no stable foundation for security. What causes insecurity is not death, for example,

¹ بلفرد لطفي أمين ، المرجع السابق ، ص ص 158-159 .

² مراد فيصل ، التحديات الإقليمية الراهنة للأمن القومي الجزائري ، رسالة ماجستير منشورة (المدرسة الوطنية العليا للعلوم السياسية : قسم الدراسات العسكرية و الإستراتيجية ، 2013 / 2014) ، ص.2.

but insecurity exists as such. F. Nietzsche asked at his time whether our need for security is the same as ours for the family.¹

As for the security definition, the linguistic definition should first be addressed.

It is the opposite of fear, that is to say, safety, and the word “security” is the source language of the verb. It is safe, secure, and safe: that is, reassurance of the soul, the silence of the heart, and the disappearance of fear. It is also used to indicate trust saying he trusted him and made him trustworthy .i.e., reassuring that something is safe and protected from danger. ”²

The word security is found in many places in the Holy Quran, most notably the Almighty saying:” He who fed them with hunger and made them safe from fear” Quraish.³

As for the conventional and procedural meaning of security, it can be said that it is the circumstance that has the character of necessity for the growth, development and prosperity of social life. This is to preserve the existence and independence of the state. In its definition of security, the British Encyclopedia stated that it is the fact to protect the nation from the danger of oppression by a foreign power. Henry Kissinger in turn defines it as any actions through which society seeks to preserve its right to survival. Mc Namar considers that security is linked mainly to development through a symbiotic relationship between members by saying: “Security means development whether economic or social, or political, for protecting its content.” He also said: “The true security of the state stems from its deep knowledge of the sources that threaten its various aptitudes and

¹ سليم قسوم ، الاتجاهات الجديدة في الدراسات الأمنية : دراسة في تطور مفهوم الأمن عبر منظارات العلاقات الدولية ، رسالة ماجستير منشورة (جامعة الجزائر : كلية الحقوق و العلوم السياسية ، 2010 ،) ، ص ص . 17-18 .

² المعجم الوجيز : مجمع اللغة العربية ، إبراهيم مذكور، ددن، القاهرة ، 1989 ، ص 25.

³ سورة قريش ، الآية (4) .

confrontation to give the opportunity to develop those true capacities development in all areas, whether in the present or the future ..."¹

Walter Liebmann defined it as the fact of preserving the fundamental acquired values by a nation and its ability to maintain these values even in wars. (2) Barry Buzan believes that the debate about security issue revolves around the continuity of liberation from threat and there is no need to present a specific definition of security³.

The interactive relationship between “security” and “cyberspace” is conceptually reflected in the term “cyber security”. From this stand point, cyber security is a set of technical and administrative means that are used to prevent unauthorized use of computer networks, misuse and retrieval of electronic information that networks contain in order to ensure and maintain the work of information systems, and to ensure the protection, confidentiality of data related to cyberspace operators.⁴

It is worth noting that the term Cyber comes from Greek, and derived from the word Kybernetes; meaning the person who runs the rudder of the ship which is used metaphorically for the governor. It was used by Plato to express judgment. It should be noted that many historians believe that its origins go back to the American mathematician Norbert Wiener’s 1964-1894 to refer to automatic control. The American mathematician is the founding father of cybernetic. He has a famous book: Cybernetics or control and communication in the animal and the machine where he indicated that cybernetic as the control and communication of an animal, a machine, and person and machine. After the Second World War where

(1) هابل عبد المولى طنطوش ، الأمن الوطني و عناصر قوة الدولة في ظل النظام العالمي الجديد ، دار الحامد للنشر و التوزيع ،الأردن، 2012، ص ص 11،12 .

² John BAYLIS and steve SMITH ,**Globalization of World Politics** , second ed. oxford university press, New york 2001,p.255 .

³ حمو فريدة ، الأمن الإنساني مدخل جديد في الدراسات الأمنية ، رسالة ماجستير منشورة (جامعة الجزائر : كلية العلوم السياسية و الإعلام ، 2004/2003) ، ص.18 .

⁴ عكاظ، ماهو الأمن السيبراني، 23:29 يوم: 2018-07-28 على الموقع :

there was a boom of the technical revolution, the term machine was replaced by a computer.

The ministry of American Defense has presented a precise definition of the term cybersecurity, saying that it is all necessary organizational measures to ensure the protection of information in all its material and electronic forms, from various crimes, attacks, sabotage, espionage and accidents. The European Declaration considered that cybersecurity as the ability of the information system to resist hacking attempts targeting data.

Professor of communications Richard Kamererin in the University of California defines it as defensive means that expose and defeat attempts by hackers.¹

It is also defined as information security on computers and networks and the processes and mechanisms through which computer equipment, information and services are protected from any unintended or unauthorized interference or a difference that may occur where a set of technical and organizational and administrative means are used to prevent unauthorized use and stop misuse and recuperation of electronic information, communication systems and the information it contains.

Intriguingly, cyber security is deemed to be a broader concept of information security. This is through the following differences: cyber security is concerned with everything that is on the cyber information regardless of security, while information security does not take this into consideration and it is concerned with the security of physical information `` paper " while security cyber does not care about that.²

Cybersecurity, conceptual format, and dimensions

The interconnected and explanatory frameworks of the cyber conceptual format have multiplied in an interactive way, the most important of which are:

¹ بن مرزوق عنتر ، حرشاي محي الدين ، الأمن السيبراني كبعد جديد في السياسة الدفاعية الجزائرية ، الملتقى الدولي حول سياسات الدفاع الوطني ، جامعة قاصدي مرباح ورقلة ، كلية الحقوق و العلوم السياسية ، 31/01/2017 .

² مصطفى الطيب ، الفرق بين أمن المعلومات و الأمن السيبراني ، علوم ، يوم: 29-07-2018، 20:35 سا على الموقع :

<https://www.oalom.com/6124/>

Cyber Deterrence: It is defined as: “Preventing harmful actions against national origins in space and those that support space operations.” Cyber deterrence is based on three pillars in the field of defence strategy represented in: the credibility of defence; the availability of backup copies systems, and the ability to take revenge. This is through inflicting the attacker more damage than the defender, and the desire for revenge; which is not enough alone.

Cyber attacks: can be defined as an act that spoils the abilities of computer network functions, for a national or political purpose, by exploiting a certain weakness that enables the attacker to manipulate the system¹.

Cyber Power: Joseph Nye defined it as a set of resources that are related to the control of computers, information, electronic networks, information infrastructure and human skills to deal with these means. It is worth noting that cyber power has contributed as an incentive in two ways; the first is to strengthen the soft power of states by influencing the trends of public opinion, and the second revolves around the increase of public spending by states for electronic defence policies.

Cyber conflict: the spread of cyberspace and the easy access to it have led to the expansion of cyber conflicts and the increase of an outnumber of hackers. There are two major factors that have contributed to the expansion of the cyber conflict which are as follows: first, the perspective of war has radically changed; by moving from the wars between countries to wars between People. Second, the emergence of conflicts of local-international dimensions, whereby conflicts and tensions increased internally after the Cold War, and with the nature of the international context of cyberspace have created an open environment for marginalized forces in international politics².

¹ رعدة البهي، الردع السيبراني : المفهوم و الإشكالات و المتطلبات ، مجلة العلوم السياسية و القانون ، المجلد الاول ، العدد الأول ، جانفي 2017، ص ص 53-52 .

² غادل عبد الصادق، أنماط الحرب السيبرانية و تداعياتها عللا الأمن العالمي، السياسة الدولية ، يوم: 29-07-2018، 06:25، على الموقع :

E-Cybercrime: the misuse of information and communication technology by criminals is considered as internet crimes. The association of chief police has defined it as the use of computers or internet as technology associations to facilitate and commit crime" .

The cybersecurity as a variable is a concept with different dimensions, of which the most important are:

1 -**Military dimension:** The beginning of the use of Internet manifested lavishly in the military environment, then moved in a later time to the scientific and academic field and research that serves the military capabilities. The relative advantage of cybersecurity is represented in its military dimension through the power of cyber-to-connect military units to each other across the virtual world. This facilitates the exchange of information, which may lead to achieve the higher goals of military institutions.

2-**Social dimension:** The International Information Network is an open space for all individuals, where all cyber users can benefit from the infrastructure and services available to them without assuming security risks. It is necessary to raise awareness of cyber security ethics.

3- **Political dimension:** The state has the total right to protect its political system and interests as well. It should be noted that the balance of powers has changed so as the citizen has become able to know the backgrounds of political decisions through the vast amount of information that is easily accessible to him through Internet. It is worth noting that there may be leaks of sensitive documents, for example that raise difficult problems, as well as the role of social networks in generating political and electoral propaganda, organizing virtual demonstrations and fabricating electronic protests ... etc., More simply put, cyberspace has become a place for recruitment by terrorist organizations and many of the ideologies and religious propaganda, which has become a threat to society.

4 - **Legal dimension:** the individual, institutional and governmental activities in the cyberspace generate legal results that push to find out the legal rules that regulate transactions in the cyberspace and resolve disputes arising from them. Many practices have arisen in the use of information technology, such as creating blogs and gatherings on the Internet and the right to protect the property of information programmes and reporting violations and cyber crimes. All this has led to the necessity of a legal arsenal which goes on a par with the current changes.¹

Economic dimension: Cybersecurity is closely related to economy. The use of information and communication technologies has expanded tremendously where Information technologies has contributed to enhance the economic development of many countries such as offering job opportunities by major international companies. Simply put, the existence of Electronic money solutions has pushed to use the electronic wallet, and the release of applications that allow electronic payment.²

Second: Legal and institutional Mechanisms to Combat Cyber Crime in Algeria

Procedures to counter electronic crime in Algerian legislation

The Algerian legislator has regulated cybercrime with public and private laws where the general laws are as follows:

A- Algerian Constitution: The 1996 Constitution, as well as the 2016 amendment, guaranteed the protection of basic rights and individual freedoms, throughout the most significant constitutional principles in its articles:

Article 38: Fundamental freedoms, human and citizen rights are guaranteed.

Article 44: Freedom of intellectual, artistic and scientific innovation is guaranteed to the citizen.

¹ بارة سمير ، الدفاع الوطني و السياسات الوطنية للأمن السيبراني في الجزائر: الدور و التحديات ، الملتقى الدولي حول سياسات الدفاع الوطني ، جامعة قاصدي مرياح ورقلة ، كلية الحقوق و العلوم السياسية ، 31/01/2017 ، ص ص 429،431 .

² Electronic money regulations 2011 (EMR 2011) & the payment Services Regulations 2009

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Academic freedoms and freedom of scientific research are guaranteed and exercised within the framework of the law.

The state works to promote and value scientific research in the service of the sustainable development of the nation¹

B- Penal Code: in recent years, the Algerian legislator has noticed the legal vacuum in the field of electronic crime, which resulted in the issuance of Law 15-04 which includes amending the Penal Code. This was by allocating Chapter 7 bis to spoil the systems data-processing². In 2006 the legislator made an amendment by Law No. 2306 of December 20, 2006³, to issue Law No. 09-04 in 2009, which includes special rules for the prevention of crimes related to information and communication technology⁴.

Code of Criminal Procedures: E-crime is pursued with the same procedures for following the traditional crime (inspection, interrogation, seizure, leakage, testimony, expertise ...), with the extension of the domestic jurisdiction of the public prosecutor for electronic crime in Article 37 of the code of criminal procedure.

The specific laws approved by the Algerian legislator in the field of electronic crime are as follows:

A-Post and Telecommunication Law: Several articles from this law have prescribed the cyber domain; Article 87, stipulated the ease of conducting financial transfers electronically. Article 84/2 provided the use of regular and electronic payment transfers, as well as 105 stipulated respect for correspondence, whereas Article 127 punishes anyone who destroys mail.

¹ القانون رقم 01-16 المؤرخ في 06-3-2016 - الجريدة الرسمية رقم 14 .

² بارة سمير ، المرجع السابق ، ص 432 .

³ عاقل فصيحة ، الجريمة الإلكترونية في القانون الجزائري و القانون المقارن ، المؤتمر الدولي الرابع : الجريمة الإلكترونية ، لبنان ، 2017 ، ص 127 .

⁴ بارة سمير ، المرجع السابق ، ص 433 .

B- Insurance Law: This law stipulated the regulation of electronic crime through social security institutions in several texts related to the electronic card.

C-Law on the Prevention and Control of Crime Related to Information and Communication Technology: This law came to regulate crimes related to information and communication technology and everything related to the information system.¹

Structures of Cybercrime Investigation

The Centre for the Prevention of Crime of Automatic Media and Information Crime for the National Gendarmerie: This centre was established in 2008. It is located in *Bir Mourad Rais*. Its objectives are to secure the information system for the public security service. It serves as a documentation centre; it analyzes the data for the information crimes committed, and attempting to identify their owners, which secures the information systems of institutions, banks, homes, companies, etc. It seeks to coordinate security between other agencies. It is worth noting that the centre was able to treat more than 100 electronic crimes in 2014 and more than 500 digital cases in 2015. This is due to the high skill of the human being that the device has acquired from continuous training, national and international conferences, and the exchange of experiences with other countries².

The National Institute of Forensic Evidence and Criminology: This service consists of eleven departments specialized in several different fields, all of which include expertise, training and education, and the provision of all technical assistance. The service of Automated and Electronic Information in charge of processing and presenting each digital guide that helps justice while providing assistance to investigators³. It consists of several equipment represented in a station of repairing devices

¹ عاقلی فصیلة ، المرجع السابق ، ص ص 132،130 .

² بارة سمیر ، المرجع السابق ، ص 435 .

³ عاقلی فصیلة ، المرجع السابق ، ص 133 .

and damage mobiles, media networks and graphic equipment, a mobile stationary station for conducting electronic media experiences. The service of Automated and Electronic Information contains seven halls; books of orientation, a platoon of charged systems, a platoon for data analysis, platoon of phones, data selection, and distributor and storage rooms¹.

Central Department for Combating Information Crime of the General Directorate of National Security: the security services established the Central Department for Electronic Crime in response to the cyber security demand and combating the security challenges caused by electronic crime. It was established in 2011, and was annexed to the organizational structure in 2015

Table.1 displays the number of cases handled by the General Directorate of National Security:

| Year | Number of cases treated | Number of people involved |
|------|-------------------------|---------------------------|
| 2007 | 31 | 31 |
| 2008 | 06 | 10 |
| 2009 | 29 | 21 |
| 2014 | 245 | / |
| 2015 | 409 | 347 |

Source: Hamlawi Abdarahman, Information Crime between Prevention and Control, A National Conference in Combating Cyber Crime, Muhammad Khidir University in Biskra, 2015, p. 10.

-The National Authority for Preventing and Controlling of Crime Related to Information and Communication Technology: it is an administrative authority formed by Presidential Decree N15-261 that operates under the supervision of a committee managed by the Minister of Justice. It includes members of the government, security officials, judges, and members of the judicial police of military intelligence, National

¹ بعرة سعيدة ، الجريمة الإلكترونية في التشريع الجزائري ، رسالة ماستر منشورة ، جامعة محمد خيصر بسكرة ، كلية الحقوق و العلوم السياسية ، 2016 ، ص 100 .

gendarmerie and National Security. It attempts to uncover electronic terrorist crimes and crimes affecting the security of the state¹.

Difficulties of Investigating clues of Cyber Crime: Terrorist Attacks

The security services received during the first triple of the year 2017, more than 2000 reports of activities related to electronic terrorism through the websites according to a security source authorized by the country. The source stated that most of the reports sent about suspicions of terrorism with attempts to penetrate the accounts of social communication sites, recruitment calls. Data also reported that ISIS controls a large number of websites and online forums².

Several official and academic authorities have warned against attacks and cyber challenges. The Minister of Maghreb Affairs and the African Union, and the League of Arab States, Abdelkader Messahel, confirmed on Wednesday in Algiers that Algeria is keen to protect its security in its regional environment that is characterized by the continuity and spread of the terrorist threat. This was in his speech during the works of the international workshop on the role of Internet and social networks in combating extremism and electronic terrorism.³

Along the same line, Ahmed Azimi; the academic researcher in political science and international relations, during a lecture under the heading "Electronic Terrorism: al-Qaeda as a model ", at the People's Centre for Strategic Studies warned that the websites that advocate violence are increasing, and that Al-Qaeda has closed the Internet to maximum limits

¹ بارة سمير ، المرجع السابق ، ص ص 237-238 .

² بهاء الدين م ، الإرهاب الإلكتروني يهدد الجزائر ، البلاد ، يوم: 01-08-2018، 20:36، على الموقع :

<http://www.elbilad.net/article/detail?id=70386>

³ في الجزائر ، الإرهاب الإلكتروني : الجزائر حريصة على حماية أمنها ، يوم: 01-08-2018، 20:55، على الموقع :

<http://fibradi.com>

to spread its ideas by establishing the so-called “Global Media Front” in 2003¹

Major General *Manad Nouba*, Commander in Chief of the Algerian National Gendarmerie, confirmed in his speech on the occasion of the inauguration of the international symposium on cyber security that electronic terrorism has become one of the most serious crimes targeting Algeria. This is through the growing manifestations of promoting all forms of violence and terrorism and extremism using the latest technologies, especially social networks and electronic forums. It should be noted in terrorist sites for al Qaeda, ISIS, has more than 50 thousand websites, which contributed to the recruitment of about 3400 young people per month through electronic campaigns, according to the report of the security expert in the cases of digital terrorism `` Jeff Bardin²,

Cyber defence models in military strategies

Electronic defence in military strategies may be defined as: “the set of regular capabilities that the armed forces possess to protect from the impact of electronic attacks, and to mitigate and recover from them quickly”. The Austrian strategy considers electronic defence as all necessary measures to defend cyberspace by appropriate means to achieve strategic military objectives. " As for the Belgian military strategy, electronic defence is viewed as the implementation of effective preventive measures to obtain an appropriate level of cyber security, and reducing security risks to an acceptable level. The French military strategy sees electronic defence as a set of artistic and non-artistic means that allow the state to defend critical

¹ النهار ، الإرهاب الإلكتروني:مواقع التنظيمات الإرهابية في تزايد، يوم: 2018-08-01، 21:45 سا، على الموقع :
<https://www.ennaharonline.com/%D8%A7%D9%84%D8%A7%D8%B1%D9%87%D8%A7%D8%A8-%D8%A7%D9%84%D8%A7%D9%84%D9%83%D8%AA%D8%B1%D9%88%D9%86%D9%8A-%D9%85%D9%88%D8%A7%D9%82%D8%B9-%D8%A7%D9%84%D8%AA%D9%86%D8%B8%D9%8A%D9%85%D8%A7%D8%AA-%D8%A7>

² بن مرزوق عنتره ، حرشايوي محي الدين ، المرجع السابق ، ص 68 .

information systems in cyberspace¹. The Algerian military strategy, however, considers electronic defence as monitoring of the systems that protects the state from all threats, and to control the progress of activities and the policy of cyber defence which aims at ensuring the effectiveness of protection against cyber threats targeting information systems and communication systems as well as the weapons system of the army².

From what has been said previously, we may conclude that electronic defence is a means to achieve electronic security through the use of mechanisms for monitoring electronic attacks ,preventive security, analyzing them, determining their source, and mitigating their effects on communications systems, networks, and infrastructure in real time with the availability of offensive capabilities to track entities and destroy the networks from which this threat is established. "

Electronic preventive defence is achieved in three main ways:

- 1- **Early detection of attacks in real time:** This is through the use of Sensors on networks, software and applications, in addition to intelligence information
- 2- **Pre-emptive cyber attack:** this is through spreading white worms as programmes capable of detecting and destroying prior applications and launching cyber attacks (Hack Back).
- 3- **Misinformation, concealment and deception:** this is done by concealing the identities of the state's strategic goals on the Internet by

¹ إيهاب خليفة ، تنامي التهديدات السيبرانية للمؤسسات العسكرية ، المستقبل للأبحاث و الدراسات ، أبو ضبي ، 2017 ، ص ص 53-54 .

² نؤارة باشوش ، الجيش يدخل حرب الفضاء الإلكتروني و مكافحة الجوسسة ، الشروق بيوم: 2018-08-02 ، 00:35 سا،

على الموقع : <https://www.echoroukonline.com/%D8%A7%D9%84%D8%AC%D9%8A%D8%B4-%D9%8A%D8%AF%D8%AE%D9%84-%D8%AD%D8%B1%D8%A8-%D8%A7%D9%84%D9%81%D8%B6%D8%A7%D8%A1-%D8%A7%D9%84%D8%A5%D9%84%D9%83%D8%AA%D8%B1%D9%88%D9%86%D9%8A-%D9%88%D9%85%D9%83%D8%A7/>

misleading opponents with tools of camouflage, deception, and changing the features of the goals¹.

Popular National Army: Cyber Defence Service and Systems Security Control

The supreme command of the popular national army has developed the cyber defence service and the security of systems' control at the level of the department of use and preparation of the National People's Army Staff, in order to secure and protect the air installations of the Algerian armed forces against any cyber security threat. Brigadier Nasr Eddine Kaddour answered several questions in his dialogue with Boukabcha Mohammed, where he defined the tasks of the cyber defence service and monitoring the security of the systems as a combination attached to the department of preparation and use of the staff of the national popular army. It was supported in November 2015, with several tasks at different scales. This is for the sake of a comprehensive policy laid down by the high leadership in order to protect the institutions of the state and the army from any cyber threats. It is considered a guiding system at the strategic level.

This service works to implement the general policy of cyber defence in the National People's Army, as well as to enhance and evaluate the security of exploited systems and the organization of management in the field of cyber defence. As for enhancing military capabilities in the field of cyber defence, it is considered an active party in military operations. It is also regarded as a body affiliated with the Ministry of Defence that contributes to prepare and plan the national policy in the field of cyber defence in coordination with various bodies to secure digital installations. The awareness-raising processes in the field of cyber defence and systems security with all the structures of the Ministry of National Defence are an important element embodied in the tasks assigned to this service. Among the awareness-raising mechanisms, for instance; the fact that this service organized a national conference in the Club of National Army, under the heading `` cyber bites: The fundamental issue of security and national

¹ إيهاب خليفة ، المرجع السابق ، ص 53 .

defence ", on 15 and 16 May 2017 under the supervision of the general, Deputy Minister of National Defence and Chief of Staff of the Army. Finally, it was concluded with several recommendations. The most important of which is the need to expedite the development of the regulatory framework for the field of defence and cyber security at the national level and strengthen capacity in the field of research and development, as well as the development of cooperation and coordination at the national and international levels engaging in regional alliances such as the Five Eyes alliance that includes five countries in the field of cyber defence. The Brigadier has referred to the role of national defence to achieve cyber security in Algeria to face the challenges posed by cyberspace. Furthermore, he cited examples of cyber threats, including Estonia, Georgia, Ukraine, Iraq, as well as the damage done to them.

On the other hand, Brigadier Nasr Eddine Kaddour mentioned the necessity of coordination between ministries and state agencies to achieve the intended goals¹

Cyber Defence Axes in the National People's Army Strategy

The National People's Army's cyber defence strategy is structured in four main axes:

- 1- **Functional and organizational aspect:** the service takes into consideration a set of functional and organizational mechanisms to ensure the effectiveness and consistency of cyber defence actions within the People's National Army.
- 2- **Legal side:** continuous strengthening and updating of the legal frameworks that guarantee the development related to the use of information and communication technologies and securing information systems as well.
- 3- **Human resources side:** the success of this field lies in the readiness, composition and training of the human resource.

¹ بوكيشة محمد ، مصلحة الدفاع السيبراني و مراقبة أمن الأنظمة ، مجلة الجيش ، الجزائر ، العدد 651 ، 2017 ، ص 37 .

- 4- **Technical side:** it is related to the efficiency of the devices and the means used, ensuring the presence of vigilance to detect and respond to cyber attacks.¹

Conclusion

To conclude, this study was about one variable; cyber security, which is a conceptual dimension that encompasses many academic and empirical efforts in the field to achieve it in the virtual world represented in the cyber space, due to the difficulties involved in many obstacles, including multiple actors, as well as the difference in the means and technology of information systems with the presence of cyber gaps as a result of the adoption of cyber information systems by many actors, mainly countries without taking into consideration the implications and taking the necessary precautions until the occurrence of cyber deadlocks. From this explanation, and also answering the hypothesis presented, Algeria was taken as a good example to show its ability to protect and ensure the safety of its cyber security from all political, technical, economic, social, security, and administrative dimensions where it managed to some extent to develop reforms in the field of cyberspace in order to avoid errors and implications resulting from the activation of electronic management and access to the virtual world. However, acknowledging the extent of the difficulty of achieving cyber security in an absolute form should not be condoned due to the complexity in this space with the multiplicity of actors. It is worth noting that it is high time to promote a generation of human resources with maximum efficiency and high level in information systems and cyber domain technology.

This was clearly expressed by the Brigadier General Nasr Eddine Kaddour through his dialogue with Boukabsha Muhammad, and who published an article in the Army journal Issue No. 651 October 2017 page 37, where the question was: Do you think that the organizational and technical efforts that your service possesses are sufficient to protect security and enhance cyber defence? In other words, are the national capabilities specialized in this field sufficient to secure Algeria's sovereignty, mainly in

¹ بوكبشة محمد ، المرجع السابق ، ص 35 .

vital areas related to security and defence? His answer was as follows: “... in the world of cyber security, it is not possible to talk about ensuring absolute security of systems because for the issue is to the continuous development of security ... getting the cyber security requires delimiting a proactive and interactive approach ...”

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Transformations of Contemporary Islamic Jihadism:

IS and Social Media

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Abstract

How has the Internet transformed into a new metaphysics that allows religion to flourish again and control people's lives? Why do waves of religious violence escalate in a context described as secular and postmodern? What are the dimensions referred to by this close alliance between violent religious fundamentalisms and digital cyber space? This study seeks to understand the contemporary Islamic jihadi phenomenon, and the transformations that it witnessed in the last three decades through the Islamic state's experience in cyber environments, specifically on social media platforms. We have dismantled the structure of its jihadi activities and the digital tools it uses that have enabled it to establish large-scale social networks and create an alternative public sphere called a virtual caliphate that has spawned societal anarchy, revitalized sectarian tendencies, and strengthened discourse of violence and hatred on a global scale.

Key Words: Islamic State- Contemporary Jihadism- Social Media- Digital Tools- Public Sphere- Holy Violence.

Introduction

The Islamic religious awakening was only part of the religious boom that swept contemporary times and announced the return of sacred to the public sphere in connection with the predicaments of modernity, the emergence of post-industrial societies and the implications of globalization that scattered Muslim societies and accelerated the emergence of fundamentalism and Islamism. The information and communications revolution has destabilized these institutional structures and tampered with communicative and organizational norms, humiliating the emergence of digital or electronic Islam, bypassing traditional religious actors who worked within specific official frameworks and in known institutions. Political Islam movements, Salafi formations and jihadi organizations emerged from the experience of the Afghan jihad to the experience of the Syrian jihad to represent this contemporary Islam, and inaugurated the transition to transnational jihadism that broke the practical and symbolic boundaries and settled the virtual worlds and turned into an international actor who controls the global scene.

The experience of the Islamic State in Iraq and Syria ISIS, and after that, the experience of the "Islamic State" IS is the climax of interlocking and accumulated paths that started with Abu Musab al-Zarqawi in Anbar and ended with Abu Bakr al-Baghdadi in Raqqa. The experience of the Islamic State has had a role in accelerating the tremendous and decisive transformations that Islamic jihadism witnessed with the transition to cyber jihad and hypothetical caliphate. The jihadists pushed sacred violence to the limits of imagination, intimidation and dazzling and demonstrated specific capabilities in investing in new media, specifically social media, in building a virtual nation and creating an alternative virtual public space. This was reinforced by the move to the second phase of Web 2.0, which provides interactivity and immediacy, free access, content consumption, reproduction and distribution.

Therefore, this study "Transformations of Contemporary Islamic Jihadism: IS and Social Media" seeks to address the following problems: What are the social media

that the Islamic State has harnessed in spreading its jihadist ideology and building its social networks? what are the unique characteristics of the Islamic State in investing social media in building its own cyber jihad? How did social media platforms represent an open and decisive public space in creating a virtual, hybrid, and borderless nation that rejects coexistence and dialogue with the other?

This study assumes that ISIS success in its cyber jihad on social access platforms is due to the complementarity of the enormous technical and communication capabilities provided by this media in advertising, mobilization and activism on the one hand, and the ingenuity of this organization in creating smart and effective strategies to transform these platforms into empowering component.

The importance of this study is that it fills a theoretical and applied void that marks the field of research studies in the Arab and Islamic fields about contemporary jihadist experiences by seeking to benefit from all literature and research work in the past two decades. This enables the creation of a complex and intersectional vision to understand and dismantle the phenomena of violent extremism and to reveal the logic of their engagement in building a solid and well-designed policy to combat terrorism, because confronting violence stems from an understanding of violence per se.

Since this paper combines the representation of online jihadism in its process and its characteristics on the one hand, and exploration of the capabilities of ISIS in employing social media in its various activities on the other hand, this requires a multidisciplinary approach. We have adopted cyber terrorism studies that have analyzed the phenomenon of violent extremism in the virtual and digital world at a first level. Then we used the communication studies that showed the role of the Internet in the violence industry at a second level. Finally, we invoked, at third level, Islamic jihadist studies that have broken down this phenomenon in its contexts, tools, and effects.

First: Islamic jihadism and new media

The transitions of contemporary Jihadism coincided with the explosive growth of information and communication technologies from flexible and effective mobile phones to applications and software that mixes written, visual and audio in social, electronic networks. This emerging communication environment has been termed ‘new media’, which is defined as a wide range of changes in media production, distribution and use within technical, social and cultural protocols. Consequently, the role of social media or social network sites linked to the generation has been strengthened by what is known as Web 2.0, which allows, presenting social and political perspectives, to search for information or exchange ideas and provide views or think about the opinions of others¹. Local and international facts have proven the effectiveness of these media in social protest such as the Mexican Zapatista movement or the process of mobilization against globalization in Seattle or in the campaign of US President Obama in 2008². The same thing was repeated in the Arab context in what was called the ‘Arab Spring Uprisings’ in the second decade of the third millennium³.

Because ‘technology, as a material culture, is a fundamental dimension of social structure and social change (...) it evolves in interaction with other dimensions of society’⁴, especially with the emergence of the World Wide Web or the Internet⁵. This provides an understanding of the political struggles that migrated from the real-life scene to the virtual space and created electronic networks that have earned this debate more social realization and political polarization. Individuals involved in jihadi organizations, their supporters and sympathizers, and even the observing audience in these virtual societies harness social media that works to ‘tend to reinforce and

¹ Mannong, Jimmie, Definitions and Classes of Social Media, **Encyclopedia of Social Media and Politics**, Sage Publications, London, 2014, Vol. 3, p. 1161.

² Tindall, David and Geoenewegen, Tracy, Digital Activists and Activism, **Encyclopedia of Social Media and Politics**, Sage Publications, London, 2014, Vol. 1, p. 4.

³ **Ibid**, pp. 7-8.

⁴ Castells, Manuel, **The Network Society: a Cross-Cultural Perspective**, Edward Elgar Publishing, U.S.A-U.K, 2004, p. 8.

⁵ The Internet has four features that make it public and useful: Accessibility, Usability, Recency, and Permanance. See: De Chaudhury, Munnun, Analyzing the Dynamics of Communication in Online Social Networks, **Handbook of Social Networks Technologies and Applications**, Springer, New York-London, 2010, p. 62.

accelerate the process of political polarization (...) because social media users tend to subscribe to news from sources that share their ideological perspectives'¹.

Although many waits believed that modernity would exclude the religious and displace it from the lives of individuals and societies, the facts lied to these expectations and demonstrated the religious ability to withstand and adapt and reproduce himself in the whole world and not only in the Islamic field. The approximate statistics revealed the growth of jihadist demand on the Internet, specifically the dark web that represented a cyber sanctuary unavoidable of censorship, allowing disguise, as terrorist sites evolved from 12 sites in 1997 to 4350 sites in 2005, reaching more than 6000 sites in 2008, most of them Islamic jihadists², and reached 7,600 jihadist terrorist websites in 2010³.

Social media was mainly associated with the emergence of the second wave of the web, the so-called Web 2.0, which emerged in the first decade of the third millennium. Web 2.0 is defined as 'changing trends in, and new use of web technology and web design, especially involving participatory information sharing, user-generated content, and ethics of collaboration, and the use of the web as a social platform'⁴. The Web 2.0 has a close link to social media sites, distribution sites to users, self-publishing platforms, and social impact sites, which enables them to be able "to combine data and information from various sources and to build content through collaborative use of online spaces, and thus changing the process of creation and distribution in online environments.'⁵. These various technical and communicative features contribute to making the platforms of the electronic platforms flexible, effective and rapidly spreading, as is the case with ISIS or what was recently known as

¹ Kleidosty, Jeremy, Political Polarization, **Encyclopedia of Social Media and Politics**, Sage Publications, London, 2014, Vol. 3, p. 975.

² Seib, Philip and Janbek, Dana, **Global Terrorism and New Media: the Post-Al Qaeda Generation**, Routledge, U.S.A- Canada, 2011, p. 45.

³ Weiman, Gabriel, Cyber-Fatwas and Terrorism, *Studies in Conflict and Terrorism*, N. 34, 2011, p. 769.

⁴ Herring, Suzan, Discourse in Web 2.0, **Discourse 2.0: Language and New Media**, Georgetown University press, U.S.A, 2013, p. 1.

⁵ Ricke, LaChrystal, Web 2.0, **Encyclopedia of Social Media and Politics**, Sage Publications, London, 2014, Vol. 3, p. 1370.

the Islamic State. These media contain many platforms, the most important of which are YouTube¹, Facebook², Twitter³ and Instagram⁴, especially since 90% of the terrorist activities organized on the Internet are sustained through various social media sites⁵, which makes social media an ideal environment and an important medium for terrorism and violence.

Many analysts have studied the relationship of contemporary Jihadism to the Internet to understand its transformations and pathways, and they have identified four phases that are cumulative and progressive. The first phase continued to the mid-eighties and contained sermons, booklets, publications and jihadi pamphlets related to the symbols of jihadist thought, past and present. While the second phase extends from the late eighties to the mid-nineties and included websites with a vertical design from top to bottom such as the call site and the website of Abdullah Azam publications. As for the third phase, it extended to the middle of the first decade of the twenty-first century, represented by public and private forums, the basis of which was the creation of virtual societies for the exchange of jihadist ideologies such as the Forum of Al-Hissba, Al-Ikhlass, Al-Fallujah, and Al-Ansar. While the fourth phase was launched in

¹ YouTube is an online platform launched to share videos on the web in June 2005. In October 2006, Google bought it. This platform offers a simple and free integrated interface that reduces the level of technical knowledge required for users thanks to easy ways to include videos uploaded to other websites. See: Ricke, LaCrystal, You Tube, **Encyclopedia of Social Media and Politics**, Sage Publications, London, 2014, Vol. 3, p. 1411.

² Facebook is one of the "most popular networks", and has registered more than one billion users since March 2013. He played critical roles in politics and the public sphere such as President Obama's campaign in 2008 or in what he called the Arab Spring revolutions. See: Aydogan, Hakan and Darcan, Emirchan, Facebook, **Encyclopedia of Social Media Politics**, Sage Publications, London, 2014, Vol. 2, p. 489.

³ Twitter is a genre of blogs, and it is among the ten most visited online portals on the web. This social medium is based on a text of no more than 140 characters that makes it possible to retweet and share with others. See: Manning, Definitions and Classes of Social Media, p. 1159.

⁴ Instagram is a social and mass communication platform that allows users to share digital photos. This platform was acquired by Facebook in April 2012. Its number has exceeded 1 million users since 2013. See: Glantz, Mark, Instagram, **Encyclopedia of Social Media and Politics**, Sage Publications, London, 2014, Vol. 2, p. 594.

⁵ Doui, Aziz, Terrorism, in, **Encyclopedia of Social Media and Politics**, Sage Publications, London, 2014, Vol. 3, p. 1248.

the late first decade with the emergence of social media platforms that allow the creation of content and maximum interaction with it.

Millennial contemporary religious discourse is forced to integrate into the globalized market, taking advantage of new communication options in cyberspace. It provides digital, semiotic systems of writing, image, and sound that provide tremendous potential in making meaning and power together and broadening the boundaries of the religious audience. These techniques allow the possibility that local Islamic expressions can very easily find their way in globalized spaces to be consumed by Muslims in far and different locations¹. These contemporary digital jihadist-Islamic environments, with their conceptual and semantic network, have enabled the acquisition of large sectors of the Muslim religious audience by creating influential figures in the minds, conscience, and influences among Muslims and dominating the public discourse. Whatever the factors that produced this global inclination of jihad, it has turned into a networked activity that has no field and cultural contexts, unified only by a political imagination aspiring to establish a virtual Ummah compatible with the legendary Salafi community².

Jihadist organizations are new social movements that search for structural expectations and seek to acquire a large portion of political spoils. Therefore, they have fused in the transformations of contemporary societies, especially the communications and information technology (TCI) that has blown traditional societal lines in its institutions and roles, and has scattered a host of established concepts such as identity, cultural boundaries, space, time, and other. Since human life has become completely linked to information and communication technology, ‘a revolutionary change in the material conditions of their performance affects the entire realm of human activity’³. Therefore, the online religion was the most widely traded activity in the cyber world because of the Internet's technical, informational and cultural

¹ Mandaville, Peter, *The New Transnationalism: Globalizing Islamic Movements*, **the New Cambridge History of Islam**, C.U.P, U.K, 2011, V. 6, p. 217.

² Frazer, Egerton, **Jihad in the West: the Rise of Militant Salafism**, CUP, U.S.A, 2011, p 88.

³ Castells, Op. Cit., p. 9.

characteristics that allow the religious to seize the products of globalization and integrate into its seamless structure. The Internet has turned into an ideological conflict stage in which the various semiotic systems, cyber toolkit and symbolic resources are employed. A strong synergy has arisen between technology and ideology, as jihad armed with its local and global networks revealed the way in which Internet technology was shaped to keep pace with the needs of different religious groups, as if it was an indicator of how culture has cultivated technology to live in and the agents who use it¹.

The jihadist electronic discourse is organically linked to the general political contexts that direct and embrace it in a way that justifies its violent tendencies, as if the political is a framework incubating the sites of the jihadist discourse. In addition, the methods of producing meaning and creating knowledge in the consumption network were subjected to profound structural modifications due to the communication and information revolution to the extent that the traditional religious discourse was no longer able to manage its followers. It has become imperative for the faithful to engage in the free and open digital media worlds that give those involved in Internet societies more freedom to act and allow the challenge of the traditional powers of actual or indirect nations². This allows sectarian tendencies bearing a cultural stock of violence of belief and practice embodied in the minds and hearts by repositioning in a global context without borders or official control, and in a virtual environment, that allows the flow of knowledge and diversity of religious goods. Rather, old symbols will find new functional equations in expressions of technological culture³.

The Iraqi jihad after the American invasion and the toppling of Saddam Hussein's regime represented a qualitative shift in the various digital materials technologies that document the various combat operations of high quality and elaborate performance that will continue with ISIS and the experience of the Syrian

¹ El-Nawawy, Mohammed and Khamis, Sahar, **Islam Dot Com**, Palgrave Macmillan, U.S.A, 2009, p 61

² Ibid, p. 57.

³ Lorne, Dawson and Douglas, Cowam, **Religion Online: Finding Faith on the Internet**, Routledge, New York-London, 2004, p. 46.

jihad in the second decade of this century. These digital materials are charged with messages addressed to different types of audiences, and they have various rewards for jihadist groups such as advertising, intimidation, and financial support, such as film material. This film material played a major role in propaganda, as it shows the ability of a terrorist group to carry out successful operations such as suicide attacks, and it provides evidence to funders and sponsors that the funds they donated are used, for example, for the jihadist cause¹. This film has a psychological and emotional impact on the Internet audience because it is an entry point for implicating followers in the electronic jihadist environment, as if it compensates for the real radical formation with a form of self-extremism without the need for organization in the fact.

The interest of jihadist websites in the film material reflects the depth of the psychological impact and the aesthetic visual dazzle that this visual semiotics system has in the Muslim and non-Muslim audiences alike. Some of those who contributed to the Madrid bombings in March 2004 had seen movie records of the leaders of the Iraqi jihad as well as the famous electronic document *Iraqi Jihad: Hopes and Risks*. The same thing happened in the July 2005 London bombings. One of those involved in the attack, Hussein Usman, was keeping up with the video clips that recount the daily confrontations in Iraq². The jihadi online discourse focused on the film clips, and was keen on documenting all terrorist activities. Jihadist media wings emerged, such as the Islamic Center for Media Information (IMC), the Media Jihad Brigade (IJB), the electronic media battalion (EMB), and especially the Global Islamic Media Front (GIMF) affiliated to Al-Qaeda, which published ten months of movies about Iraqi confrontations in 2005 and devised an honest camera style to follow the jihadist reality.

Second: IS and the use of social media

¹ Haloepau, Bruno, Terrorist use of Internet, **Cyber Crime and Cyber Terrorism**, Elsevier, U.S.A, 2014, p. 124.

² Awan, Akil, Virtual Jihadist Media, *European Journal of Cultural Studies*, Vol. 10, N°. 3, August 2007, p. 398.

ISIS is an advanced stage in the contemporary jihadist chronology that is inseparable from its articulated phases, from the organizations that separated from the Egyptian Muslim Brotherhood movement to the experience of Afghan jihad with Abdullah Azam, the spiritual father of Islamic jihadism. It is also inseparable from the experience of the Bosnian jihad, then the Chechen jihad, leading to the experience of the Iraqi jihad in the first decade of the twenty-first century. The Tawhid-w-Al-Jihad Group (October 1999-October 2004) established by Abu Musab al-Zarqawi is considered the first organizational nucleus of ISIS, then Al-Qaeda Fi Bilad-a-Rafedayn (October 2004-January 2006), which ended with the killing of Zarqawi on June 7, 2006. He was succeeded by an alternative jihadist formation, the Mujahideen Shura Council (January 2006-October 2006) led by Abu Ayyub al-Masri, known as Abu Hamza al-Muhajir. He then transferred to the Islamic State in Iraq (October 2006-April 2013) under the leadership of the jihadi trinity: Abu Ayyub al-Masri and Abu Omar al-Baghdadi (killed in a raid on April 10, 2010) and Abu Bakr al-Baghdadi. The latter established the Islamic State in Iraq and the Levant (April 2013-June 2014) and ended with the establishment of the Islamic State on June 29, 2014¹.

The Islamic State (IS) has an effective and decisive cyber strategy in producing jihadi contents, as it exists through the efforts of its members, supporters, sympathizers, professionals, and amateurs. Even its material and real downfall that weakened it and destroyed its institutions did not prevent it from compensating it in cyberspace by creating the concept of a virtual caliphate that allowed it to exist in hearts and minds and enabled its activists and followers to communicate and work. The Islamic State (IS) has penetrated all social media platforms and diversified into digital materials to include media centers, publications, audio recordings, applications, software, videos, TV channels and video games, which transformed it into a global brand that imposed itself on Internet audiences².

¹ Ouled Mohamedou, Mohammad Mahmoud, **a Theory of ISIS: Political Violence and the Transformation of Global Order**, Pluto Press, London, 2018, p. 96.

² Ibid, p. 8.

The websites of the Islamic State contain a large number of clips and scenes depicted with high-quality technical skill that invests tools and methods in photography in terms of sound effects or light choices, and the combination of picture, sound and writing¹. This creates harmony that can broadcast a host of feelings and motivate the faithful public to accept the violent implications and related violent tendencies embodied in the concept of jihad. It is a concept invested in takfir speeches that reinforced the idea of jihad and revived it in new political contexts and in a network of regional and international actors. However, the effectiveness of these recorded movie clips is not only in the attractiveness of words and in their effects, but also in typesetting this audio material and attaching it to a written text and a frontal image in which elements of a visual attraction are useful from color to the components in its tight distribution. The script defines significance, the image expands the suggestion, and color gives it a framework in harmony and complementarity between the whole². Some sites, such as YouTube³, have given free and open space to promote these audio and video materials, which allowed seamless access to them to follow, download and search for them. Social media is unofficial sites and is not subject to legal and institutional censorship, which makes religious goods, including the discourse of jihad popular and widespread without supervision. Therefore, social media has turned into an integral part of the vast new media world, and these sites are accompanied by specific characteristics in the distributions of authority and aid in communication⁴.

The Islamic State's activities and methods of its presence in cyberspace demonstrate its superior ability to invest in social media. It started its online movement

¹ Scientific reports indicate the level of technical ingenuity in tools and output, including the movie that ISIS presented in November 2014 about beheading Syrian soldiers, as it took many hours to shoot with high-quality cameras and huge technical capabilities, and its cost was estimated at 200 thousand dollars. See: Siboni, Gabi and Al, *The Islamic State's Strategy in Cyberspace, Military and Strategic Affairs*, Vol. 7, N. 1, 2015, p. 132.

² Kress, Gunther, **Multimodality: a Social Semiotic Approach to Contemporary Communication**, Routledge, London-New York, 2010.

³ Al-Rawi, Ahmed, Video Game, Terrorism, and ISIS's Jihad 3.0, *Terrorism and Political Violence*, Vol. 20, N. 4, 2018, p. 750.

⁴ Ibid, p. 27.

by publishing audio recordings of Abu Bakr Al-Baghdadi in 2013, then launching the “Dawn of Glad Tidings” application in April 2014 that allows for his followers and supporters by sending tens of thousands of tweets per day from the participating Twitter accounts. In July 2014, the Islamic State released the online magazine "Dabiq" in English, then a video of the American journalist James Foley's beheading by Mohammed Amouzi, nicknamed "John the British" in August 2014, which was broadcast by the media arm of ISIS, the media center of life. Then she released a video showing the caliphate fighters destroying the Babylonian ruins in the city of Nimrod in May 2015 and ending with a video of Tunisian Anis Amri announcing his sale to the caliphate after he killed 12 Germans in the Christmas markets in December 2016¹. This shows that the Islamic State has escalated and diversified its online activities, and intensified its propaganda operations and the media, psychological and security impacts it has left.

The Islamic State is considered one of the most skillful jihadist movements in investing in the Twitter platform, as ISIS supporters on Twitter alone published 90,000 messages on behalf of the organization every day by February 2015, and on average they produced more than 50 tweets per day. Islamic State activists use their software, which provides users with daily reports on ISIS activities and also allows its activists to send periodic tweets from Twitter. Supporters of the Islamic State published more than 40,000 tweets when the organization seized Mosul in June 2014². The Islamic State has strengthened its presence on the Twitter platform by flooding it with both real and fake accounts, reaching 60,000 accounts between May and September 2014 alone³. Until the service companies defied the Islamic State's surge, whose tweets in two years (2014-2015) reached 17 million, the Twitter platform closed 126,000 accounts in February 2016, and closed 235,000 accounts in August 2016. This shows a diversification in its strategies and the ability to engage in what Neville Bolt called "a

¹ Ouled Mohamedou, Op. Cit., p-p. 204-215.

² Gambhir, Op. Cit., p. 24.

³ Brunt, Gray, **Hashtag Islam: How Cyber-Islamic Environments are Transforming Religious Authority**, University of North Carolina, U.S.A, 2018.

war of networks" that moves the conflict from real to virtual and allows to overcome obstacles and all forms of control and penetration¹.

The Islamic State has revealed qualitative capabilities in the field of social media investment and in the virtual space in general, as it has created various media platforms in its aesthetic and technical options and equipped them with digital materials that place it at the heart of jihadist propaganda. Among these innovations is the Al-Furqan Institute for Public Relations, an official online media arm that spreads speeches, statements, and audio and visual recordings of the organization's leaders and its movement symbols. Moreover, the organization created the 'Al-Azam', which, during the two years 2014-2015, undertook the production of video clips, advertisements and pictures and distributed them on various social networks, especially Arab ones². The 'Al-Hayat' website is a sign of the huge strategic shift in the field of digital advertising, as the platform displays videos translated into ten international languages, and updates the old jihadist materials with these language options, in addition to news reports and articles in high-quality visual designs and publishing³.

The Islamic State has succeeded in taking cyber jihad to an advanced stage. The virtual space is no longer merely an environment for incubation or tools for operation, but has also become the target of its cyber-attacks. The organization has attacked the Twitter and Facebook accounts of the United States military's Central Command in the Middle East responsible for coordinating the operations of the International Alliance against the Islamic State (CENTCOM), and replaced the official American slogans with black ISIS flags while President Obama was delivering a speech on cyber security⁴. The organization's piracy and hacking actions continued locally and regionally. Its members attacked more than 19,000 French websites, including international TV channels, in the aftermath of the Charlie Hebdo attack, and they

¹ Siboni, Op. Cit., p. 129.

² Siboni, Op. Cit., p. 131.

³ Ibid, p. 131.

⁴ Hoffman, Adam and Yoram, Schweitzer, Cyber Jihad in the Service of The Islamic State(ISIS), *Strategic Assessment*, Vol. 18, N. 1, April 2015, p 73.

controlled and disrupted their servers¹. This shows that the Islamic State has the ability to possess jihadist crews that specialize in hacking and hacking techniques, whether they are active activists or sympathizers, especially the educated youth who have these technical competences in coding, decryption and electronic piracy software.

It seems that the Islamic State was strategically aware of the effectiveness of social media in carrying out the functions of advertising, mobilization, recruitment, financing and the creation of an alternative public sphere, as these platforms have different popular incubators and public environments fertile for a culture of holy violence. The YouTube platform, for example, has a billion users, has 6 billion watch hours, and has 100 downloads per month. As for the Twitter platform, it sees 350,000 tweets per minute and 500 million tweets daily. While Facebook accounts for 500 million daily active users, according to 2014 statistics². Therefore, the Islamic State took advantage of social media in a periodic and continuous manner, launching the “One Billion Muslim Campaign” when it broadcasted a video on the YouTube platform titled “There is no life without jihad”, accompanied by an inflammatory and propaganda speech “Support the Islamic cause with pride,” and then circulated it to all the other social media³. This is a kind of cyber intelligence of the Islamic State in highly accurate digital operations. On May 17, 2014, the fourth part of the “Sulayil Al Sawarm” series was released on Saturday, which falls on the weekend, which made it difficult for employees of Internet services companies to block it, and enabled 60,000 viewers to follow it in the next 24 hours⁴.

Third: The aesthetics of cyber jihad and the making of public opinion

Violent political polarization has multiplied in online platforms and in the social media involved in cyber jihad by virtue of its interactive nature in the consumption, distribution, reproduction, and use of electronic digital materials and the use of all tags. Twitter, for example, is a platform that gives ISIS users and followers enormous

¹ Hoffman and Yoram, Op. Cit., p. 74.

² Awan, Imran, Cyber-Extremism: ISIS and The Power of Social Media, *Social Science and Public Policy*, N. 54, March 2017, p. 139.

³ Ibid, p. 138.

⁴ Siboni, Op. Cit., p. 132.

options. As "people can post political ideas and links on their Twitter feeds, meaning that their thoughts are shared with those following them"¹. The Twitter and Facebook platforms do not differ from this political polarization, because posts, comments, tweets and re-tweets migrate to the real worlds, which makes beliefs and situations take place in daily life and are reflected in the system of social relations². Enlarged political polarization is not limited to the speeches of electronic activists only, but also includes the interactivity of users, sympathizers and followers who are integrated into these speeches and transfer polarization from the level of speeches to the level of electronic social networks.

If rallying the public is based on arousing psychological and emotional impulses and creating a state of inspiration that meets the various needs, then this requires the provision of mutually supportive semiotic systems that operate in high, interactive and effective streams, and the Muslim masses become entrenched in a universe of emotions and beliefs. Film clips illustrated with its written, audio and visual images create in the masses a spiritual and psychological attraction because it belongs to the field of electronic discourse, which incorporates all forms of signs, taking advantage of communication and computer technologies. Technology has essentially invaded all semiotic processes through types of tools that have facilitated or supported, and through various approaches, the means of production and consumption that have provided them³. Therefore, the Islamic State carefully selected its film material, and carried symbolic shipments that evoke sympathy and enthusiasm, such as the famous series "The Sword of Swords" consisting of four rings. It was published in June 2012, then it was distributed on all social media platforms, such as Twitter, Facebook, YouTube and many jihadist distribution sites, and it shows the values of equestrian and jihad⁴. Documentary films are propaganda messages full of meanings that satisfy Muslim expectations and fulfill their aspirations, such as the video of

¹ Kleidosty, Op. Cit., p. 976.

² Ibid, p. 977.

³ Kress, Gunther and Van Leeuwen, Theo, **Reading Images: the Grammar of Visual Design**, Routledge, New York- London, 2006, p. 217.

⁴ Siboni, Op. Cit., p. 131.

"Breaking the Borders" and "The End of Sykes-Picot", which showed the end of the concept of the patriotic state and the collapse of the artificial borders on June 29, 2014¹.

ISIS websites have proven their ability to choose a range of icons, such as the black flag that refers to the invasions of the Prophet Muhammad or horses that evoke the narratives of ancient jihad or swords and their symbolic status in consciences. Moreover, the organization selects color combinations that bring together green, red, black and white, according to a studied distribution, as is the case in the design of its official website. This formative system of icons, colors, and distributions performs psychological and ideological functions to evoke the main salafi concepts of jihad in early Islam, by emphasizing, "The direct link between the sacred past and the present is at the heart of the Salafist Jihadist mentality"². Therefore, the Islamic State jihadist discourse in its electronic form has become an ideological attractiveness that penetrated the borders when it made its visual formations with its symbols and icons a jihadist brand that gives them a special identity. The cyber world is a commercial space teeming with religious and political goods; and all jihadi digital material is marketed in specific international brands³.

Online discourse in all its semiotic forms: written, visual, or audible, allows the visitor to link to other websites and social platforms that are generous in content and orientation, creating a compact network of information that forms a branched world of topics and options. These jihadist-oriented websites are found at the outset of listings provided by search engines. Therefore, it is characterized by it has the advantage of visiting by the new supporters on the one hand, and because it is frequently mentioned on other sites that publish links allowing access to complete a more in-depth research on the other hand. This enabled the electronic speech to provide selected information arranged with an ideological background that facilitate the development of concepts of jihad, atonement, and manipulation of the feelings of believers, both virtual and

¹ Pocalova, Elena, **Returning Islamists Fighters: Threats and Challenges to the West**, Palgrave Macmillan, U.S.A, 2020, p. 51.

² Ranstop, Op. Cit., p. 34.

³ Archetti, Op. Cit., p. 146.

realistic. The Islamic State is investing information distribution technology on different platforms including cellular phones, especially the Twitter for Android smartphone app and file sharing sites like Archives.Com or Justepast.it¹.

Any electronic discourse is based on a structural harmony between technical options subject to strategies of seduction and camouflage on the one hand and social acceptability in the hearts of the public on the other hand. That is why the electronic jihadist discourse in a large part was not separated from its origins or its heritage, and it carried all the intellectual references of reality and its sectarian and sectarian stock from the real environment to the virtual environment. This discourse practiced psychological temptation by combining the characteristics of the discourse with the technical tools it contains and the characteristics of cyberspace that turned into a parallel public space. Therefore, the Islamic electronic discourse, especially the jihadist, is merely an adaptation of religious literature in a hypothetical setting that has its implications for conducting the meaning and circulating it computationally to a diverse audience of cultural incubators, knowledge awaits, and ideological backgrounds, and it seeks flexible implementation in its protocols. This discourse, then, is mainly related to the existence of a will to recreate virtual Islamic institutions on the network.

This psychological seduction practiced by the Islamic State is manifested by its cyber rhetoric through video games that he invented and broadcast on social networks. Because of the polarization, the activists and sympathizers of the organization turned into electronic cells called Jihobbyests, including Western groups called PopJihadists who spread and develop ISIS games². The organization moved from the phase of manipulation of the famous game "Quest for Saddam" to "Night of Bush Capturing: A Virtual Jihadist" in 2008 to the stage of simulating world-famous games such as the game GTA and giving it a special Islamic jihadist character in June 2014³. It is clear that the Islamic State has used these games to target adolescents who are characterized

¹ Siboni, Op. Cit., p. 132.

² Al-Rawi, Op. Cit., p. 745.

³ Ibid, p. 747.

by an influx of tendencies to violence, a passion for adventure, and simulation of heroic models. Adolescents have special communication and technical skills on smartphone devices that are flexible, easy, fast, and efficient in use, as if the Islamic State were entering an advanced stage of cyber jihad called jihad 3.0¹.

The image, as the mainstay of the visual system, contributes to deepening the jihadist connotation and spreading it widely, crossing barriers of language and context, and eliminating social backgrounds and political specificities, and transcending reality. It creates a hypothetical sense of belonging to the realm of those carefully selected and directed images, that is, to an ideological political imagination such as those that narrate the grievances of Muslims and their tragedies in Iraq or Palestine. Moreover, the images can tell in a visual charm the achievements and heroics of the Islamic State in a way that contributes to uniting the diaspora of Muslims in a unified narrative and a virtual Ummah. The image possesses a high ability to ‘perform a peculiar kind of dismembering of reality, a wrenching of moments out of their contexts, and a juxtaposing of events and things that have no logical or historical connection with each other’². The images that ISIS chooses and broadcasts on social media platforms combine horror and brutality (burning the Jordanian pilot Muath al-Kasasbeh) with power and oppression (images of the destruction of antiquities in the city of Nimrud), the luxury of life, and extravagance (pictures of cats or the world's most famous food brands). The technical and semantic options for these images can respond to all tendencies and tastes, which explains the diversity of the Islamic State’s demographic composition, which includes men, women, and youth of both sexes, including Western adolescents and adolescents who have joined the caliphate or who have been stopped by the security services in London and Colorado, for example.

The jihadist online discourse includes a network of semiotic systems, such as text, audio, visual, iconic and graphical, at the heart of computer-mediated discourse, especially cross-cultural forms such as images, movie materials, colors and symbols that nullify all barriers to communication and interaction resulting from the territory,

¹ Ibid, p. 748.

² Egerton, Op. Cit., p. 66.

language or race. That is why the jihadist electronic discourse was critical in its attractiveness, active in its ideological reward, and skilled in its emotional motivation for the mass of Muslim believers. The Islamic State released a film called "Flames of War: The Struggle Has Only Begun", which included pictures of explosions, American dead and executions, and broadcasted romantic pictures designed with the life of fighters, their clothes, and their features. The movie contained elements of illusion and musical backgrounds, front-end manipulation, jihadist slogans, enthusiastic chants, confrontational voices, enlarging cheers, and organization flags pierce across the screen¹.

Therefore, jihadist organizations provide their websites with all applications and software that diversify and expand the options to meet users preferences. Most jihadist websites use the application to translate instant texts from Google or other search engines, as well as electronic copy options of the site in international and local languages. This technical approach highlights that "the emergence of jihadist websites, especially chat forums in non-Arabic languages such as English, French, Dutch, and Swedish, reflects the Mujahideen diaspora's desire to be part of the jihadists first, and the importance of the Internet in creating these communities secondly. This digital strategy allows the jihadist audience to download different levels of quality from the same file depending on the speed of the user's connection, which makes the site more easy to use. In addition, it provides the user with the option to view movie material in what is called high quality or portable quality, and enables him to use multimedia files². This e-dazzling targets young people, as they represent the largest proportion of the population and the number of people on the Internet because they have an insatiable appetite for new media tools, making e-Jihadist discourse "tools for cultivating a new generation that will support their cause³. This explains, to some

¹ Siboni, Op. Cit., p. 131.

² Seib and Janbek, Op. Cit., p. 52.

³ Ibid, p. 66.

extent, the attraction of Western fighters to the Islamic State, which established the concept of electronic or virtual caliphate as an alternative to material or real caliphate¹.

The Islamic State has diversified its jihadist material to respond to the aspirations of the public, regardless of their different contexts and characteristics. Some applications and programs related to smartphones tempt young groups, dazzle the youth, and enable them to interact through their favorite social media, like Twitter, which can work without the need for an actual connection to the network, and in a homogenous integration with the links of other platforms². This was an attraction for Western fighters who have turned into electronic battalions that publish tweets and redistribute them on all platforms with an ingenious technical ability to extract and market images to a generation of social media users who prefer images to the text in order to build a transnational society of violent extremism³. This explains the Islamic State's success in creating a hybrid public sphere that goes beyond the barriers of language, race, political affiliation, and the cultural environment. Intelligence reports concluded that more than 1,000 Western fighters joined the Islamic State monthly between 2013 and 2015⁴.

The seriousness of the Islamic State's cyber jihad may not be due to the diversity of electronic material such as texts, photos, written publications and visual contents, nor to the integration and diversity of social media, nor to the activation of software and applications and the investment of the smartphone revolution only. Rather, it is to cyber jihadist strategy that has created a virtual public space through the processes of seduction, dazzling, mobilizing, enthusiastic, shocking and intimidating. The Islamic State launched the campaign "One Billion Muslims Support the Islamic Caliphate" in July 2014 on all media and all semiotic devices such as pictures, hashtags, videos, tweets, texts and songs. It included pictures of world-famous sites such as the Temple Mount in Palestine and the Eiffel Tower in France and Big Ban in

¹ Pocalova, Op. Cit., p. 53.

² Klausen, Jytte, Tweeting the Jihad: Social Media Networks of Foreign Fighters in Syrian and Iraq, *Studies in Conflict and Terrorism*, N. 38, 2015, p. 1.

³ Klausen, Op. Cit., p-p. 17-19.

⁴ Al-Rawi, Op. Cit., p. 740.

Britain and other landmarks in Asia and North America. This made it one of the most successful electronic campaigns in the history of social media¹. Moreover, until the Islamic State succeeded in controlling the public space, virtually and virtually, it targeted the most youthful, flexible and important media in being the source of news and media follow-up, which is Twitter. ISIS operatives have launched hashtags like #AllEyesOnISIS, which has so far received 30,000 tweets, and created many and popular accounts making this medium a ‘loudspeaker of Caliphate’².

The Islamic State’s jihad is linked to the “lone wolf” phenomenon of terrorists with sophisticated technical and combat capabilities, a hidden connection to virtual space, and freedom of initiative and self-implementation. Recent years have witnessed bloody, sudden and shocking individual wolves in many countries such as France, Germany, Canada, Australia and Tunisia³. It is considered an advanced method of suicide operations that has characterized terrorist activities for decades. In the fatwas of clergymen, they found legitimacy and blessing, such as Al-Qaradawi, Abu Basir Al-Tartousi, Suleiman Al-Alwan, and Nasir bin Humaid Al-Fahd⁴. However, the Islamic State has transformed the operations of individual wolves into a strategic procedure that has confused the world thanks to its cyber activities through which those with no direct organizational connection and sympathizers in Western and Islamic countries alike are mobilizing. These bloody attacks are based on an Islamic State’s cultivation in the minds of its supporters that if they cannot migrate to the Islamic State’s lands and join its ranks, then launching terrorist attacks and attacking Western symbols in their countries is a praiseworthy alternative⁵. Thus, the Islamic State has succeeded in creating a parallel and alternative public space: a parallel because it is inseparable from the reality and an alternative because it compensates it for the deprivation of actual and real existence.

¹ Siboni, Op. Cit., p. 135.

² Awan, Cyber-Extremism, p. 143.

³ Ouled Mohamedou, Op. Cit., p-p. 125-126.

⁴ Weiman, Op. Cit., p-p. 273-275.

⁵ Hoffman and Yoram, Op. Cit., p. 76.

Conclusion

The Islamic State's cyber jihad was only an evolving phase of a long and volatile course in the holy violence movement. Contemporary Islamic Jihadism has exploited tense and intertwined regional and international contexts to grow, expand and transform into a strategic actor in the global landscape. It was self-evident that this Jihadism adapts to the technical, economic and political developments, and that it assimilates its various achievements in the field of computer-mediated communications. The Internet has turned into an alternative environment that provides tremendous potential for these organizations, including the Islamic State, which has shown exceptional qualifications in the use of all digital media and cyber equipment to expand its audience and organize its propaganda and combat operations.

Whatever the explanations provided by researchers in understanding the Islamic State phenomenon in terms of its operational flexibility, communication skills, and propaganda arts, attention to the legal and regulatory frameworks of the World Wide Web has become an imperative need to address cybercrime and cyber terrorism together. The Islamic State has turned into a jihadi brand that marks sacred violence in contemporary times, revealing the possibilities for an alliance between technology and terrorism if there are catalytic grounds and strong justifications for legitimizing violent extremism. However, this should not obscure us from the deeper causes of Islamic jihad philosophy or religious violence in general. Sacred violence is a historical and global phenomenon whose forms have changed, their contexts have varied, but their contents, and effects remain one and the same.

Although digital and virtual environments have turned into active and decisive contexts in the growing political, social and terrorist activity, this should not be a condemnation of the revolution of information and communication technologies, nor a political pretext for demonizing the Internet. Jihadist activities possess an empowering history, symbolic narratives and ancient literature that make sacred violence a feature of Islamic culture as well as a living memory rich in scenes, situations and texts that inhabit the imagination of believers. Therefore, Jihadism exists by force in conscience

and history, and there are institutions and mechanisms that produce, warrant, and perpetuate this violence. The jihad of the Islamic State does not differ in anything from the experiences and other stages except in the social incubation, the technical environment and the political frameworks that guided it.

The Islamic State's experience will not be the end of the path in the history of holy violence nor the final session in the course of the terrorist act. The consequences of this experience will chase the global scene, whether in the issue of terrorist women returning from the theaters of jihad¹, or in the dilemma of "children of IS"² that haunts many political and security circles. The Islamic State has left a physical and symbolic chaos that devastated the geography of societies, and an enormous number of pains tattooed in bodies, souls and minds. As a result, urgent concerns have arisen related to the prospect of the potential for the emergence of new violence that takes from the legacy of its predecessor and builds for itself a new contextual identity.

Crowds of questions and concerns disturb the minds of researchers and policymakers: What comes after the experience of the Islamic State? Where will the theaters of Jihadism be in the ignorant parts of Africa or in the outlying Asia? Is it a historical destiny that holy violence is always Islamic with its activists, fields, and ideologies? The time has come to confront the Orthodox heritage, take away from it the meaning of holiness, and break free from its poisoned narratives, as it is a product of historical contexts, social coercions and cultural bets made by believers to fulfill their needs and purposes. On the other hand, today's Muslim activists, civil, legal, academic, political elites, and civil society formations, should initiate the devastation of the virtual space from the makers of terrorism, build a culture of difference and free thinking, spread the values of citizenship, and change minds. Ideas terrorism is a path to cyber terrorism, and belief violence is far more dangerous than social media violence.

¹ Pocalova, Op. Cit., p-p. 167-180.

² Ibid, p. 200.

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The Quality of Institutions

-The Contribution to Poverty Reduction in Sub-Saharan Africa-

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Abstract

The purpose of this work is to study theoretically and empirically role of economic growth to reduce poverty in Africa, while taking into account the institutional quality in this relationship. In other words, one wonders whether the quality of institutions hinders the effect of growth on poverty reduction or accelerates it? Is there a threshold level for the institutional quality for the effect of growth on poverty reduction to be more effective? The approach used to discuss this problem is to use the most recent econometric methods (Autoregressive Distributed Lag (ARDL)) to verify empirically these relationships for a sample of 18 countries in sub-Saharan Africa. The main results obtained are three in number: i) Economic growth reduce poverty, (ii) This effect dependent of the institutions quality, iii) There is a threshold level for the institutions quality which growth reduces poverty. In reality, the interest of this question is twofold: i) The closure of the Millennium Development Program (MDG) without a significant reduction in poverty in the African continent. This failure gave birth to a new Sustainable Development Program (PDD) by 2030. (ii) Sub-Saharan

Africa has become a new pole of economic growth and therefore cooperation South-South has become a priority.

Keywords: economic growth, institutions quality, poverty, ARDL model, sub-Saharan Africa.

1. Introduction

Sub-Saharan Africa (SSA) has experienced an unprecedented cycle of sustained and prolonged economic growth in recent decades. This growth has been high and robust, recording a rate of 5% above the world average (DAB, OECD and UNDP 2014). Despite this remarkable development, poverty levels remained high in SSA. This region has experienced poverty at different levels. However, this poverty is multidimensional, characterized by a set of factors that give to its nature endemic especially; illiteracy, food insecurity, poor access to public services and infrastructure, etc. (Aye, 2013).

During this period, SSA is failing to meet the Millennium Development Goals (MDGs) and it's still has a disability misery. The region has the highest under-five mortality rate (UNICEF, 2015) and the highest maternal mortality rate (WHO, 2015). Thus, it includes a significant number of people who do not have sustainable access to a drinking water supply or basic sanitation services, etc.

Thus, this period is also characterized by poor institutions quality. However, institutional failure is an important factor contributing to the perpetuation of poverty and the underdevelopment persistence in a country (Ellis, 2015). Recently, some African governments have committed themselves to reducing poverty through a war against the poor institutions quality, as it's considered as an obstacle in the progress process of any country and a major cause of the current degradation of the African countries situation (Ajisafe, 2016).

With the same idea, it is possible that the institutions quality affects the relation growth- poverty. In this context, that our work is wrote. Unlike most studies, this study uses only one subjective measure reflecting institutional quality: corruption (e.g., Chong and Gradstein (2007), Hasan et al (2007) and Tebaldi and Mohan (2010),

which define institutions as a set of indicators (government stability, corruption, law and order, democratic accountability, and bureaucratic quality).

The main goal of this study is to study the role of institutions quality in the "economic growth-poverty" relationship. In other words, one wonders whether the institutions quality hinders the effect of growth on poverty reduction or accelerates it. Is there a threshold level for the institutions quality that the impact of growth on poverty reduction will be more effective?

To make our goal, the rest of this paper will be organized as follows. In the second section, we will develop a review of the literature, while the third section will focus on the method used and the results obtained, and finally the study provides some concluding remarks.

2. Literature Review

A large number of literature reviews shows that among the main factors that explain the differences between countries is institutional quality. In fact, several authors are studying the impact of institutions quality on poverty. Dollar and Kraay (2000) and Ravallion and Chen (2003) evoked this impact. They find that growth cuts more poverty in countries with good institutions than in those with failing institutions. The indirect effect of institutions is mainly through economic growth; institutions affect either growth or the income level, which in turn affects the poverty rate. In this context, Grindle (2004) emphasizes that good governance is a precondition for poverty reduction. According to Hasan et al. (2007), in a country where the institutions quality is weak, the rich benefit from growth more than the vulnerable population.

On the other hand, Chong and Calderon (2000) point out a potential adverse effect of institutional quality on poverty for a sample of about 45 countries between the 1960s and the 1990s. Using the OLS method, they found that the impact of institutions on the poverty is statistically significant for three of the five institutional measures (democratic accountability, corruption and bureaucratic quality). Also using an overall index of institutional quality, the results found give the same conclusion.

Specifically, some authors suggest that institutional reforms could lead high transaction costs for those operating in the informal sector thus increasing poverty. However, in the second phase, institutional reforms will cut poverty because of the gain efficiency in public services delivery. Thus, institutional improvement could first raise poverty before mitigating it.

Another important reason why institutions might have an impact on poverty is that institutions affect income level or growth, which in turn affects the poverty. Moreover, the institutions quality is considered as the primary cause for increasing the pace of poverty reduction. Good institutions allow society to invest in productive activities (Acemoglu and Johnson, 2005) and thus create a climate propitious for growth. While bad institutions, through rent-seeking, can negatively affect economic growth and, in turn, exacerbate poverty.

Empirically, several authors have provided studies on the positive impact of institutions on economic growth (Barro 1997, Hall and Jones 1999, Acemoglu et al 2001, Rodrick et al 2002, Kapunda et al, 2012).). If the effect of "trike down" exists, it follows that institutions indirectly alleviate poverty by increasing the rate of economic growth.

In the same idea, the institution-poverty relationship was also assessed by Perera and Lee (2013), for a panel of 9 Asian developing countries from 1985 to 2009 using a system GMM. Using five institutional measures, their results support the specific character of the institutions.

Tebaldi and Mohan (2010) found a negative relationship between institutional quality and poverty using the instrumental variable method for 53 countries in several regions. Their findings suggested that controlling corruption, the regulatory quality, the rule of law and the government effectiveness, have a stronger negative impact on poverty than voice and accountability.

Gupta, Davoodi and Alonso-Terme (2002) concluded that corruption has a harmful effect on the poor, where the poor are those in the bottom 20% of the income distribution. According to their results, the increase in the corruption growth rate reduces the income growth of the poor with a 1.6 percentage point. Hamden et al (2012) confirmed this relationship. They found positive and meaningful

relationships between corruption and poverty on the one hand and the term corruption-growth interaction and poverty on the other hand. This result can be justified that the low credibility of the state undermines economic growth and then reduces the pace of poverty reduction.

Similar results are given by Kapunda et al (2012). They found from a comparative study done on Botswana and other SADC countries, that poverty is positively correlated with corruption. Their study is part of the theoretical framework where good governance (expressed through the control of corruption) can influence the effectiveness of economic growth and the poverty reduction. They specifically showed that Botswana, where the level of corruption is low (compared to other SADC countries), has been able to improve the standard of living of the population. Thus, other SADC countries can learn from Botswana in terms of economic performance, anti-corruption institutions and good governance.

In their empirical analyses, Cuestas et al (2016) found that the institution plays a major role in poverty reduction, in cross-section regression since this role disappears in the panel regression analysis.

Using two-way causality between corruption and poverty, Rabnawaz (2015) suggests that developed country authorities that tend to decrease poverty should adopt policies to reduce corruption and vice versa (Negin et al., 2010). Rahayu & Widodo (2013), Yusuf et al (2014).

3. Empirical Study

After examining the empirical literature, we will empirically study in this section the effect of the institutions quality on the economic growth capacity on poverty reduction in 18 SSA countries (Benin, Burkina Faso, Burundi, Cameroon, Republic of Congo, Ethiopia, Guinea, Lesotho, Malawi, Mozambique, Namibia, Nigeria, Rwanda, Senegal, Tanzania, Togo, Uganda, Zambia) during the period 2000-2015.

3.1 Presentation of the model

Taking into account the effect of the institutions quality in the growth-poverty relationship is reduced to integrating its direct and indirect effect (via economic growth). We can write:

$$P_{i,t} = \alpha_i + \alpha_1 Y_{i,t} + \alpha_2 COR_{i,t} + \alpha_3 Y_{i,t} COR_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where P_i is the poverty index, Y_i is the economic growth rate, COR_i is the institutional quality variable (the Corruption Perception Index), and $(Y * COR)$ is the interaction between growth and this index. The latter is from the "Transparency International" database. The scores on this index take a scale from 0 to 10. The lower scores, the lower the institutional quality.

Equation (1) therefore examines whether institutions have an impact or not on poverty through economic growth. The way in which the institutions quality influences the growth-poverty relationship is evaluated by the α_3 coefficient. The marginal effect of growth is wrote as:

$$\frac{\partial P}{\partial Y} = \alpha_1 + \alpha_3 COR \quad (1.1)$$

We expect institutions to weaken the marginal effect of growth. What should result in a coefficient $\alpha_3 > 0$.

To test the non-linear effect existence, the ordinary empirical approach consists in analyzing the sign and the interaction coefficient significance.

Four cases can be discussed:

-if $\alpha_1 > 0$ et $\alpha_3 > 0$, growth has a positive effect on poverty, and the institutional variable exacerbate this effect

-if $\alpha_1 > 0$ et $\alpha_3 < 0$, growth has a positive effect on poverty and the institutional variable reduces this positive impact.

-if $\alpha_1 < 0$ et $\alpha_3 > 0$, growth has a negative effect on poverty, and institutional conditions mitigate this negative impact.

-if $\alpha_1 < 0$ et $\alpha_3 < 0$, growth has a negative effect on poverty, and institutional conditions favorably affect this impact.

Assuming $\alpha_3 > 0$, we try to find the threshold level of the COR variable above which, the institutions quality reduces the effect of economic growth on poverty reduction. In particular, the marginal effect of growth is negative if:

$$\alpha_1 + \alpha_3 \text{COR} < 0 \quad (1.2)$$

SO

$$\text{COR} < -\frac{\alpha_1}{\alpha_3} \quad (1.3)$$

3.2 Descriptive analysis and correlation study

In a first step, we expose the descriptive statistics and the correlation matrix of the variables. The table below showed the results:

Table1: descriptive Statistique

| | P | Y | COR | Y*COR |
|----------|----------|----------|----------|----------|
| Average | 41.60168 | 5.316385 | 2.882986 | 15.38522 |
| Max | 91.01 | 33.736 | 5.7 | 53.977 |
| Min | 2.254 | -4.975 | 1 | -15.92 |
| Sd | 18.07547 | 3.360306 | .8380054 | 9.733541 |
| skweness | .3101981 | 2.037784 | .9644848 | 0.551825 |
| Kurtosis | 2.441734 | 19.95117 | 4.041076 | 4.27648 |

Sd : represents standard deviation

By observing the descriptive statistics of the variables over the study period, we note that the average poverty index of the sample is 41.60%. Its minimum value is in Guinea and its largest value is held by Burundi. Regarding the economic growth rate and the interactive term, Nigeria records the most values omit 33.736% and 53.977%. On the other hand, the greatest value of the corruption index perception was referring to Namibia (5.7 points). As for its minimum value, it was 1 point and it is in Nigeria.

Table 2: Correlation Matrix

| | P | Y | COR | Y*COR |
|-------|---------|--------|--------|--------|
| P | 1.0000 | | | |
| Y | 0.6246 | 1.0000 | | |
| COR | -0.2445 | 0.0207 | 1.0000 | |
| Y*COR | -0.2880 | 0.8546 | 0.4534 | 1.0000 |

Y*COR

Regarding the relationship between variables, the only negative and significant correlation is between poverty and growth. Strong positive and significant correlations between the poverty variable and corruption on the one hand and poverty and the interactive term on the other hand. As for the relationship between growth and corruption, it is positive but not significant. The analysis of the types of relationship between the variables from the correlation matrix is insufficient to draw conclusions. Moreover, the use of the correlation matrix can *give* biased results.

3.3. The Results of the Estimates of growth, Poverty and Institutional quality

To appreciate the role of institutions in the growth-poverty relationship, we find the marginal effect of economic growth for a given level of institutional quality. To do so, we estimate Equation (1) by the ARDL (Autoregressive Distributed Lag) method (the long-term and short-term dynamics).

3.3.1. Unit Root Test

The unit root test provides whether or not the ARDL method is used. While the latter is applicable only if the *whether the regressors are $I(1)$ or $I(0)$* .

The results obtained from the applied tests (Levin-Lin-Chu, 1993, Im-Pesaran-Shin, 2003 and Hadrii, 2000) are shown in Table 3 and show that the series are stationary in level (Y and Y * CORR) and in first difference (P and CORR), which justifies the application of the ARDL.

Table3: Unit Root Test Results

| Variable | In level | | | In 1st differences | | | Order of integration |
|------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|
| | Levin-Lin-Chu | Im-Pesaran-Shin | Hadri | Levin-Lin-Chu | Im-Pesaran-Shin | Hadri | |
| P | -2.4433 (0.0073) | -1.3921 (0.0819) | 12.3414 (0.0000) | -8.1320 (0.0000) | -7.5442 (0.0000) | -1.5929 (0.9444) | I(1) |
| Y | -4.9513 (0.0000) | -6.2528 (0.0000) | 1.7080 (0.0438) | -9.2876 (0.0000) | -9.4531 (0.0000) | -3.1152 (0.9991) | I(0) |
| COR | 1.8954 (0.290) | 0.4835 (0.6856) | 24.0449 (0.0000) | -6.8099 (0.0000) | -7.6893 (0.0000) | -0.0499 (0.5199) | I(1) |

3.3.2. The "Bounds Test" Results

After testing the unit root test, the second step of our analysis is to test the cointegration of the variables. Thus, the "Bound Test" approach is used to test the long-term relationship. However, it is necessary to show the right number of delays to try the Fisher statistic value. This delay choice is according to the criteria of AIC, SC. On the basis of these selection criteria the ideal number of delays is 1.

Thus an F-statistic tests the null hypothesis where the coefficients of the delayed variables are zero. It compared with the critical values of Pesaran et al. (2001) at the 5% and 1% level of significance (*Table 4*).

Table 4: the "Bound Test" ARDL Result

| F- statistique | 7.15 | |
|-------------------|-------------|-------------|
| Critical Values | | |
| meaning threshold | I (0) Bound | I (1) Bound |
| 5% | 2,86 | 4,01 |
| 1% | 3,74 | 5,06 |

This statistic is equal to 7.15, higher than the upper limit for the different significance thresholds (4.01 and 5.06 respectively). Therefore, we reject the null

hypothesis of no cointegration and we assume that there is a long-term relationship between model variables.

3.3.3 Long-term Dynamics

The long-term coefficients derived from the ARDL model and representing the long-run elasticity are presented in Table 5. The estimation results lead us to identify the long-term equation below

$$P = 1.22 - 0.58Y + 0.52 COR + 0.10 Y * COR \quad (2)$$

These results confirm the positive effect of economic growth on long-term poverty reduction. Its incidence is 0.58 and it is statistically significant at 1%. A 1% increase in economic growth would reduce poverty by 0.58%.

The incidence of corruption is positive (0.52) and statistically significant. This impact can be justified by the poor economic regulation, the low credibility of the State and the poor distribution of public expenditures which are at the base of the precarious situation aggravation (Tanzi and Davoodi, 1997). As growth remains a powerful factor in reducing poverty, its effect remains conditioned by the institutions quality. Indeed, the interaction term ($Y * COR$) has a positive and very significant effect. A 1% increase in the interactive term causes an increase in poverty. This can be explained by the fact that corruption enters into the cultures and habits of the people of SSA countries. It undermines economic growth and thus weakens the pace of poverty reduction. This result confirms the hypothesis of Kapunda (2010) who argues that corruption affects poverty in two ways, direct and indirect. This double effect of corruption in SSA affects the poor more than the rich (Gyimah-Brempong, 2002).

At a threshold of 5% significance, the marginal effect of growth on poverty takes the following form:

$$\frac{\partial P}{\partial Y} = -0,58 + 0,10 COR \quad (3)$$

This equation confirms the empirical results to decrease poverty in SSA, it is necessary to reinforce the control of corruption (Labelle, 2014) especially in the field of basic

services (health, transport, education, etc.) which makes it possible to reduce maternal and infant mortality rates, offer better access to care and provide education for all children (Chetwynd et al, 2003, Justesen and Bjornskov, 2014).

By referring to this equation, the institutions quality hinders the effect of economic growth on poverty when the level of corruption is below 5.8.

Table5: estimated Long-Term results

| Variable | Coefficient | t-Statistic | Prob. |
|----------|----------------|-------------|------------|
| C | 1.226273214*** | 0.18921 | 0.05966699 |
| Y{1} | -0.58398263* | -2.62396 | 0.00924485 |
| COR{1} | 0.51618527** | 2.239 20 | 0.02615134 |
| Y*COR{1} | 0.10424889** | 2.29084 | 0.02283585 |

* significance at a 1%, ** significance at a 5%, *** significance at a 10%

3.3.4 Short Term Dynamics

Short-run elasticity is shown in the table below. The error correction (ECM) of the ARDL model is the delayed residue from the long-term equilibrium relation. It is negative and significant at a threshold of 1%. It is in absolute value between zero and one, which implies an error correction mechanism. This coefficient explains the speed with which the dependent variable moves towards the long-term target. It is very fast and about 93%. The short-run elasticity is presented by the coefficients of the lagged variables. These are insignificant, with the DP exception.

Table6: Results of estimation of TC coefficients

| Variable | Coeff | T-Stat | Signif |
|----------|---------------|----------|------------|
| C | -0.031360809 | -0.03846 | 0.96935430 |
| EC{1} | -0.936437632* | -4.80713 | 0.00000279 |
| DP{1} | 0.670563416* | 3.68251 | 0.00028869 |
| DY | 0.161411654 | 0.27400 | 0.78433403 |
| DY{1} | 0.241261350 | 1.04827 | 0.29562744 |
| DCOR | -0.842404799 | -0.27151 | 0.78624420 |
| DY*COR | 0.090305509 | 0.38226 | 0.70262832 |

*significativité à 1%, ** significativité à 5%, *** significativité à 10%

After identifying short and long-term relationships, which is a key step in ARD estimation, we will check the stability model, or more precisely the long-term and short-term parameters. We rely on the techniques of CUSUM (Figure1) and CUSUMQ (Figure2) based on the cumulative sum of the recursive residues and on the cumulative sum of the square of the recursive residues.

Figure1: the CUSUM technique

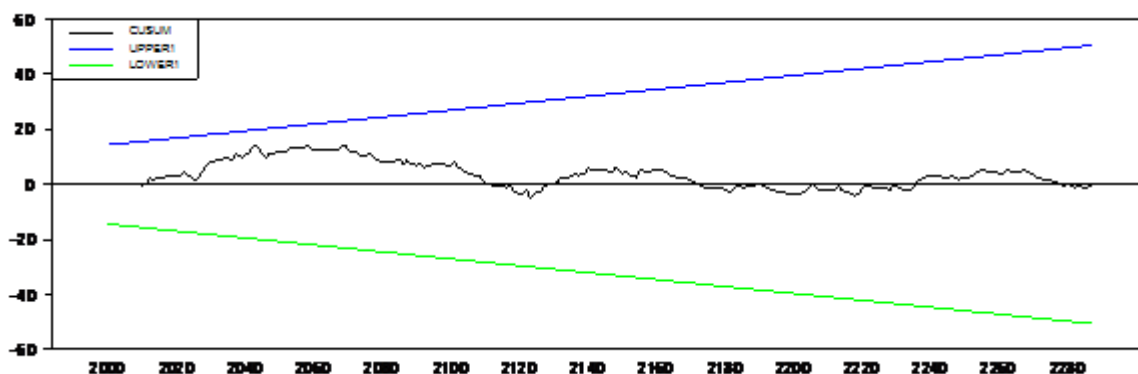
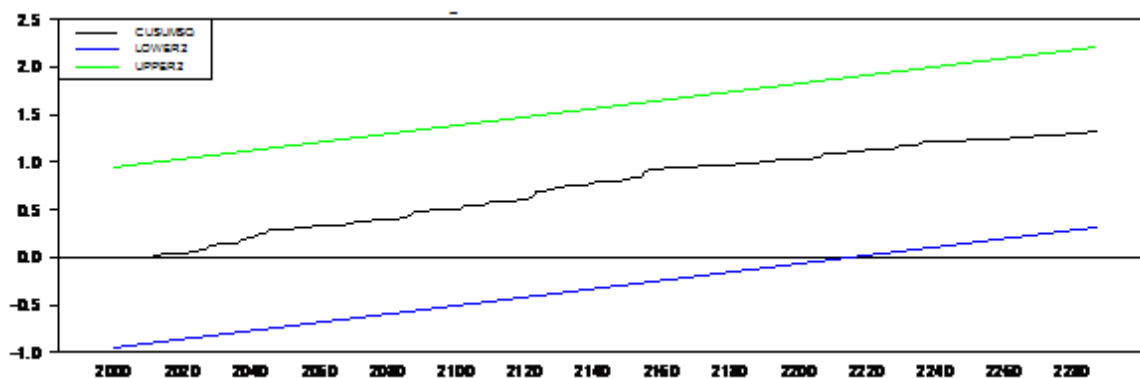


Figure2 : the CUSUMQ technique



The results show that the CUSUM and CUSUMQ statistics are within the critical value range at the 5% threshold, indicating that the model coefficients are stable. Thus, there is neither a series correlation problem nor a heteroscedasticity problem. We can therefore conclude that the model used is robust and useful.

4. Conclusion

In this paper we have tried to identify the institutional quality influences on the growth-poverty relationship. We used a sample of 18 countries in the SSA region during 2000-2015 using the ARDL method. The findings highlight the importance of institutional quality in the effectiveness of growth in reducing poverty. We found a threshold level of corruption when could truly see a marginal effect of negative economic growth. Corruption is often considered one of the main institutional weaknesses in African countries and one of the enemies of development. In fact, states must strengthen the control of corruption to better reduce poverty (Labelle, 2014).

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The Young Moroccan Leaders Social Capital and Political Participation

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Abstract

Through this research paper, we are seeking to argue about the role of social capital in determining the pattern of political participation. We focus mainly on studying the young -leader's social capital and its impact on the political choices they make between protest and institutional political participation. We argue that social capital greatly impacts the political affiliations of young leaders. The young-leaders who have got a bonding social capital or a closed network, they are more likely to participate in protest activities as well as in closed ideological organizations. On the other hand, the young-leaders who have got bridging social capital or a very large network, they are more likely to participate in various institutional organizations like parties, and NGOs. We are arguing, therefore, that the social network is playing a crucial role in shaping meanings, values, and the social reality for the individuals.

Keywords: social capital, young leaders, political participation, bonding social capital, bridging social capital.

Introduction:

Interpretations based on social capital have gained great importance in field research that seeks to understand different patterns of political participation. Despite the great momentum in addressing this concept in the fields of sociology and political science, it has remained vague and unclear. Therefore, this diversity has led to a complete lack of clarity in determining the meaning of the concept.

Despite the lack of clarity, scholars argue that social capital is one of the relational patterns to which the individual is associated to invest and use to serve personal interests¹, While other scholars illustrate that social capital is a resource contained by the community and imposed on other individuals under its banner as a pattern of values and behaviour to follow in everyday life. Meanwhile, others argue that all social life is made up of social capital, regardless of belonging to a particular group. Thus, in the face of this multiplicity, it is difficult to define this concept, given its flexibility.

The ambiguity in the concept is supplemented by the arguable discussion around the origin of the concept, and its development. There is indeed a clear difference between researchers in determining the period from which it originated.

Portes emphasized that we can even learn the idea of social capital even before its resignations in the 1960s². The contributions of social scientists in the nineteenth century are full of the social capital role in protecting the social pattern. Emil Durkheim, for instance, points out the consequences of the social relationships network loss in squandering standards and values, which result in the growing

¹ This form of definitions is very frequent in Anglo-saxon studies, as these studies attempt to rely on the theory of Coleman and Patnum in the analysis social capital.

² Portes (1998) *Social capital its origins and applications in modern sociology*, Annual Review of Sociology, Volume 24, issue 1. P5.

phenomenon of suicide¹. Besides, Marx's analysis tackles the way the capital emerged during the struggle between the bourgeoisie and the proletariat.²

However, the concept in the field of political science came with Robert Putnam in 1999 in his book "*Bowling alone*". He tries to justify that the lack of social capital was the reason for the withdrawal of American society from the public space.³ The civic engagement weakness of Americans in recent years has adversely affected the level of trust between individuals and thus the level of social capital has diminished in the USA. Putnam argues that scarcity in social capital may have negative and adverse consequences for the Development of public life and democracy overall.⁴ On the other hand, the social and economic transformations in the last two decades put this concept in the attention of many researchers. This explains the interest of many scholars in linking the concept to democracy and Development, civil society and governance.⁵

The dimension of trust is one of the main factors in measuring social capital. In this regard, Durkheim considers that the characteristic of modern society resides on the ethical system and trust that goes beyond the logic of closed self-interest.⁶

In the same vein, Fukuyama points out that the well-being of a society depends on the level of mutual trust between its members, that trust is what members expect from other members within a regular, and straight group where behaviour based on common customs prevail.⁷

¹ Mohammad Nasr and Jamil Hilal (2007) *Measuring Social Capital in the Palestinian Territories*. Palestinian Economic Policy Research Institute (MAS), (Arabic) p. 8

² Isaaf Muhammad, (2015) *Social Capital: A Development Approach*, Damascus University Journal, Volume 31, No. 3, p. 141

³ Robert David Putnam, (2001) *Bowling alone. The Collapse and Revival of American Community* 1st edition, Simon & Schuster p 10 .

⁴ Robert David Putnam (2001) Ibid P 81.

⁵ Isaaf Muhammad (2015) *ibid*. 141.

⁶ Isaaf Muhammad (2015) *ibid* p. 141.

⁷ Isaaf Muhammad (2015) *ibid* p. 141.

On the other hand, several types of research have focused on studying patterns of political participation and individual political activism based on social capital as an explaining variable. The American perspective with Coleman and Putnam has been focusing mainly on the role of social capital in perpetuating democracy and civic engagement.

First James Coleman's approach to social capital is based on the function that performs in building confidence between the socio-political groups. Thus, social capital may threaten individuals from being socially excluded in case of violating the group moral obligations¹.

James Coleman proceeds from the idea that the rational actor not only invests in his human capital, -which is the level of learning and knowledge- but must go beyond that level to include the rational use of resources that the social relationships can contain².

The issue of resources is somewhat related to the group. According to James Coleman, individuals benefit strongly from the social group that have extensive resources, unlike the group that have limited resources.

In this Regard, Coleman highlights the example of the diamond market in the United States, specifically the Brockley Market in New York. The Market is known by the Jewish merchants living together besides this area. Individuals in this group are linked to a closed social relations network that includes family affiliation and kinship. In this sense, they are a coherent group in terms of sharing customs, traditions and religious rituals. In this example, Coleman notes that the social group gives individuals a high level of mutual trust. It facilitates the commodity exchange process between its members and represents the only guarantee for diamond traders who trade in high-value stones.³

¹ Coleman (1988) *Social capital in the creation of Human capital*. American journal of sociology. Volume 94, P 102.

² Mahjoub Rizeika (2017). *Social capital, reading in the literature of social sciences*. Afaq Journal of Sociology, Issue 7, (Araic) p. 115.

³ Mahjoub Rizeika (2017).ibid 115.

Thus, the violation of mutual trust may result in serious problems with the social group. The violator will not only lose the family ties but becomes expelled and ostracized from the community. Therefore, according to Coleman, the function of social capital, in this case, is to develop the value of trust on the one hand and to fuel the fear factor of social exclusion on the other hand. Therefore the rational actor, in this case, will tend to align the personal behaviour with the interest in remaining in society.¹

On the other hand, in Putnam's study of Italian provinces, the function of social capital is about protecting social group values and rejecting individual values. Putnam does not explain this situation with the disparity in wealth and economic resources between the North and the South, but it lies in what he called the civic engagement. The northerners are civilly committed, just as the social capital built in the north performs the function of mutual trust in the circles of society, while the manifestations of bribery and political corruption in the south led to limit the social trust.

Putnam concluded that the prosperity of democracy in the north is due to historical sediments since the 14th century. Coleman concludes, through his analysis of this case, that social capital has three dimensions, which are after Trust, closeness, values and social network. Consequently, social capital is defined as "*a set of social characteristics, trust, the values of closeness and civil commitment that facilitate cooperation and collective effectiveness.*"²

Hypothesis

Through this general vision, we will be interested in studying the subject studied from the perspective of social capital and its effects on the choices of individuals to engage and participate in politics. For this matter, we consider that social capital is a resource like any other resources that help individuals to build a plan for participation. If this resource is available for individuals, it is assumed that the social network greatly

¹ Coleman (1988), *Social capital in the creation of Human capital* , ibid P103.

² Kevin F.F. Quigley (1993). *Making democracy work. Civic traditions in modern Italy*, ibid P 336

affects the individual's understanding of the meaning of politics, and about how politics should be exercised.

Problematic and method

In this research paper, we are seeking to understand to what extent the social capital that individuals have in relation with their social life may have an impact on their understanding of politics and the best way to practice it. Through this paper, we are going to argue that the social capital as a resource is a very helpful concept in which we can understand the different patterns of political participation mainly the protests activities and the institutional political participation.

On the other hand, we have conducted a semi-structured interview with 30 Moroccan political activists who already participate in political parties, civic organizations, and protests activities. We ask more open-ended questions, allowing for a fruitful discussion with the interviewee rather than the format of a closed question. If our starting in the first questions is to question the history of self engagement in politics, the subsequent questions have focused on the perceptions of young leaders regarding politics and the role of relationships in fostering political participation.

As a methodical plan in asking questions, we always seek to start with the question how, because that makes the interviewee retrieves events and facts, to address the details that are important in the study of the subject matter.¹ This plan starts with letting the individual narrate by referring to the earliest beginnings in the practice of politics and the role of social ties in early political affiliations. Then we proceed gradually to ask the question why?. It is a question that let the individuals look for rational reasons to justify their pattern of political action, and may sometimes make individuals in a defensive area for their own political choices. In our view, if the two questions are paired together in this order, it may help to understand fully the role of social capital in perpetuating different patterns of political participation.

¹ Marc Suteau (2002). *Howard S. BECKER, Les ficelles du métier, La Découverte, Paris*, Sociologie du travail. Vol 46. N 1. P 106.

1 Social capital as a resource for political action

Social capital, like other resources, is an important factor in understanding the political action of young leaders, as it provides youth with the necessary capital for political practice. This capital has a social nature, as it is in one way or another the amount of knowledge that the individual has, and that helps him/her to act in daily life. Social capital, in this sense, may help the individual to get a job, or be promoted in the ladder of responsibility, as people rely on supporting each other¹.

On the other hand, social capital is also important in stimulating political participation, as individuals who have social relationships with individuals who are active in politics can to a large extent participate in the public life, especially in case the political discussions continue among them regularly, or their presence alongside their friends to participate in the work of a party meeting Or an association or any other political framework.

Besides, social capital alone is not sufficient to lead to political participation, as the individual may have a large amount of social capital but not participating in public life. Thus, the nature of the relationship between the individual and his network is the primary determinant of participation, and this means that the individual to be affected and participate needs to weave his relationships with individuals who previously practice and accumulates an important experience in politics. Furthermore, Network that largely knows the details of the sports world cannot motivate an individual to practice politics because the area of social capital's interest is far from political life.

Every social capital has its characteristics, and it is largely based on the choices of the individual himself in expanding the base of the social capital or reducing the network to include just a tiny social group. In this regard, Putnam indicated that there are two types of social capital, the first known as “bonding social capital” and The second is “Bridging social capital”.

¹ Fengqiao et al,(2015) *The Impact of Social Capital on the Employment of College Graduates*. Chinese Education & Society. volume 48, issue 1. P 67.

By bounding social capital Putnam means that the individual does not have relationships outside the mother social group, which may be a tribe, ethnic, or political group that beliefs in the absoluteness of its ideas and reject the counter ideas.

Putnam illustrates that the closed capital is not negative, but it does not provide the opportunity for the individual to understand the external social environment more. Therefore, the individual's dealing with external social capital in this case usually tends to reject all foreign capital. Thus, the bonding social capital gives the individual the impression that the mother social group is the meaning and truth¹.

In contrast to closed social capital, Putnam indicates that open social capital means that individuals weave social relationships outside the circle of tribal, family, or ethnic network, and thus they open up to other people who may differ from them in terms of their language, beliefs, and values.² The second concept has been invested in many field types of research, and many of field research have concluded the importance of this form of capital in providing a reservoir of cognitive and economic knowledge that enables individuals to differentiate themselves from other individuals who have not got the chance to get such type of capital.³

Moreover, other studies have focused on the role of bridging social capital in motivating individuals to participate in the institutional framework. Individuals who feel a sense of marginalization and isolation from society do not, in turn, have the social capital that enables them to get rid of the self-retardation,⁴ While individuals who participate in elections, volunteering and NGOs are distinguished by significant

¹ Naim Kapucu. (2018) *Social capital and civic engagement*, ibid p 27.

² Jan Teorell. (2003) "*Linking Social Capital to Political Participation: Voluntary Associations and Networks of Recruitment in Sweden.*" Scandinavian Political Studies. volume 26, issue 1. P 62.

³ Jan Teorell. (2003) *Linking Social Capital to Political Participation: Voluntary Associations and Networks of Recruitment in Sweden* ibid. P 63.

⁴ Putnam, (2001) *Bowling alone. The Collapse and Revival of American Community* " 1st edition, Simon & Schuster P295.

diversity in terms of human capital, which mean their high level of education and also the noticeable rise in their network of relationships.¹

Based on Putnam's point of view regarding bridging and bonding social capital, we will see the impact of both capitals characteristics on political participation among young Moroccan leaders. First, we will describe the pattern of social capital for the studied sample, and then we will move on to explain the effects of the type of social capital on the pattern of political participation.

2 Results

In this section, we review the state of social capital for the youth who participate in politics in different forms of political participation. The primary purpose of this second section is to describe the pattern of social capital that young people weave in their social relationships, to analyze it and link it to the pattern of political action that individuals choose.

First, we will see the case of young leaders who choose to participate in political parties and civil society organizations, and then we will move on to discuss the case of young leaders who participate in closed ideological organizations and protest activities.

Through fieldwork, we have noticed that there is a vast difference in terms of social capital woven between young people who participate in institutional political action² compared to their counterpart who participates in closed ideological organizations and protest activities.

First, the youth who participate in parties and civil society have a very large social capital. In this Regard, young leaders have a relationship with all prominent political actors in the state, and they have important capabilities of benefiting from their social network through as well as trough the knowledge they accumulate throughout their

¹ Putnam,(2001) *Bowling alone. The Collapse and Revival of American Community* ibid, P 80.

² By Institutional participation we mean participation in political parties and civil society organizations.

involvement in politics. Meanwhile, Most of them know people in decision-making positions, and they work in national councils or ministerial bureaus, and sometimes they have relations with ministers. In the same vein, respondents acknowledge that they are in contact with ministers belonging to the parties to which they belong. For Instance, *Asma*, whose political affiliation began with the student movement and specifically with the faction of Alkaadyin students,¹ she indicated in her speech that the determinant of social relations played an important role in her involvement in the political party. *“My involvement in this organization has been somewhat liberated me from the closed relations with the student organization, which always tries to convince me of what I must do, such as not going to a certain seminar, due to the ideological incompatibility with the directions of the organization, but I have moved beyond this experience thanks to friends of mine who belong to the same political organization, and I feel safe with them, there's a bunch that look like me.”*²

Besides young leaders who participate in political parties, some participate in civil society organizations. *Amina*, for instance, begins her involvement in different youth associations. This engagement enabled her to meet multiple NGOs organizations. This network of relationships is strengthened after her involvement in a political party that fits her left-wing orientations. She has been building relationships with journalists, actors, and donor organizations to work on several social projects. After this period, she takes a great interest in working in an association that mainly concerned with enhancing the capacities of young people and enabling them to have legal and political knowledge. After that, she will move to work with a German organization that suits her political orientations and mainly concerned with her previous project in strengthening the capabilities of youth in politics.

In the same vein, *Yassine* has got a vast social network from his involvement in civic engagement. He is therefore proactive in introducing the idea of operating in a civic organization, to motivate international donor institutions to finance projects of interest

¹ This faction is remarkably active only in different universities. Among its objectives is defending the students rights. This social-political group is known by its Marxist affiliations.

² Asmae Federal National Congress, interview, 3 March 2019. Agadir

to their objectives. Based on this idea, they found a civic organization concerned with spreading a culture of human rights and democracy in general, and he has been working with his network to accomplish several projects with a political dimension in which he believes in.

On the Other hand, this active involvement in a variety of civic ENGOs and political parties seems difficult for young people who participate in protest actions and closed ideological organizations, because the pattern of social capital that it contains is somewhat narrow. One of the main characteristics of this capital is the vigilant openness and the strong belief in the political groups that share the same political values.¹ In this sense, the social-political group opens only to individuals who share the same political values. Among the observations, this group does not fully believe in the feasibility of partisan political action, given that the participation “*strengthens the legitimacy of the political system, while the political game’s tools are pre-drawn*”.²

For instance, *Mohamed’s* network of relationships goes in the direction of knowing the majority of the people who share his ideological orientation. He refuses to have relationships with people in the decision-making bodies because the organization in which he belongs is a radical organization whose main objective is to enhance the actor’s capacities to defend their fateful causes.³ In the same vein, he seeks to protest, considering that the cause he is defending will only be achieved by constant protest and pressure.⁴

Furthermore, *Hassan* is active in the revolutionary student movement.⁵ His network of relationships remains limited to actors with whom they share the political orientation. After graduating from college, he maintains the network of relationships he has forged with his friends in the organization but withdrew to personal space. Meanwhile,

¹ Et Revillard Anne, *la sociologie des mouvements sociaux*. Op Cit p 12.

² Rashid, Gallery of his words extracted from the focus group on July 23 2019, Agadir.

³ Abdul Rahman, Azerfan Organization. Interview on April 03, 2019, Agadir.

⁴ Abdul Rahman, Azerfan Organization. Interview on April 03, 2019, Agadir

⁵ This Movement is mainly active in different universities. Among its objectives is defending the students rights. This social-political group is known by its Marxist affiliations.

Abderhman who participate in “Adl wa lihssan” justice and charity movement believes in the solidarity that characterizes his social network. He mainly has got a closed social network based on his political affiliations.¹

3 The impact of social capital on political affiliations

The level of the social networks to which individuals belong is an important determinant of understanding the patterns of their involvement in politics. If these social networks are closed or active in protest forms, they will mainly affect the way the individual absorbs the concept of politics and the ways to practice political actions, while the active social networks in political parties, pushes the individual to believe in the utility of the same political pattern.

Social networks, in this case, perform the function of shaping the social reality for individuals that enables them to understand the world with the social-political group values. The action passes through a set of conscious processes called "the framing process" carried out by the social networks in which individuals engage and provide an explanation to the world, thereby giving legitimacy to action.² In this regard, Snow refers in his definition of the framing process as “*a conscious strategy by individuals to formulate a common understanding of the world, which stimulates and legitimizes collective action*”.³ Therefore, individuals interact according to the type of social network they engage in, and each social network necessarily uses a type of knowledge in which it takes a position regarding the reality, through its classifications and interpretations.⁴

¹ Abdel Rahman, Justice and Charity movement interview, January 14, 2019, Agadir. This movement is known by the Islamic political affiliations.

² David Snow, (2001). *Analyse de cadres et mouvements sociaux. Les formes de l'action collective*. Daniel cefai et Danny Trom (dir). Paris, Editions de L'ehess. P 1.

³ Revillard Anne, *la sociologie des mouvements sociaux*. Op.cit. pp 12-13.

⁴ David A Snow and Robert D. Benford (1992) *master frames and cycles of protest in frontiers social movement theory*. Edited by Aldon D ; Morriss and carol Mc clurg Muller. Yale University Press, New Haven and London P137.

In this sense, social capital is important in terms of the connotations it carries, which constitute a system of meaning to its fellow actors. Thus, through social capital, each individual is greatly influenced by the size of the social network, which carries a meaning and an explanation of social reality.

The impact of social capital on political affiliations depends remarkably on the type of social capital itself, by this we mean that bridging social capital rise the possibility of encouraging individuals to participate in the institutional framework, while the bounding social capital tends to strengthen trust among political-social groups, and encourages to participate actively in protest activities and high various ideological discussions.

In this case, the bridging social capital has a positive impact on political participation, as most of the respondents participate in political parties and civil society organizations. As the network expands, the chances of being influenced by political ideas, talking about politics, or actual engagement are very likely, unlike an individual with a very limited network; the latter has very limited opportunities to be influenced by politics.

We add in this aspect that the open social capital tends to develop the individual agency. This means the open social capital is constructed in the case that the individual can depart from his usual social network to another social network. In this regard, **Huges** illustrate that Open social capital requires activity, desire, and the ability to work within a participatory society.¹

On the other hand, it is noticeable that the young people who have open social capital have in return fragile confidence in these social networks. This means, that the open network to a large extent influences the way they think about politics. In this regard, a large part of the respondents has been constantly changing their political affiliations. More radically, some of them have shifted from leftist parties to parties that are well known by the closeness to the political regime. This issue is explained by **Newton** in

¹ Philip Huges, Alan Black, 2007. *Building Stronger Communities*. Sydney:UNSW Press book, p 64.

the fact that the pattern of social capital affects the degree of perceptions about abstract ideas. This explains that extended relationships necessarily influence the trust factor that becomes fragile¹. The fragility of trust here means that the large Network that has been accumulated may have a role in building confidence in a specific time and place, but it will, in turn, disappear in the case that the individual decides to have other relationships outside the traditional social network.

Social capital, as a factor explaining the studied phenomenon, has given important interpretations in which we can understand the various aspect of socio-political action. If studies in the United States prove that the bounding social capital greatly contributes to the survival of the individual in his group, whether it is a clan or a religious or political group, because of its importance in the life of the individual, the matter is also somewhat similar to what we encountered in the field study. It is remarkable that individuals with a closed social capital pattern have a great deal of confidence in their political groups, and will comply with any decision made by the group, which the interrogators have called "**organizational discipline.**"

The high mutual trust in these organizations has been noticed into the statements of the interviewees, who regard the organization as a unified family. It is, therefore, possible at the outset to come across positions that do not believe in the feasibility of institutional political participation based on the pattern of relations that this group coordinates, which is open only to the members of the group that gives some sense under its banner. Therefore, the structure of relationships is also influenced by the organizational structure that shackles the ego with different types of advantages and limits, given that closed networks impose standard mechanisms and restrictions that should be complied with, and therefore the compliant ego can benefit from high levels of mutual trust, opportunities, benefits, and information².

¹ Kenneth Newton, K.1997 "*trust, Social Capital and Democracy*. International political science Review, Vol 22, Issue 2. P 207.

² Christiaan Grootaert and Thierry van Bastelaer (2002) *The Role of Social Capital in Development: An Empirical Assessment* 1st ed. , Cambridge university press. P 188.

Individuals under the banner of these organizations benefit from the pattern of meaning and social networks that are compatible with them and which distinguish them from other organizations. **Newton** points out that the amount of confidence in closed social capital is thick, unlike open social capital, which is characterized by fragile confidence.¹ This is because common rules and values are a strong concern for these groups, as their source of survival is based on a common reference.² **Coffe** and **Geys** point out that the source of the distinction between open and closed social capital finds its foundation that both differs in terms of socio-demographic aspect, so closed social capital is largely homogeneous, unlike the first type of social capital.³

The issue of mutual trust is also reflected in the actor's positions toward institutional political participation, which sometimes ridicule this pattern of participation. We have noted that the majority is convinced that it is hard to achieve any significant change in the political sphere, because "*those who have only self-interest are engaged in this activity*"⁴, and also that there is no confidence in the political parties that always try to defend the interests of their fellows only, and that these institutions are "*sham institutions serving the interests of a class alliance*."⁵ Most of the interviewee expresses their lack of confidence in the political parties and the institutional pattern of participation because of the "*prevalence of inheritance in these forms*"⁶, "*and the pursuit of money and privilege*"⁷.

The closed social network, according to our interpretation, leads individuals to believe more in the values of the political group, and these values consist of political beliefs

¹ Rosemary Leonard; John Bellamy. (2010) Ibid. P447.

² Newton, K.(1997) "*Social Capital and Democracy*." *American Behavioral Scientist*, vol 40 issue(5), p 577.

³ Coffe, H., and Geys, B (2007). "**Participating in Bridging and Bonding Associations and Civic Attitudes: Evidence from Flanders.**" *Voluntas* , 18(4), p 386.

⁴ Rachid, actor in the protest activities, interview on February 26, 2019 in Agadir, previous reference.

⁵ Rachid, actor in the protest activities, interview on February 26, 2019 in Agadir, previous reference.

⁶ Abdul Rahman, the militant trend. Interview on February 2019 in Agadir, previous reference.

⁷ Rachid, actor in the protest activities, interview on February 26, 2018 in Agadir, previous reference

and identity that distinguish them from other organizations. In this respect, we add that the closed social network is not enough to be a catalyst in pushing people to political activism. In our case, this network needs to conform to the belief in a political project that stimulates and constantly reminds of the importance of protest first as a value that carries a pattern of principles and slogans, and second as a fundamental goal that must be translated on the ground.

Conclusion:

The social capital idea greatly helps to understand the pattern of political action and the political choices of young people between protest and institutional political action. Meanwhile, the type of social capital woven is extremely crucial. If the capital contains politicians and decision-makers and civil society activists; it leads, in turn, to motivate young people to follow the same political pattern.

On the other hand, the bonding social capital pushes young activists to trust their closed political organizations and more likely in a specific political action such as protesting and demonstrating against the political system. Overall, the bonding social capital creates a shared social-political reality based on ideological beliefs and political values which reject the whole political system. Thus, the system of values that these networks believe in greatly influences an understanding of the meaning of politics and how it ought to be practised.

In the same vein, the bridging social capital plays a different role in pushing individuals to have a larger political network, especially the political network that is close to political power. Therefore, young leaders try remarkably to change their political affiliations once they change their political network.

Although the bridging social capital plays the role of encouraging young leaders to participate inside the political institution, it plays, however, the role of deepening the fragile trust among the political group. This explains again the constant changing of political affiliations among young leaders.

In general, social capital has a great impact on political participation. In that sense, the social network constantly shapes values and perception and to a large extent, it influences the affiliate people who ought to behave and follow the social network system of values or they may be excluded or rejected. Thus, in our case the social capital that young leaders have influences also their understanding about politics and political action and to a large extent; they participate under the shared social-political norms and values.

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Pilgrims' Interaction with the Services Provided by the General Presidency of Al-Haramain Affairs via Facebook." 'A field Study on the Users of my page' The Ministry of Hajj and the Grand Mosque '

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Abstract

The study aimed to identify the interaction of pilgrims with the services provided by the General Presidency of The Affairs of the Two Holy Mosques through "Facebook", and used the descriptive method of scanning the sample as a tool for collecting data. The field sample consisted of (200) individuals, studying mainly their use of the pages of "the Ministry of Hajj, and the Grand Mosque". Results show the existence of statistical differences between the forms of interaction of the pilgrims with the services provided by the General Presidency of The Affairs of the Two Holy Mosques in the pages of "Ministry of Hajj, and The Holy Mosque", and the value of (t) was equal to (4.23**), which is a function at a level (0.01). There is also a statistical significant correlation between the extent to which pilgrims follow up on the services provided by the General Presidency of The Affairs of the Two Holy Mosques on the pages of "the Ministry of Hajj, and the Holy Mosque" and the degree of its usefulness, and the value of the coefficient of correlation was equal to (0.44**), which is a function at a level (0.01).

Keywords: Interaction, Pilgrims, General Presidency of the Affairs of the Two Holy Mosques, Facebook.

Introduction:

Interaction via "Facebook" is an important feature of modern media and communication. It depends on the way we handle dialogue and the extent to which we participate in modifying the shape and content of the media environment in real time.

The social networking site (Facebook) also features the ability to upload videos of pilgrims and pilgrims, which contribute to the explanation of hajj and umrah rituals, in addition to interacting with them "with admiration, comment, and sharing", through the mechanisms of interaction available on the site.

The interaction with the services provided by the General Presidency of The Two Holy Mosques on the pages of "Ministry of Hajj and The Grand Mosque" is based on the reactions exchanged between pilgrims and institutions of Hajj and Umrah, which helped to create an interactive environment based on dialogue and participation between pilgrims. Some of them are involved in the contents presented to them. Thus, the current study will look at the pilgrims' interaction with the services provided by the General Presidency of Al-Haramain Affairs via Facebook.

Previous Studies:

Through looking at the previous studies, we can identify that the researchers relied on the following axis:

1. Studies on the Interactive 'Facebook':

The study of Nicholas, Jennings, & Kevin (2019) aimed to know the public's use of 'Facebook' to access political news as a viable source of political information, and found that half of internet users depend on Facebook to check political news and to have access to information.

In the same context, Julian Lechke's study (2018) sought to know the new decisions issued by the editors of social media and the main reason behind choosing the news presented on the social media channels; 'Facebook'. Indeed, they could

demonstrate that some social network editors write more entertaining news than foreign policy and economic ones. However, they strive to get a 'good mix' of news that attracts Facebook users and professional journalistic standards.

In a similar vein, Doaa Abdel-Fattah, Mahmoud Mohamed (2018) attempted to learn about the levels of pilgrims interacting with the rituals of Hajj and Umrah through social media, and it became clear that there is a statistically significant correlation between the respondents' use of social media and their level of interaction with the Hajj and Umrah rituals. The correlation coefficient value was (0.41 **); which is a function at the level of (0.01).

2. Comments on Previous Studies:

1. The scientific literature agreed on the necessity of employing the General Presidency of the Two Holy Mosques for social media sites as an interactive media that contributes, given its importance and its effective role in providing services to pilgrims and Umrah performers as a communication activity, to supporting the image of the Kingdom of Saudi Arabia among visitors of the Sacred House of God and to identify the most important services and programs Provided by the government of the Custodian of the Two Holy Mosques represented in the General Presidency of the "Grand Mosque, and the Prophet's Mosque" affairs.
2. The scientific literature differed in objectives, sample, methodology and results, which was of a great benefit to researchers in crystallizing the problem of the study, its variables and limits as well as the definition of its objectives, students, methodology, research tools and its theoretical framework. This helps to reach the best results, where theoretical frameworks are linked to previous studies that were commented on in the current study about the forms of interaction of pilgrims with the services provided by the General Presidency of The Affairs of the Two Holy Mosques in the pages of "Ministry of Hajj, The Grand Mosque". These results formed the scientific basis for this study; with an attempt provide a scientific addition and benefit, mainly in comparing those results with the

results of the current study. They served as a guide for researchers to see more references that can be used. The review of the previous literature also revealed the existence of a weak research trend in the subject of the current study, which gave an objective dimension and an important research justification in the study of the forms of interaction of pilgrims with the services provided by the General Presidency of the Affairs of the Two Holy Mosques in the pages of "Ministry of Hajj, The Holy Mosque". It is, then, considered a new addition for those contacting the General Presidency of The Affairs of the Two Holy Mosques, to upgrade the services provided to pilgrims in various forms, and those who contact the General Presidency of The Affairs of the Two Holy Mosques, in order to keep up with the technological developments to improve the image of the kingdom in the eyes of visitors.

The Study Problem:

Given the rapid developments of new media technology and its interactive applications, the study offers a review of the services provided to pilgrims and Umrah pilgrims from the General Presidency of the Two Holy Mosques through Facebook; which is an interactive media medium with an important impact in providing various services by publishing prophetic sayings, videos, and pictures to learn the rulings and rituals of Hajj and Umrah; in addition to providing health care for pilgrims and others. Although these institutions depend on serving millions of pilgrims and Umrah pilgrims on these networks, they cannot limit the powers of individuals to use these networks and their efforts to find a safe way to serve pilgrims inside and outside these institutions.

Therefore, the study problem is based on the following main question: What is the type of interaction of pilgrims with the services provided by the General Presidency for the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque?

Accordingly, the following sub-questions have been put forward:

- (1) What are the differences between the forms of respondents' interaction with the services provided by the General Presidency of the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque?
- (2) What is the relationship between the extent of the respondents' follow-up to the services provided by the General Presidency of the Two Holy Mosques in the "Hajj Ministry and Grand Mosque" pages, and the degree of benefit from them?

Hypotheses of the Study:

- (1) There are statistically significant differences between the forms of interaction of the respondents with the services provided by the General Presidency of the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque.
- (2) There is a statistically significant correlation between the extent of respondents' follow-up to the services provided by the General Presidency for the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque, and the degree of benefit from them.

The Significance of the Study:

- The theoretical importance of the research is due to the focus on the forms of pilgrims' interaction with the services provided by the General Presidency for the Two Holy Mosques through Facebook as an important media means. This helps pilgrims and Umrah pilgrims in benefiting from the services provided to them by the General Presidency for the Two Holy Places; to learn about rituals of Hajj and Umrah.
- As for the practical importance of the research, it is based on the benefit of pilgrims and Umrah pilgrims from the services provided to them by the pages of the Ministry of Hajj and the Grand Mosque on the social networking site; Facebook, to know the patterns of interaction of pilgrims around it as it is an important field of media, and in order to reach new and innovative theories and concepts in the context of the relationship between the public and the new media.

Objectives of the study:

The current study seeks to identify the following goal:

How do pilgrims interact with the services provided by the General Presidency of the Two Holy Mosques through Facebook. Accordingly, the following sub-objectives emerge from the main one:

- (1) Knowing the differences between the forms of respondents' interaction with the services provided by the General Presidency of the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque.
- (2) Explain the relationship between the extent of respondents' follow-up to the services provided by the General Presidency of the Two Holy Mosques in the "Hajj Ministry and Grand Mosque" pages, and the degree of benefit from them.

The cognitive framework of the study:

- Interacting with the services provided to pilgrims from the General Presidency of the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque:

Interactivity is the extent to which organizations and news websites provide their users with interactive digital windows that allow them to communicate through different forms of interaction, whether by commenting or sharing media content with friends through social media sites or participating in editing content, and that is by adding a video clip and expressing it in different ways on the site (Hamida Bin Mazouz, Mohammed Al Bashir, 2019, p. 263). An example of that would be the interaction of pilgrims and Umrah performers with the services provided to them by the General Presidency of the Two Holy Mosques, with the pages of the 'Hajj Visitation and the Sacred Mosque. Facebook is a social media network that plays a pivotal role in the transmission and circulation of news among followers (Kriss Al-Jilani, Mahloul Jamal, RabihZemam, 2019, p. 14); in addition to sharing and commenting on information, photos and videos (Abdel-HadiBorby, 2018, p. 115).

- Facebook network as a medium for providing services to pilgrims on the pages of the Ministry of Hajj and the Grand Mosque:

Facebook is a digital network that holds pictures and information at a specific university or institution (Muhammad Ali, ImadAqeela, 2019, p. 120). It allows users to comment on it (Reddick, c, chaPield, A, T, 2017, p. 85); especially the interaction of pilgrims and Umrah performers with the services provided to them by the General Presidency of the Two Holy Mosques, with the pages of the Hajj Visitation and the Sacred Mosque.

The interaction with news also occurs through the interaction mechanisms available on the news page, in addition to the availability of a news search service related to current events on the page (Danah.m Boyd Nicole B Ellison, 2015). It is clear that the General Presidency of the Two Holy Mosques uses the Facebook site as a media tool to provide services to pilgrims and Umrah pilgrims on the pages of the Ministry of Hajj and the Grand Mosque as follows:

- (1) Publishing prophetic sayings, videos and photos to learn the rulings and rituals of Hajj and Umrah.
 - (2) Directing domestic tourism companies to upgrade the services provided to pilgrims and Umrah pilgrims.
 - (3) Providing medical care and security enhancements to confront the risks that occur during the Hajj.
 - (4) Providing visas for pilgrims and Umrah pilgrims and all administrative facilities for them.
 - (5) Providing various centers to guide the pilgrims and Umrah pilgrims who are eager for feelings and inform them of their potential.
- The forms of pilgrim interaction with the services provided by the General Presidency for the Two Holy Mosques in the pages of “The pilgrims visit, and the Sacred Mosque” via “Facebook”:

There are many forms of interaction with the services provided by the General Presidency of the Two Holy Mosques in the pages of 'The Pilgrims of Hajj and the Sacred Mosque', including:

- **Like records:**

It means showing admiration for the contained on the site and is available among friends, groups and channels (Khaled Mahdi, 2018, p. 59).

- **Interaction through writing comments:**

It is a form of interaction available on the news pages of the social networking site 'Facebook', where users can write 'comments' about issues that raise their interest and then press the inter button, and this method is also characterized by achieving the mechanism of interaction between users (Mahmoud Mohamed, p. 57- 58).

- **Share :**

It means users' participation in the content provided by the news pages of the social networking site 'Facebook' and exchange among users via e-mail or publishings on a joint group between users or another social networking site (Khaled Mahdi, 2018, p. 59).

Study concepts:

A. Interaction: Procedurally defined as:

A series of communication reactions between users and institutions, about the media contents related to the services provided to the different pilgrims; and which interest them.

B. General Presidency for the Two Holy Affairs: Procedurally defined as:

An institution affiliated with the Saudi government that provides services to pilgrims and Umrah pilgrims, and supervises the management of the 'Hajj and the sacred Mosque' pages.

C. Facebook: Procedurally known as:

A social network that allows its users to communicate and interact with various institutions on topics of common interest, in addition to subscribing to pages that interest them via e-mail.

Study community:

The human community is represented by the pilgrims who use the pages of the 'Hajj Visitation and the Sacred Mosque' on the social networking site Facebook.

The study sample:

A random sample is selected; consisting of (200) individuals from pilgrims of different nationalities via social networking sites, ranging in age between 25 and 60 years old. The reasons behind selecting this sample are as follows:

- (1) The researchers' choice of the sample of pilgrims and Umrah performers came to describe the topic as a category and a segment that represents an active sector in human society. This is because pilgrims and Umrah performers have the ability to take advantage of the services provided by the General Presidency for the Affairs of the Two Holy Places to learn the rituals of Hajj and Umrah and take them in accordance with the nature imposed on them in the Hajj.
- (2) There are pilgrims and Umrah pilgrims on social networking sites who have the ability to use these networks to benefit from the services provided to them through the sites of these institutions, of a varied nature, male and female, which provides the researchers with a correct representation of the original community of pilgrims. Below is a description of the sample.

Table (1)**Sample description according to demographic variables (n) = 200**

| Demographic characteristics | | Repetition | % |
|-----------------------------|----------|------------|-------|
| Type | Males | 100 | 50% |
| | Females | 100 | 50% |
| Age | 25 to 45 | 125 | 62.5% |
| | 45 to 60 | 75 | 37.5% |
| Total | | 200 | 100% |

The above table data indicates the following:

- First: characterizing the study sample according to the type: The proportion of both males and females of the Hajj sample from the users of the 'Hajj and Hajj Mosque' pages was equal (50%). This result reflects a great interest on the part of the respondents in benefiting from the services provided to them by the General Presidency of the Two Holy Mosques through Facebook.
- Second: Describing the sample in terms of age: The age group (25 to 45) came with a high rate of (62.5%). This indicates that this group is more popular with the use of the social networking site to take advantage of the services provided to them and learn the rituals of Hajj and Umrah, and this explains that the younger the age, the more it is characterized by interest and follow-up in learning the rituals of Hajj and Umrah.

The limits of the study:

- **Human frontiers:** The human boundaries of the study are a sample of pilgrims using the 'Hajj and the Sacred Mosque' site on the social networking site Facebook.
- **Objectivity border:** It is limited to the services provided by the General Presidency of the Two Holy Mosques in the pages of "Hajj and the Sacred Mosque" through Facebook.
- **Time limits:** The period it took for researchers to implement the research tool represented in the year 2019.

Study Tool:

A questionnaire newspaper was applied to an intentional sample of (200) singles from pilgrims using the 'Hajj and sacred Mosque' pages of the Facebook site, during the period from 1/5/2019 to 7/30/2019.

Type and Methodology of Study:

The study belongs to a descriptive research that seeks mainly to know the interaction with the services provided by the General Presidency of The Affairs of the Two Holy Mosques in the pages of "Ministry of Hajj, The Holy Mosque" via "Facebook", and uses the descriptive method to scan a sample of the two pages of "**Zara**" Hajj, the Grand Mosque via Facebook, to see their reactions to it.

Study Variables:

- ✓ **Independent variable:** Pilgrim interaction.
- ✓ **Dependent variable:** Services provided by the General Presidency of the Two Holy Mosques through Facebook.

Honesty and Persistence:

To verify the apparent honesty, the questionnaire newspaper was designed in the light of the objectives, assumptions and questions of the study. It was presented to a group of arbitrators in the field of media, and then making adjustments according to their observations. The questionnaire newspaper was applied during the year 2019, in the period between 1/5/2019 until 7/30/2019 and the stability test was conducted for the questionnaire newspaper by applying the Alpha Cronbach equation to ensure the stability of the questionnaire. The following table shows to us how to calculate the value of the coefficient of stability for the questionnaire newspaper:

Table (2)**Stability coefficient value for the survey sheet**

| The arithmetic medium | standard deviation | Variation | The number of vocabulary | Alpha Cronbach's Guardian |
|------------------------------|---------------------------|------------------|---------------------------------|----------------------------------|
| 140.46 | 10.244 | 104.963 | 80 | 0.734 |

The above table data indicates the following:

- The value of the Alpha Cronbach came at (0.734), which is an average degree of stability that gives confidence in the results of the study, as it indicates the validity of the questionnaire for application.

Statistical Analysis:

After completing the collection of field study data, the data was coded and entered into the computer, then it was processed, analyzed and extracted using the 'statistical package for social sciences' program known as 'spss', by resorting to the following statistical tests and treatments, which are simple ratios and ratios of survey questions. The Pearson correlation coefficient was also used to find the intensity and direction of the correlation between the extent of follow-up to the services provided by

the General Presidency of the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque, and the degree of benefit from them. T-Test was also used to find the differences between the respondents' interaction with the services provided by the General Presidency of the Two Holy Mosques in the “Ministry of Hajj and the Grand Mosque” pages.

Results:

The sample of the study was in the age group (25 to 60) of the pilgrims using the two pages of the Ministry of Hajj and the Grand Mosque, where a sample of (200) singles was included, in addition to the results of testing the validity of hypotheses and linking them to the questions and objectives of the study. The following is a presentation of the study results:

Table (3)

Follow-up of the respondents to the services provided to pilgrims from the General Presidency of the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque (n = 200)

| n | Services | "Ministry of Hajj" page | | The Sacred Mosque page | |
|---|--|-------------------------|-------|------------------------|-------|
| | | Iteration | % | Iteration | % |
| 1 | Publishing prophetic sayings, videos and photos to learn the rulings and rituals of Hajj and Umrah | 43 | 21.5% | 42 | 21% |
| 2 | Directing domestic tourism companies to improve the services provided to pilgrims and Umrah pilgrims | 34 | 17% | 34 | 17% |
| 3 | Providing medical care and security enhancements to confront the risks that occur during the Hajj | 30 | 15% | 33 | 16.5% |
| 4 | Provide visas for pilgrims and Umrah performers and all administrative facilities for | 33 | 16.5% | 28 | 14% |

| n | Services | "Ministry of Hajj" page | | The Sacred Mosque page | |
|--------------|---|-------------------------|-------|------------------------|-------|
| | | Iteration | % | Iteration | % |
| | them | | | | |
| 5 | Providing various centers to guide pilgrims and pilgrims who are lost in feelings and introduce them to their potential | 37 | 18.5% | 36 | 18% |
| 6 | Development of various housing services for pilgrims and Umrah pilgrims | 23 | 11.5% | 27 | 13.5% |
| Total | | 200 | 100% | 200 | 100% |

The data of the previous table indicate:

- The respondents' follow-up to the services provided by the General Presidency for the Two Holy Affairs on the 'Ministry of Hajj' page, as follows: Publishing prophetic sayings, videos, and photos to learn the rulings and rituals of Hajj and Umrah in the first position by (21.5%). Then, providing different centers to guide pilgrims and Umrah pilgrims who are lost in feelings and identifying them in the second position by (18.5%), and comes in the third position directing domestic tourism companies to improve the services provided to pilgrims and Umrah pilgrims in the fourth position by (17%), followed by providing visas for pilgrims and Umrah pilgrims and all administrative facilities for them by (16.5%). Next, providing medical care and security enhancements to face the risks that occur in the pilgrimage was ranked with (15%). Finally, the development of residential housing services for pilgrims and Umrah pilgrims came in the sixth place with (11.5%).
- As for the 'Sacred Mosque' page, the respondents' follow-up to the services provided by the General Presidency for the Two Holy Mosques was as follows: Publishing prophetic sayings, videos, and pictures to learn the rulings and rituals of Hajj and Umrah came in the first position by (21%), then, providing different centers to guide pilgrims and Umrah pilgrims who are lost with their feelings in the second position by (17%). In the third position, we had directing

domestic tourism companies to improve the services provided to pilgrims and Umrah pilgrims by (17%). Then, providing medical care and security enhancements to meet the risks that occur in the pilgrimage came in the fourth position by (16.5%), and finally the development of different housing services for pilgrims and Umrah pilgrims in the fifth place with (13.5%).

It is clear from the previous results that there is a great interest on the part of the respondents towards the services provided to them to learn the rulings and rituals of Hajj, with a difference in the percentages of services provided on both pages. Accordingly, the high level of interest by the respondents is due to their importance to them. In addition to its importance for the General Presidency of the Two Holy Mosques, providing various services to millions of pilgrims is natural because it is a responsibility that falls on these institutions and falls in the heart of their work and specialization.

Table (4)

The forms of interaction of pilgrims with the services provided by the General Presidency of the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque

| n | Forms of interaction | "Ministry of Hajj" page | | The Sacred Mosque page | |
|--------------|------------------------------------|-------------------------|-------|------------------------|-------|
| | | Iteration | % | Iteration | % |
| 1 | Like records | 61 | 30.5% | 59 | 29.5% |
| 2 | Comment on what is being published | 82 | 41% | 79 | 39.5% |
| 3 | Sharing work | 57 | 28.5% | 62 | 31% |
| Total | | 200 | 100% | 200 | 100% |

The data of the previous table indicate:

- The preferences of the pilgrims to use the forms of interaction with the services provided by the General Presidency of The Affairs of the Two Holy Mosques

on the page of the Ministry of Hajj, were as follows: Comment on what is published in first place with (41%), the second place was given to like recordings with (30.5%) and finally participating by (28.5%). This result is consistent with the results of the study of Hisham Saeed (2015, p. 130); where the term writing the comment got first place (69.7%).

- For the "Grand Mosque" page, the preferences of the pilgrims to use the forms of interaction with the services provided by the General Presidency of The Two Holy Mosques on the page of the Ministry of Hajj were as follows: Comment on what is published came in the first place with (39.5%), the second place goes to participating with (31%) and finally “likes” with (29.5%). This result is consistent with the results of Maryam Nomar (2011, p. 133), where the term comment tool got first place (25.2%).

It is clear from the previous results that the researchers find that interacting with the services provided on both pages is important to help facilitate the performance of hajj for pilgrims. In addition to learning the rituals of Hajj and Umrah, the use of the comment tool is also due to the fact that it expresses the public's opinion about the services provided to them by both pages, and the interaction with the company indicates the importance of the services provided by the General Presidency of The Affairs of the Two Holy Mosques and the multiplicity of its audience.

Table (5)

The extent to which pilgrims follow up on the services provided by the General Presidency of the Two Holy Mosques in the “Ministry of Hajj and the Grand Mosque” pages (n = 200)

| N | Extent of follow-up to the services provided by the General Presidency of the Two Holy Mosques | Iteration | % |
|---|--|-----------|-------|
| 1 | I follow in a very large degree | 117 | 58.5% |
| 2 | I follow very much | 83 | 41.5% |
| 3 | I follow at unlimited times | - | - |

| | | |
|--------------|-----|------|
| Total | 200 | 100% |
|--------------|-----|------|

The data of the previous table indicate:

- The extent to which pilgrims follow up on the services provided by the General Presidency of the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque were as follows: “I follow very much” in the first place by (58.5%), followed by “I follow significantly” in second place (41.5%), and this result is consistent with the results of the study of Mahmoud Mohammed, Shaima al-Hawari (2019, p. 39), where the phrase “at Very much higher” came in the first place with (36.25%).

It is clear from the previous results that follow-up to the services provided by the General Presidency of The Affairs of the Two Holy Mosques is important for the pilgrims, in order to know the services provided to them and to learn the rituals of Hajj and Umrah. Thus, the employment of social networks in the service of pilgrims and Umrah pilgrims has increased and reached the goal to be achieved.

Table (6)

The degree of benefit from pilgrims following up on services provided by the General Presidency of the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque (n = 200)

| N | The degree of benefit from following up the services provided by the General Presidency of the Two Holy Mosques | Iteration | % |
|--------------|---|-----------|-------|
| 1 | I benefit very much | 91 | 45.5% |
| 2 | I benefit greatly | 85 | 42.5% |
| 3 | I benefit a little | 24 | 12% |
| Total | | 200 | 100% |

The data of the previous table indicate:

- The degree to which pilgrims benefited from the follow-up of the services provided by the General Presidency of The Affairs of the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque was as follows: “I

benefit very much” in the first place with (45.5%), then “I benefit significantly” in the second place with (42.5%), and in the third and last place “I benefit a little” with a degree of (12%).

It is clear from the previous results that the vast majority of pilgrims benefit very much from the services provided by the General Presidency of The Affairs of the Two Holy Mosques, in order to know the services provided to them and to learn the rituals of Hajj and Umrah, which help them to perform hajj, in addition to upgrading services by the institutions of Hajj and Umrah to improve the image of the kingdom at home and abroad.

Verification of the study hypotheses:

The first hypothesis: This hypothesis states that:

- There are statistically significant differences between the forms of interaction of the respondents with the services provided by the General Presidency of the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque.

Table (7)

The significance of the differences between the forms of respondents' interaction with the services provided by the General Presidency of the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque. (N = 200)

| the scale | Ministry of Hajj'' page | | The Sacred Mosque page | | Value of t | Signific ance level | Significa nce level |
|--------------------------------------|-----------------------------|-----------------|-----------------------------|-----------------|---------------|---------------------------|------------------------|
| | The arithmetic medium | Total grades | The arithmetic medium | Total grades | | | |
| Forms of interactio n | 2.53 | 0.75 | 0.01 | 2.30 | **4.23 | 0.05 | 0.01 |

The above table data indicates the following:

- There are statistically significant differences between the forms of interaction of the respondents with the services provided by the General Presidency of the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque,

and in the direction of the newspaper of the Ministry of Hajj, and the value of $(T) = (4.23^{**})$, which is a function at the level of (0.01). The researcher attributes this to the conscious public's interest in following up the services provided to them on the 'Ministry of Hajj' page because it is the main source in providing guidance services for pilgrims and Umrah pilgrims, in addition to the presence of contactors who specialize in providing services for pilgrims and have the confidence of followers. By this we accept the assumption that there are statistically significant differences between the forms of interaction of the respondents with the services provided by the General Presidency of the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque; thus, increasing the rate of follow-up, interaction and reaching the goal to be achieved.

The second hypothesis: This hypothesis states that:

- There is a significant correlation between the number of pilgrims following up on the services provided by the General Presidency of the Two Holy Mosques with the “Ministry of Hajj and Grand Mosque” pages, and the degree of benefit from them.

Table (8)

The relationship between the extent to which pilgrims follow up on the services provided by the General Presidency for the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque ', and the degree of benefit from them (n=200)

| Variables | The extent to which pilgrims follow up on services provided by the General Presidency of the Two Holy Mosques in the pages of the Ministry of Hajj and the ' Grand Mosque | | |
|-----------|---|--------------------|------------|
| | Significance level | Significance level | Value of t |
| | | | |

| | | | |
|----------------------------------|------|------|--------|
| The degree of benefit from it | 0.05 | 0.01 | **0.44 |
|----------------------------------|------|------|--------|

The above table data indicates the following:

- To verify the validity of the hypothesis, we used the Pearson correlation coefficient to measure the intensity and direction of correlation between the extent to which pilgrims follow up on the services provided by the General Presidency of the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque, and the degree of benefit from them. The value of the correlation coefficient was (0.44 **), which is a function at the level (0.01). By this we accept the assumption that there is a statistically significant correlation between the extent of pilgrims' follow-up to the services provided by the General Presidency of the Two Holy Mosques in the “Ministry of Hajj and Grand Mosque” pages, and the degree of their usefulness. This indicates that the more pilgrims follow up on Hajj services provided by the General Presidency for the Two Holy Places, the more they benefit from them in learning the rituals of Hajj and Umrah.

The results of the study in light of the hypotheses:

After conducting the field study, we reached a set of results, the most important of which are:

- **The first hypothesis is proven true:** There are statistically significant differences between the forms of interaction of the respondents with the services provided by the General Presidency of the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque, and in the direction of the newspaper of the Ministry of Hajj, and the value of (T) = (4.23 **), which is a function at the level of (0.01).
- **The second hypothesis has been proven true:** There is a statistical significant correlation between the extent to which pilgrims follow up on the services provided by the General Presidency for the Two Holy Mosques with the

“Ministry of Hajj and the Grand Mosque” pages, and the degree of benefit from them, and the value of the correlation coefficient (0.44 **), which is a function at the level of (0.01).

Conclusion:

Through this study, the researcher tried to know the forms of the respondents' interaction with the services provided by the General Presidency of the Two Holy Mosques with the “Hajj Ministry and Grand Mosque” pages, and the relationship between the extent of pilgrims following up on the services provided by the General Presidency of the Two Holy Mosques in the pages of the Ministry of Hajj and the Grand Mosque and the degree of benefit. This is because interactive media has a great influence in shaping the public's attitudes towards learning the rituals of Hajj and Umrah from the services provided to them in the pages of the Ministry of Hajj and the Grand Mosque.

Therefore, it has become necessary to employ the Hajj and Umrah institutions for these networks to serve millions of pilgrims and umrah pilgrims; to keep abreast of technological developments and to communicate and interact between those who contact the General Presidency for the Two Holy Places and pilgrims on services that raise their interest. In order to reach new and innovative theories and concepts in the context of the relationship between the public and the new media, the study reached a set of recommendations, the most important of which are:

- Emphasizing the need for the General Presidency of The Affairs of the Two Holy Mosques to employ communication technology and its various applications in the service of pilgrims and Umrah pilgrims to keep up with modern developments
- Pilgrims and Umrah pilgrims should be interested in using modern technology and tablets to learn hajj rituals and know the services provided to them, with the need to provide different centers to guide pilgrims and Umrah pilgrims who are lost in sacred feelings and to introduce to them the publication of a schedule of visits.

Research proposals:

- The role of communicators in raising awareness of health risks for pilgrims through social media.
- Employ social networks to introduce hajj and umrah rituals.

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**The paradox of dollar during global financial crisis:
An application of ARIMA and ARCH models**

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Abstract

The global financial crisis has lent new impetus to discussions of the Dollar behavior during the 2008 crisis, the appreciation of dollar make a paradox Whether the crisis has an impact on the Dollar exchange rate. This article aims to analyse the volatility of the Dollar exchange rate during 2008 financial crisis using various volatility models such as Autoregressive Integrated Moving Average Autoregressive Integrated Moving Average and Autoregressive Conditional Heteroskedasticity models During the period from (01- 01- 2005 to 01- 12 -2014); the results shows that there is a positive statistically significant effect of the crisis on volatility of dollar exchange rate.

Key words: financial crisis, Dollar, exchange rate, ARIMA model, ARCH model.

Introduction

The 2008 financial crisis was the worst economic calamity since the Great Depression, The behavior of the dollar during the global crisis in 2008 raised the doubts of many researchers, in many ways, a paradox. First, while the crisis originated in the United States, particularly in the real estate sector (subprime crisis), the dollar

appreciated at the height of the financial turmoilⁱ, Where it became stronger in their effective terms than it has ever been since the early 2000s.

The importance of this study is determining the impact of the 2008 global crisis on the exchange rate fluctuations of the dollar and resolving the paradox of the rising dollar in light of the crisis.

Research Questions:

The crisis had not yet concluded as of 2009, because the consequences of financial crisis are still ongoing today, so the research study was based on this question:

What are the effects of 2008 financial crisis on the Dollar exchange rate?

I- Literature Review:

ARIMA and ARCH models are frequently used for exchange rate time series, Most of the articles in this area of the literature deal with the analysis of the exchange rate volatility or with the forecast of the exchange rates.

Various ARCH models have been applied by researchers to analyze the volatility of exchange rates in different countriesⁱⁱ, in which the author analyses the *RON / EURO exchange* using ARCH of models volatilityⁱⁱⁱ, in which the authors analyze Exchange Rate Volatility in the Sudan they used the ARIMA and Autoregressive conditional Heteroskedasticity models conditioned by non-Homogenization Using the normal distribution and distribution of (t-student) to estimate volatility (conditional variance)^{iv}, which analyzes gold prices in SRI LANKA using generalized autoregressive conditional heteroske dasticity approach.

II-The evolution of dollar exchange rate since the 2008-09

crisis:

The most obvious feature of the onset of a currency crisis, or the result a manifested in a sharp and large decline in exchange-rate for the affected countries^v.

The first decline of dollar was in 2007, as a result of the Federal Reserve Bank monetary policy response to the crisis, which promptly lowered its key interest rates because of a higher perception of the dollar, deterioration in US growth and inflation expectations (**Federal Reserve Bank of New York, 2008**).

starting from September 2007 a series of Fed Funds rate cuts, leading it from 5.25% to a range of 0% -0.25% in December 2008. The depreciation of the dollar was thus not so much due to a lower appetite for dollar-denominated securities than a negative "return effect" on the US dollar.

Figure n°1: dollar swap yield premium



Source: BIS calculations

The dollar shortage reflected unbalanced growth in international banking, the European banks accumulated dollar assets well beyond their dollar deposits, and funded the difference in the interbank and other wholesale markets.

By contrast, US banks expanded their foreign claims modestly and ended up with comparatively little need for funding in European currencies this shortage, and high dollar yields in the market, contributed to a sharp appreciation of the currency^{vi}.

While, in 2008 the dollar appreciated strongly in the second half of 2008, both against the euro and in effective terms.

The investors have not stopped buying securities denominated in dollars; they have certainly diverted US risky private securities, but have increased their purchases of government^{vii}.

II-1- The 2008-09 crisis measures used:

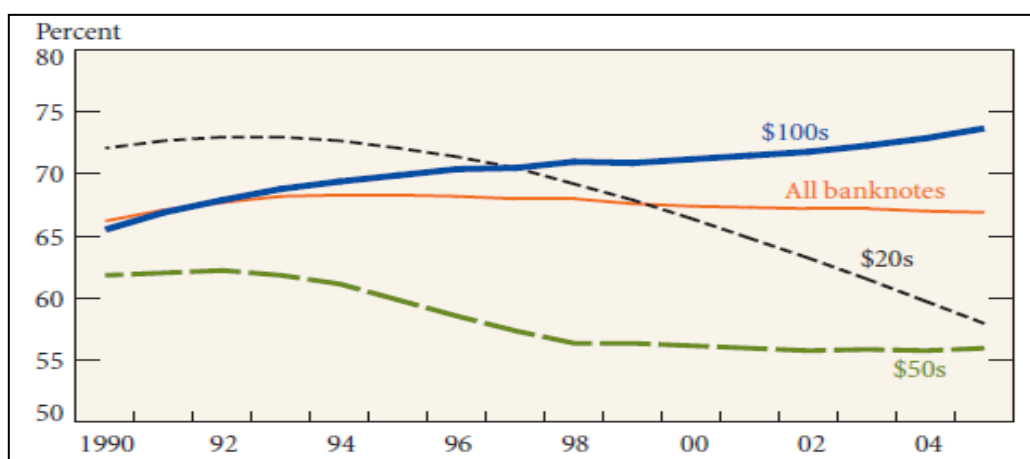
The crisis measures used are^{viii}:

- **Nominal local currency percentage change versus the US dollar from 15th September 2008 to 9th March 2009:** Though asset prices peaked and many measures of financial market risk started to rise prior to this date, financial market dislocations became particularly synchronized and abrupt after this date .
- ***Equity market returns in domestic stock market benchmark indices over the same period as above, adjusted for the volatility of returns:*** This method is preferred to simple percent returns, to account for the differing risk-return characteristics of each local stock market.
- **Percentage change in the level of real GDP from end-June 2008 to end-June 2009:** Though the NBER declared December 2007 as the start of the US recession, the global economy continued growing up to the second quarter of 2008 based on a number of high frequency variables
- **Percentage change in industrial production from end-June 2008 to end-June 2009:** The composition of GDP varies widely across economies, so industrial production is more consistent measure of the impact of the crisis across economies.
- **Recourse to IMF financing from July 2008 to November 2009:** This includes all countries that requested funds from the IMF under Stand-by Arrangements, the Poverty Reduction and Growth Facility and Exogenous Shock Facility.

II-2- The Dollar as International Cash:

The dollar is a major form of cash currency around the world, The share of U.S. dollar banknotes estimated to be held outside the United States is substantial^{ix}.

Figure n°2: U.S. Banknotes Held outside the United States



Source: Federal Reserve Bank of New York estimates (2006).

Roughly 75 percent of hundred-dollar notes, 55 percent of fifty-dollar notes, and 60 percent of twenty-dollar notes are held abroad, while about 65 percent of all U.S. banknotes are in circulation outside the country .

Approximately \$580 billion in physical U.S. currency outstanding was circulating overseas at the end of March 2009^x.

III- Methods and Materials:

First the stationarity of the data will be checked using the ADF test (Augmented Dickey-Fuller test) The ADF test estimates the equation^{xi}:

$$\nabla Y_t = \alpha_0 + \gamma t_{t-1} + \sum_{i=2}^p \beta_i \nabla y_{t-i+1} + \varepsilon_t$$

The time series y_t is stationary if for every $h \in Z$, the y_{t+h} series has the same distribution as the y_t series for any $t = 1, 2, \dots, n$ (Enders, 1995).

III-1- Autoregressive Integrated Moving Average Models (ARIMA (p, d, q)) Model:

A generalization of ARMA models which incorporates a wide class of non stationary time-series is obtained by introducing the differencing into the model. The simplest example of a non stationary process which reduces to a stationary one after differencing is Random Walk.

A process $\{ y_t \}$ is said to follow an Integrated ARMA model, denoted by ARIMA(p, d, q), if^{xii}:

$$\nabla^d y_t = (1 - B)^d \varepsilon_t$$

is ARMA(p, q). The model is written as where the integration parameter d is a nonnegative integer. When d = 0 we have the usual ARMA model, that is ARIMA (p, d, q) \equiv ARMA(p, q).

III-2- Autoregressive Conditional Heteroskedasticity Models (ARCH models):

One of the earliest time series models for heteroskedasticity is the Autoregressive Conditional Heteroskedasticity (ARCH) models proposed by (Engel, 1982), ARCH models are specifically designed to model and forecast conditional variances, To generate the autoregressive conditional heteroskedasticity process the conditional variance of the error term is expressed as a function of its past values squared as follows^{xiii}:

$$\varepsilon_t | \Omega_{t-1} \sim N(0, h)$$

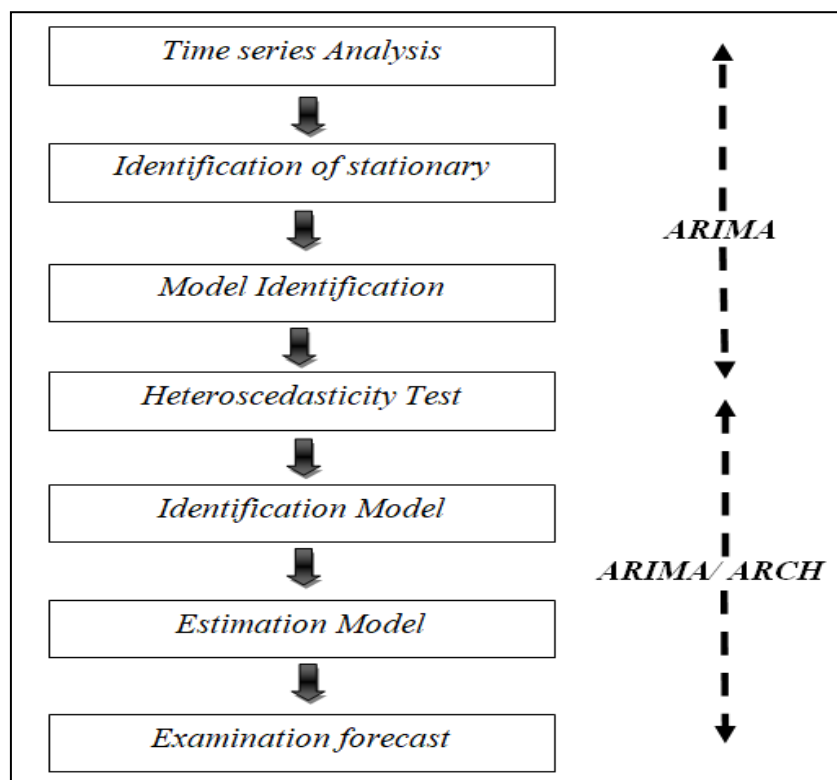
$$\varepsilon_t = \eta_t \sqrt{h_t}$$

$$h_t^2 = \delta + \sum_{i=1}^p \alpha_i \varepsilon_{t-i}^2$$

Where:

ε_t is the unconditional shock, η_t is an independently identically, distribution random variable (conditional) shock with mean zero and variance 1, and h_t^2 denotes the conditional variance of the information, set Ω_{t-1} and $\delta > 0, \alpha_i \geq 0$ for all $i=1,2,3,\dots,p$ and $\alpha_1 + \alpha_2 + \dots + \alpha_p < 1$ are necessary to make ε_t positive and covariance stationary

Figure n°3: Flowchart of building ARIMA/ARCH process



Source: Authors' Construct.

III-3- DATA:

The data which will be used in modelling volatility of exchange rate in this paper are the monthly returns of exchange rates on the United States (US).

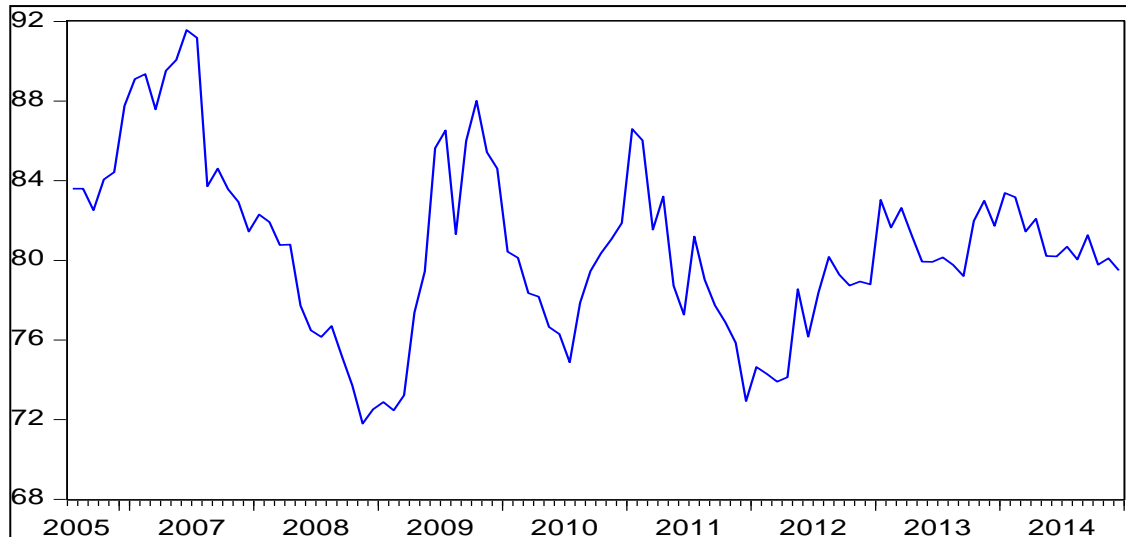
The data span from 1st January 2005 to 12th December 2014 resulting in a total of 110 observation.

IV- RESULTS AND DISCUSSION :

One of the characteristics of exchange rate during financial crisis is the uncertainty that changes over time. In this regard, there is such a thing as "volatility clustering", It means that the volatility varies periodically, currency dynamics changes from slightly chang-ing to more chaotic.

This section describes the results of this research study, Data analysis and outputs of statistical tests which are used to analyze the data are discussed under this section

Figure n°4:dollar exchange rates over the 01.01.2005 - 01.12.2014 time period



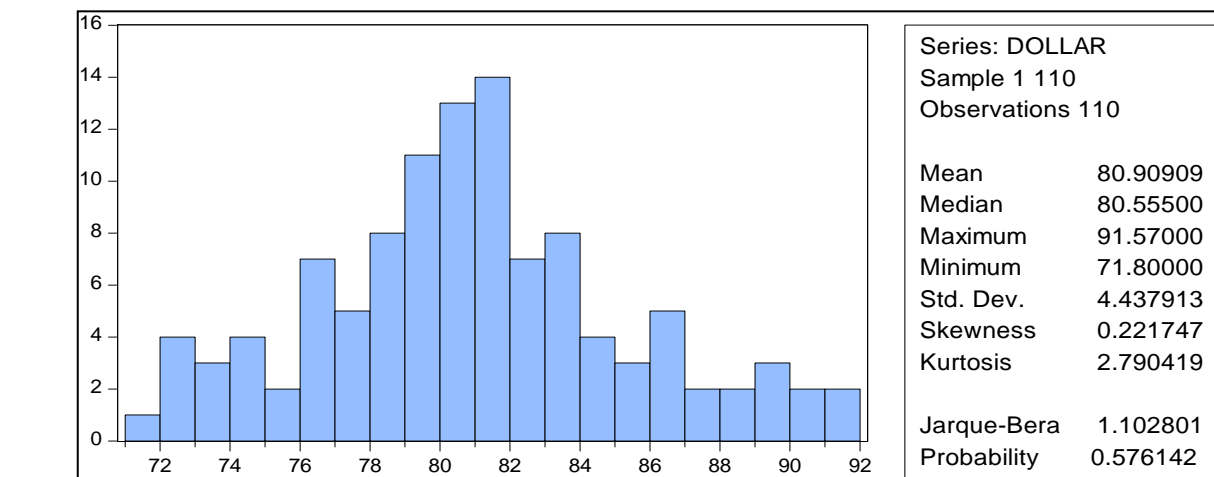
Source: Data Processed EVIEWS.10.

From figure 4 it can be seen that the data is non-stationary, but we will run the Augmented Dickey-Fuller test to make sure. Also, Several fluctuations in the time series can be observed starting from 2007 Before the global financial crisis and increasing trend of the time series as result The US dollar’s appreciation in late 2008.

IV-1 -Descriptive Statistics of Dollar exchange rates series:

First we run, in EViews.10 software, a describing statistics on our data in order to observe the mean, median, maximum, minimum, standard deviation, skewness, kurtosis, Jaque-Bera, Probability, Sum, sum sq. dev. and the number of observations. Interesting to see is that the difference between the minimum and the maximum values is rather significant (from a minimum of 71.80000 -It is the lowest value of the dollar as a result of the mortgage crisis on 01.03.2008 -to a maximum of 91.57000).

Figure n°5:Summary of Descriptive Statistics



Source: Data Processed EVIEWS.10.

Figure 5 shows that summary of descriptive statistics of the Dollar exchange rates series, The Dollar exchange rates Dollar have a standard deviation of 4.437913 indicating that data fluctuation is extremely low, The skewness of 0.221747 shows that the series is positive skewed, In terms of kurtosis (2.790419). Both skewness and kurtosis of gold price show the departure from the normality P value of Jarque-Bera test indicates that dollar price series is normally distributed.

IV-2 -Stationarity test:

In table 1 we have the output of the Augmented Dickey - Fuller test.

Table n°1: Results of Augmented Dickey-Fuller unit root test

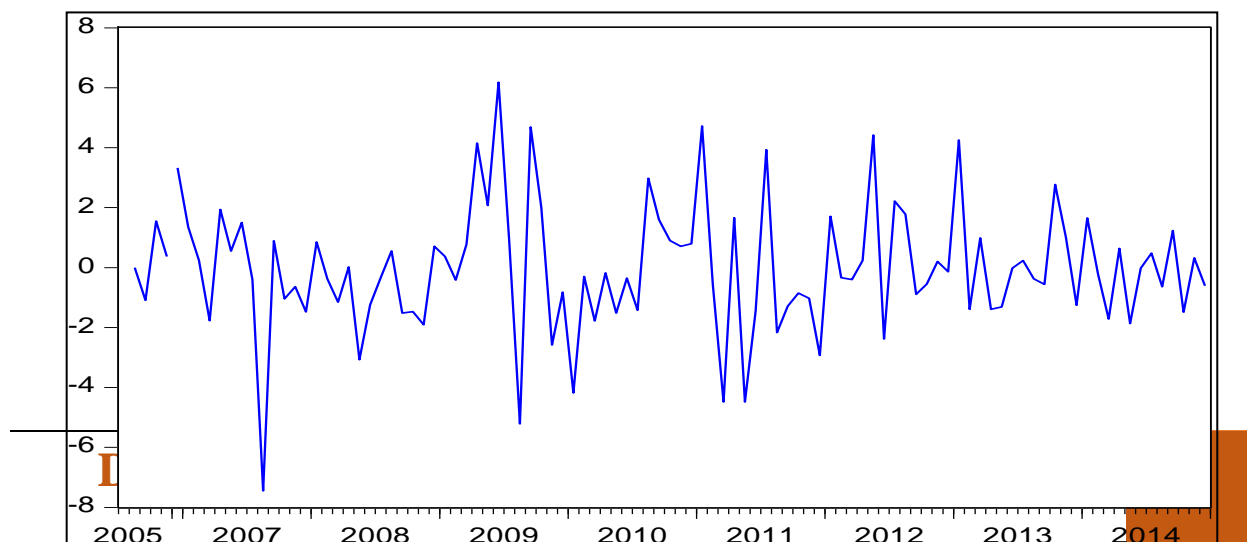
| Series : | p value : |
|------------------|-----------|
| original series | -0.5660 |
| First difference | 0.0000 |

Source: By Authors from Eviews.10 output.

from figure 6 it can be seen that the data is stationary in 1st difference. The 1st difference ($xt - xt-1$) is generally used in order to transform non-stationary data into stationary data.

the result illustrate that the absolute value of the ADF test (10.43335)is greater than the 1%, 5% and 10% critical values in absolute terms (2.467205, 1.944072 and 1.614616) respectively it can be observed that in first difference the time series becomes stationary, so further in our analysis we will use the data in 1st difference.

Figure n° 6: dolare exchange rates over the 01.01.2005 - 01.01.2014 time period in 1st difference



Source: Data Processed EVIEWS.10.

The ACF and PACF plot in Figure 7 shows no significant peaks, also all Q-statistics shows no significant ACF, this result confirm that the first difference of exchange rate series is stationary.

Figure n°7 : Correlogram of first difference of dollar series

| Autocorrelation | Partial Correlation | AC | PAC | Q-Stat | Prob | |
|-----------------|---------------------|----|--------|--------|--------|-------|
| | | 1 | -0.003 | -0.003 | 0.0007 | 0.978 |
| | | 2 | 0.237 | 0.237 | 6.3266 | 0.042 |
| | | 3 | 0.002 | 0.003 | 6.3270 | 0.097 |
| | | 4 | 0.112 | 0.060 | 7.7826 | 0.100 |
| | | 5 | 0.065 | 0.069 | 8.2780 | 0.142 |
| | | 6 | -0.086 | -0.133 | 9.1465 | 0.166 |
| | | 7 | -0.023 | -0.057 | 9.2089 | 0.238 |
| | | 8 | -0.027 | 0.016 | 9.2959 | 0.318 |
| | | 9 | -0.026 | -0.025 | 9.3786 | 0.403 |
| | | 10 | -0.106 | -0.094 | 10.753 | 0.377 |
| | | 11 | -0.090 | -0.061 | 11.757 | 0.382 |
| | | 12 | -0.063 | -0.028 | 12.256 | 0.425 |
| | | 13 | -0.082 | -0.058 | 13.096 | 0.440 |
| | | 14 | 0.027 | 0.071 | 13.187 | 0.512 |
| | | 15 | -0.055 | -0.001 | 13.580 | 0.558 |
| | | 16 | 0.089 | 0.070 | 14.606 | 0.554 |
| | | 17 | 0.035 | 0.054 | 14.764 | 0.612 |
| | | 18 | -0.016 | -0.073 | 14.798 | 0.676 |
| | | 19 | 0.090 | 0.056 | 15.877 | 0.665 |
| | | 20 | 0.082 | 0.098 | 16.795 | 0.666 |
| | | 21 | 0.129 | 0.066 | 19.081 | 0.580 |
| | | 22 | 0.215 | 0.210 | 25.504 | 0.274 |
| | | 23 | 0.003 | -0.044 | 25.505 | 0.325 |
| | | 24 | 0.151 | 0.027 | 28.747 | 0.230 |
| | | 25 | 0.084 | 0.099 | 29.757 | 0.234 |
| | | 26 | -0.073 | -0.161 | 30.526 | 0.246 |
| | | 27 | -0.024 | -0.046 | 30.608 | 0.288 |
| | | 28 | -0.019 | 0.082 | 30.663 | 0.332 |
| | | 29 | -0.033 | -0.049 | 30.830 | 0.373 |
| | | 30 | -0.078 | -0.062 | 31.764 | 0.379 |
| | | 31 | -0.091 | -0.000 | 33.050 | 0.367 |
| | | 32 | -0.019 | 0.038 | 33.110 | 0.413 |
| | | 33 | -0.002 | 0.037 | 33.111 | 0.462 |
| | | 34 | -0.093 | -0.036 | 34.503 | 0.444 |
| | | 35 | -0.030 | 0.005 | 34.650 | 0.485 |
| | | 36 | 0.003 | -0.007 | 34.652 | 0.533 |

Source: Data Processed EVIEWS.10.

IV-3 -Exchange Rate Model Identification:

Since correlogram of Dollar exchange rate series does not give much help in identifying an appropriate model, thus numerous ARIMA models are suggested to fit exchange rate dollar series in the Sudan.

Table 2 bellow shows the suggested models and their corresponding AIC and BIC criteria Numerous statistical criterion for assessing the goodness of fit to time series models have been introduced, **Akiaka's (1987)** information criteria and **Schwartz's (1978)** Bayesian criteria are useful tools for comparing models with different parameters number, the model with smallest AIC or SBC is considered best.

Several ARIMA (p,d,q) models have been suggested with the objective of identifying which of these models is adequate to fit buying exchange return series, the suggested ARIMA models and their corresponding AIC,SBC values are stated as follows:

Table n°2: ARIMA (p,d,q).

| Dollar | AR(2) | MA(2) | AR(22) | MA(22) | AR(26) | MA(2) |
|--------|----------|---------|----------|--------|----------|--------|
| prob | 0.0057* | 0.0001* | 0.7804 | 0.6311 | 0.3580 | 0.5731 |
| AIC | 4.363638 | | 4.365967 | | 4.376878 | |

Source: By Authors from Eviews.10 output.

A closer look to table 2 it can be seen that ARIMA (2,1,2) model have smallest value of AIC and BSC criteria. In this model it is assumed that the exchange rate data is subject to autoregressive of order1, differing 1, and moving average of order.

In this paper, an autoregressive moving average ARMA (2,1,2) model for the conditional mean in the returns series is employed as an initial regression.

Table n°3: Parameter Estimation of an ARIMA (1,1,1)

Dependent Variable: DSER01
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 10/25/19 Time: 18:18
Sample: 2 110
Included observations: 109
Convergence achieved after 22 iterations
Coefficient covariance computed using outer product of gradients

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|----------|
| C | 0.062350 | 0.218737 | 0.285045 | 0.7762 |
| AR(2) | -0.721702 | 0.255538 | -2.824248 | 0.0057 |
| MA(2) | 0.836172 | 0.207848 | 4.023002 | 0.0001 |
| SIGMASQ | 4.266396 | 0.443048 | 9.629642 | 0.0000 |
| R-squared | 0.028072 | Mean dependent var | | 0.061193 |
| Adjusted R-squared | 0.000303 | S.D. dependent var | | 2.104820 |
| S.E. of regression | 2.104501 | Akaike info criterion | | 4.363638 |
| Sum squared resid | 465.0372 | Schwarz criterion | | 4.462403 |
| Log likelihood | -233.8182 | Hannan-Quinn criter. | | 4.403690 |
| F-statistic | 1.010911 | Durbin-Watson stat | | 2.038856 |
| Prob(F-statistic) | 0.391023 | | | |
| Inverted AR Roots | -.00+.85i | -.00-.85i | | |
| Inverted MA Roots | -.00+.91i | -.00-.91i | | |

Source: Data Processed EIEWS.10.

According to the t-statistics, which probability value indicates the significance of the ARIMA model parameters.

IV-4 -ARCH model analysis:

We shall be developing model (ARCH - autoregressive conditional heteroskedastic model, First we run a model using the least squares method.

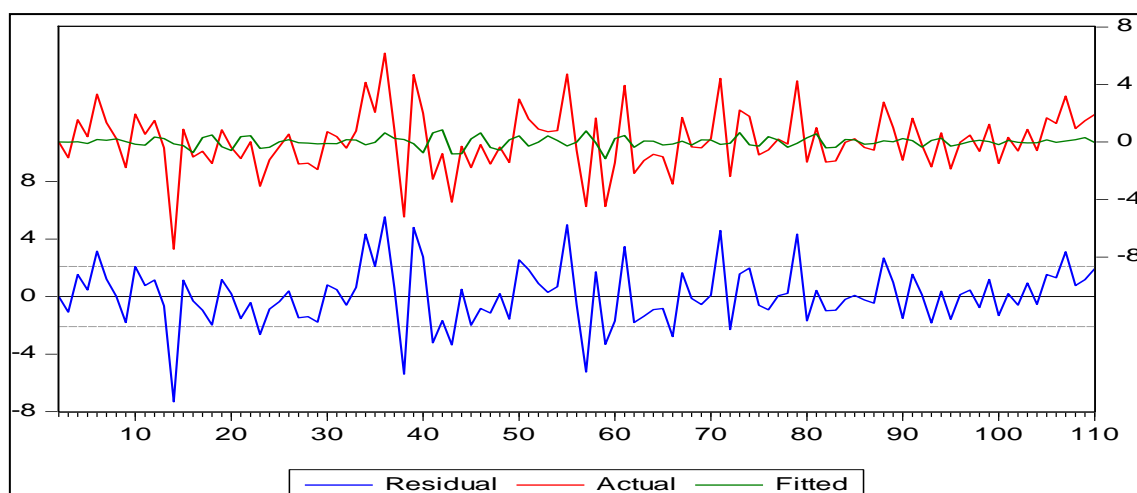
Table n°4: Model - least squares method

| Dependent Variable: DOLLAR | | | | |
|--|-------------|-----------------------|-------------|--------|
| Method: Least Squares | | | | |
| Date: 10/25/19 Time: 21:46 | | | | |
| Sample (adjusted): 2005M09 2014M12 | | | | |
| Included observations: 101 after adjustments | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 9.658321 | 3.825487 | 2.524730 | 0.0132 |
| DOLLAR(-1) | 0.879725 | 0.047369 | 18.57166 | 0.0000 |
| R-squared | 0.776980 | Mean dependent var | 80.59990 | |
| Adjusted R-squared | 0.774727 | S.D. dependent var | 4.382355 | |
| S.E. of regression | 2.079993 | Akaike info criterion | 4.322209 | |
| Sum squared resid | 428.3107 | Schwarz criterion | 4.373994 | |
| Log likelihood | -216.2716 | Hannan-Quinn criter. | 4.343173 | |
| F-statistic | 344.9064 | Durbin-Watson stat | 1.979032 | |
| Prob(F-statistic) | 0.000000 | | | |

Source: Data Processed EVIEWS.10.

Next we check the residuals of this model:

Figure n°8: Residuals of the model



Source: Data Processed EVIEWS.10.

Looking at the figure above, at the residuals plot, we can observe that there are long periods with low fluctuations and also long periods with high fluctuations, meaning that periods of low volatility tend to be followed by periods of low volatility

for a prolonged period and periods of high volatility are followed by periods of high volatility for a prolonged period. We have clustering volatility.

IV-5 -ARCH Test:

Next we will check the ARCH model we will run a heteroskedasticity test, we will check if it has an arch effect and if the residuals are normally distributed or not.

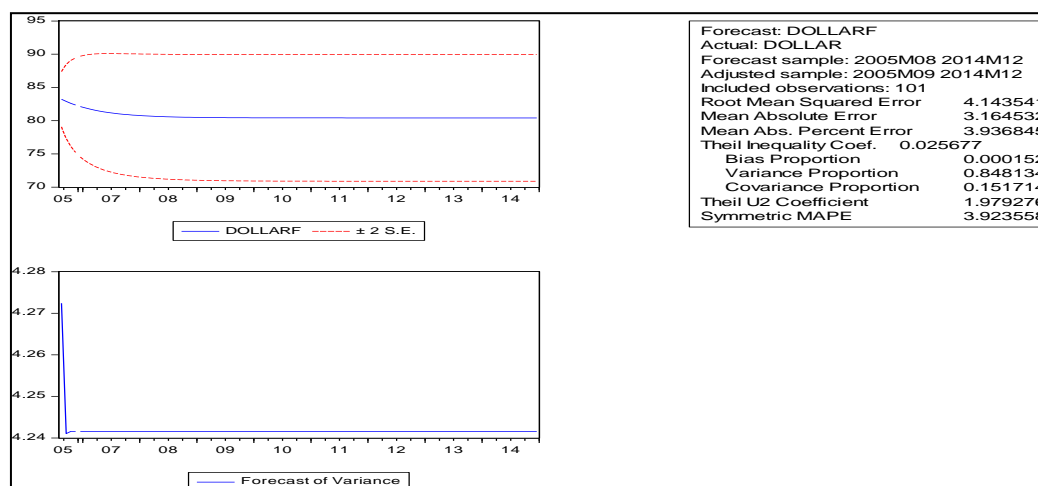
Table n°5: Heteroskedasticity Test: ARCH

| Heteroskedasticity Test: ARCH | | | |
|-------------------------------|----------|---------------------|--------|
| F-statistic | 85.59793 | Prob. F(1,97) | 0.0000 |
| Obs*R-squared | 46.40904 | Prob. Chi-Square(1) | 0.0000 |

Source: Data Processed EVIEWS.10.

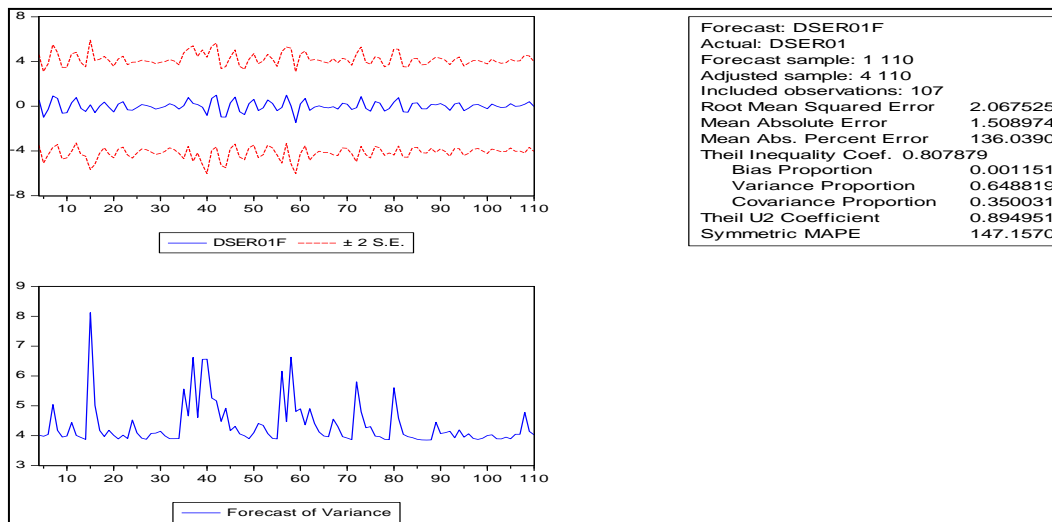
The test p-values from tables 5 (shown in the second column) are less than 5%, meaning that there is an ARCH effect.

Figure n°9: Dynamic forecasting of dollar volatility and variance in Eviews



Source: Data Processed EVIEWS.10.

Figure n°10: Static forecasting of dollar volatility and variance in Eviews



Source: Data Processed EVIEWS.10.

Figure (10) shows that fluctuations are concentrated in certain periods where variation is significant.

Which take the image of a bear; so calm and resembles the image of a bull horn, followed by less volatile periods, periods of stagnation or hibernation.

We conclude that large changes in the exchange rate are followed by other changes corresponding to them, which is known in the analysis of financial markets accumulated volatility in certain periods. As shown fluctuations are concentrated in certain periods where the variation is significant in 2008, followed by less volatile periods, and periods of recession or (wild) was the beginning of the crisis, we call these periods of frenzy

Which takes the image of the bear after 2008; therefore we conclude that large changes in the exchange rate followed by other changes (calm) against them, which is known in the analysis of financial markets accumulated fluctuations in certain periods.

In order to test the remaining ARCH effect in the residuals we perform a Heteroskedasticity test:

Table n°6: Heteroskedasticity Test: ARCH

| Heteroskedasticity Test: ARCH | | | |
|-------------------------------|----------|---------------------|--------|
| F-statistic | 1.441742 | Prob. F(1,104) | 0.2326 |
| Obs*R-squared | 1.449375 | Prob. Chi-Square(1) | 0.2286 |

Source: Data Processed EVIEWS.10.

The test p-values from tables 6 (shown in the second column) are more than 5%, so in this model there is no ARCH effect, meaning that we have a good model.

V-Conclusion:

Modelling and forecasting the volatility of exchange rate series during financial market has become fertile field of empirical research in financial markets. This is simply because volatility is considered as an important concept in many economic and financial applications like asset pricing; risk management and portfolio allocation.

This article attempts to explore the ability of different statistical and econometric volatility forecasting models in the context of dollar exchange rate during 2008 financial crisis.

the volatility of the exchange rate in US have been modeled by using a Autoregressive Integrated Moving Average Models (ARIMA) and Autoregressive Conditional heteroskedasticity (ARCH) models time series over the 01- 01- 2005 to 01- 12- 2014, Using, First Box-Jenkins ARMA models were tried after ARCH test is applied to check whether there is an arch effect in Dollar exchange rate series and it strongly suggests the presence of ARCH effect in the series.

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Legal Aspects of Artificial Intelligence and Robotics

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Abstract

Artificial intelligence is one of the modern sciences, as it emerged in the twentieth century with great achievements and it is expected that machines will be able to do all human work, which makes it a required specialization in the future AI is intended to be a specific behavior and characteristics of software that make it simulate human mental capabilities and work patterns. One of the most important characteristics is the ability to learn, draw, and react to situations that have not been programmed into the machine. However, the term is controversial because there is no specific definition of intelligence. Artificial intelligence is a branch of computer science. Many AI authors know that it is "the study and design of smart customers," and a smart customer is a system that understands their environment and takes situations that increase their chance so success in the task or task of their team.

Introduction:

AI crimes are crimes of the near future, if not now, as technological development over the past years - which has accelerated in the present period - has helped to bring about many of these crimes. The advanced programming of some AI-

powered machines has given capabilities that are as serious as building self-expertise to enable them to make individual decisions in situations like human beings. The goal of much of the research in AI & Law has been to develop CMLRs that can make legal arguments and use them to predict outcomes of legal disputes. A CMLR is a computer program that implements a process evidencing attributes of human legal reasoning. The process may involve analyzing a situation and answering a legal question, predicting an outcome, or making a legal argument. A subset of CMLRs implements a process of legal argumentation as part of their reasoning. In 1981, a thirty-seven-year-old Japanese employee in a motorcycle factory was killed by an artificial intelligence robot working near him. The robot erroneously identified the employee as a threat to its mission, and calculated that the most efficient way to eliminate the threat was to push the worker into an adjacent machine. Using its very powerful hydraulic arm, the robot smashed the surprised worker into the operating machine, killing him instantly, after which it resumed its duties without further interference. This is not science fiction, and the legal question is this: Who is to be held criminally liable for this homicide? In most developed countries, unmanned vehicles, surgical robots, industrial robots, trading algorithms, personal robots, and other artificial intelligence (AI) entities are in common use. Such use may be personal, medical, military, commercial, or industrial. The question of criminal liability arises when the unmanned vehicle is involved in car accidents, the surgical robot is involved in surgical errors, the trading algorithm is involved in fraud, and so on. Who is to be held criminally liable for these offenses: the manufacturer, the programmer, the user, or the ai entity itself? The technological world is changing rapidly. Robots and computers are more frequently replacing humans in performing simple activities. As long as humanity used computers as mere tools, there was no significant difference between computers and screwdrivers, cars, or telephones. But as computers became increasingly sophisticated, we started saying that they “think” for us. Problems began when computers evolved from “thinking machines” (devices programmed to perform specific thought processes, such as computing) into thinking machines without the quotation marks—in other words, artificially intelligent. Artificial intelligence is the ability of a machine to

imitate intelligent behavior. Artificial intelligence, then, is the simulation of human behavior and cognitive processes on a computer. As such, it is also the study of the nature of the entire domain of intelligent minds.

Research Methodology:

The researcher relied on the descriptive analytical approach to deal with the phenomenon under study to determine its relationships. The discussion of whether it is ethically proper, or even obligatory, to rely on robots when they are safer than people transitions us to broader ethical questions involving robots. “The Open Roboethics Initiative and the Elevator-Riding Robot” by AJung Moon et al. describes an open-sourcelike initiative to accelerate the bottom-up design of roboethics principles suitable for implementation. The proposal responds to both the fragmentation of current roboethics initiatives and the tendency of existing approaches to be run by experts; that is, to be top-down in their orientation. A bottom-up approach allows for greater public participation, something the authors argue is particularly appropriate to the development of ethics-based rules that must by their nature be very context-dependent. Illustrating just how context-dependent these rules might be, the authors provide a proof-of-concept using the example of an “elevator-riding robot” that for safety and other reasons must be the sole passenger on an elevator in the building where it delivers things. How should it deal with elevators that arrive containing people? Should it ask them to step out? What about when the robot is waiting for an elevator with people who are also intending to use it?

Research problem:

In developing these models, researchers address such questions as how to represent what a legal rule means so that a computer program can decide whether it applies to a situation, how to distinguish “hard” from “easy” legal issues, and the roles that cases

and values play in interpreting legal rules. Their answers to these questions are not philosophical but scientific; their computer programs not only model legal reasoning tasks but also actually perform them; and the researchers conduct experiments to evaluate how well their programs perform. While AI & Law researchers have made great strides, a knowledge representation bottleneck has impeded their progress toward contributing to legal practice. So far, the substantive legal knowledge employed by their computational models has had to be extracted manually from legal sources, that is, from the cases, statutes, regulations, contracts, and other texts that legal professionals actually use. That is, human experts have had to read the legal texts and represent relevant parts of their content in a form the computational models could use. An inability to automatically connect their CMLRs directly to legal texts has limited the researchers' ability to apply their programs in real-world legal information retrieval, prediction, and decision-making. Recent developments in computerized QA, IE from text, and argument mining promise to change that. "A Question-answering system searches a large text.

Research Importance:

Robots are affecting tenets of current legal systems in a twofold way. First, robotic technology is inducing a number of critical legal loopholes, which are proper of the criminal law field, e.g., the employment of autonomous robot soldiers in battle. Significantly, Christof Heyns, Special Rapporteur on extrajudicial executions, urged in his 2010 Report to the UN General Assembly that Secretary-General Ban Ki-moon convene a group of experts in order to address "the fundamental question of whether lethal force should ever be permitted to be fully automated." On the other hand, we have to determine whether the behaviour of robots falls within the loopholes of the system, necessitating the intervention of lawmakers at both national and international levels, as they did in the early 1990s when establishing a new class of computer crimes. Besides the immunity of military and political authorities for the use of robots in battle, a second class of hard cases concerns how the growing autonomy of robots affects key notions of the system, such as reasonability, predictability, or

foreseeability, on which an individual's fault depends. This is the class of hard cases that criminal lawyers share with experts in tort law and contracts.

Part One: The definition of artificial intelligence

Part 1.1: Types of artificial intelligence

Part 2.1: Responsibility for what robots do

The second part: Legal inference of the Roburates

Part 1.1: Critical perspectives on legal personality

Part 2.1: Liability rules and causes of harm

The Definition of Artificial Intelligence

Artificial Intelligence is considered one of the branches of computer science, and one of the main pillars on which the technology industry is based in the current era, and the term artificial intelligence - which is referred to in short (AI) - can be defined as the ability of digital machines and computers to perform certain tasks that mimic And similar to that carried out by intelligent beings, such as the ability to think or learn from previous experiences or other processes that require mental processes, and artificial intelligence aims to reach systems that enjoy intelligence and behave in the way that humans behave in terms of learning and not Understand, so that these systems provide their users with different services such as education, counseling, interaction, etc.

Philosophical research has been launched in the area of Artificial intelligence as the scientific revolution which pops up the big part of this field, as this project was based on creative science for a philosophical scientific cohesion of Yandar. Despite the cohesion between philosophy and science in accomplishing scientific revolutions has occurred in the history of human thought is exceptional and perhaps the scientific

revolution in discovering differential laws. Integration is the best example of this. But innovative artificial intelligence came on a philosophical background well-developed and well-thought out plan for it to invest scientifically. The philosophy of double-value logic contemporary reached its peak at the beginning of the century after the efforts made to ship Contemporary logic with an enormous amount of flexibility derived from innovative logical algebra and languages. The various symbolism, so that it can deal with the most accurate and most formal scientific fields are represented in mathematics science. This could make sense of contemporary logic to explain the philosophical foundations upon which it is built. This science, being armed in a language you cannot have any language Others brandished what the laws of mathematics mean And on any intellectual structure based on, The logic is Contemporary plus his mock character The symbolism that he shares with mathematics but he It has the advantage of being able to explain the content Philosophical sentences involving symbolic sentences A sequential procedural form of conclusions It is owned by pure mathematics. This feature Procedures that can make more precise hypotheses Science based on its intellectual foundation as well as The simple language in which it is formulated Intellectual, which consists only of two characters as a logic Dual value , What made mathematical logic The contemporary is ready to get into the imagination of scientists For the reproduction and technical implementation of these two features In the form of an artificial language that we understand with the machine.

Where the language was found, intelligence emerged from it Necessarily, because all the software needs The computer to perform the task of understanding with the machine is that Written in a very easy language does not exceed the two characters, universe The purely physical property of the machine does not possess voluntarily The human product of a language by carrying it in a variety of languages Characters , And the other demand that needs a program A computer is a sequential logical procedure The minute that determines the path of understanding with the machine that Scientifically called Algorithm and practically" The flowchart, Block Diagrama, and so on Describing a contemporary logic is an icon

Invaluable philosophy and guidance to science To launch the great scientific revolution in intelligence Artificial. The contribution of science to this revolution was not By being very difficult to implement It is my photos on a physical reality, so make efforts A great way to adapt the material to its acceptance of the understanding according to the context The imagery of the innovative synthetic language is literally Binary-value logic, In 1946th, he graduated Light is the first computer in the scientific sense of a computer Which has scientific advantages and objectives The desirable called eniacis is taken from The initials of the electronic gateway Numeric Integrator and Computer but it was made with the Vacuum Tubetechnology, which made it a big room size It weighs thirty tons and twenty thousand valves This is a high-power vacuum Very, I mean

A major revolution is needed in one area Electrical Engineering. Only two years have passed

Revolution, in 1948the birth of an innovation was announced Great in Electronics and Electrical Physics In all, it was called "Transit Transistor

Types of artificial intelligence:

The term AI dates back to the 50th century, and specifically in the 1950s, when the world now performed the Turing Testwhich means assessing intelligence on a computer, and classifying it intelligently if it was able to simulate the human mind After the Turing test emerged a year, the first artificial intelligence program was created by Christopher Strachey, who was head of programming research at Oxford University, who played and developed the Checkers game through the computer, and Anthony Outinger (in English: Anthony Oettinger of Cambridge University designed a simulated experience with a computer for human shopping at more than one store, designed to measure the computer's learning ability, and was the first successful experience of machine learning. The concept of artificial intelligence was officially proclaimed in 1956m at Dartmouth College, but it did not make any progress for

nearly 20 years, possibly because of the limited computing capabilities that were then available. In 1979, Stanford, the first computer-driven vehicle, was built and in 1997 the first computer managed to beat a human rival in chess. The pace of acceleration in artificial intelligence began at the beginning of the 21st century, so that interactive robots became available in stores. It is even more so that a robot interacts with different emotions through facial expressions and other robots that have become difficult tasks such as Nomad, which is searching and exploring remote places in the Antarctic, and locates meteoroids in the region

Artificial intelligence can be classified according to its capabilities into three different types as follows:

1-Limited or narrow AI: Limited or narrow AI is a type of artificial intelligence that can perform specific and clear tasks, such as self-driving cars, speech or photo recognition programs, or a chess game on smart devices. This type of artificial intelligence is the most common and available species today.

2- General AI, a type that can work with the same thinking as human capacity, focuses on making the machine capable of thinking and planning on its own and similar to human thinking, but there are no practical examples of this kind. All that exists so far are research studies that need much effort to develop into reality, and the artificial Neurological Network method is a way of studying general artificial intelligence, producing a neural network system of the machine similar to that of the human body.

3- Super AI: Super AI is the type that can be higher than human intelligence, which can do better than a specialized and knowledgeable human, and that has many characteristics that it must include; As the ability to learn, plan, communicate automatically, and pass judgment, the concept of superior AI is a hypothetical concept that has no presence in our time.

Robot' s Responsibility

By the 1970s, the importance of AI became apparent to most of the world. Governments in developed and developing countries were seeking long-term commitments of resources to fund intensive research programs in ai.¹¹ Government and private organizations routinely cooperated in development programs in the areas of robotics, software, and various computer products. These projects were driven by the realization that it had become feasible to develop systems that could exhibit such human abilities as understanding speech and visual scenes, learning and refining knowledge, and making independent decisions.

In the 1980s, AI research made giant gains in the design and development of expert systems in the fields of medicine, finance, and anthropology. The main challenge of expert systems was to develop suitable knowledge representations in their respective fields. To be readily accessible, this knowledge needed to be stored in a form that could be retrieved and displayed automatically by the system interfaces, human or other. Many expert systems became successful tools, expanded over the years with new knowledge and improved with better heuristics. The next challenge was to enable new technologies to be incorporated into expert systems shortly after they became available.

Since the beginning of AI, researchers have been trying to develop computers that actually “think.” This is the holy grail of AI research.¹⁸ But to develop a thinking machine, it is necessary to first define what exactly thinking is. Defining thinking, with regard to both humans and machines proved to be a complicated task for AI researchers. The development of machines that have the ability to think independently would be an important event for humankind, which has claimed a monopoly over this high mental skill. The creation of a true thinking machine would be tantamount to the emergence of a new species on earth, the machina sapiens.

Hence, does human science want to create a new species? Since time immemorial, people have been trying to play God, with the first preventing steps mentioned in the Bible.¹⁹ Some aspects of modern scientific research contain elements of similar conceit, including such endeavors as human cloning, biomedical

engineering, anti-aging pursuits, and more. The quest for the creation of a new species matches this trend. Although creating a new species may benefit humans, this is not necessarily the motivation behind ai research. The reason may be much deeper, touching on the most profound of human quests, which, according to the Bible, was prohibited to humans following the original sin external knowledge refers to factual data about the outside world and about factual reality. This attribute is considered crucial in an age when knowledge functions as a commodity, especially with relation to expert systems.³⁷ An intelligent entity is expected to know how to find data about the outside world, and to know the facts that make up the factual reality to which it is exposed. This attribute assumes memory skills and the ability to classify information into seemingly relevant categories. This is the way humans assemble their life experience and the way in which they learn. It is difficult to act as an intelligent entity if all factual elements are treated each time as new. Although factual events are new each time, they do contain common characteristics that an intelligent entity should identify.

Industrial use of artificial intelligence technology is not new. As noted earlier,⁴⁹ AI technology has been embraced in advanced industries since the 1970s. But whereas in the beginning, AI technology was used by industry because of its similarity to the human mind, later it was used because of its differences from the human mind. Industry was quick to understand that complete and perfect imitation of the human mind would not be as useful as incomplete imitation, so industry encouraged the development of AI technology as long as imitation of the human mind was not complete. And because complete imitation of the human mind is still far in the future, industry and AI research continue to cooperate situation is that the task undertaken by the robot has not been accomplished successfully. But some failure situations can involve harm and danger to individuals and society. For example, the task of prison-guard robots has been defined as preventing escape by using minimal force against the prisoners. A prisoner attempting to escape may be restrained by the robot guard, which holds the prisoner firmly but causes injury; the prisoner may then argue that the robot has excessively used its power. Analyzing the robot's actions may

reveal that it could have chosen a more moderate action, but the robot had evaluated the risk as being graver than it actually was. In this case, who is responsible for the injury?

This type of example raises important questions and many arguments about the responsibility of the AI entity. If analyzed through the lens of ethics, the failure in this situation is that of the programmer or the designer, as most scientists would argue, not of the robot itself. The robot cannot consolidate the necessary moral accountability to be responsible for any harm caused by its actions. According to this point of view, only humans can consolidate such moral accountability. The robot is nothing but a tool in the hands of its programmer, regardless of the quality of its software or cognitive abilities. This argument is related to the debate about *machina sapiens*.

Moral accountability is indeed a highly complex issue, not only for machines, but for humans as well. Morality, in general, has no common definition that is acceptable in all societies by all individuals. Deontological morality (concentrated on the will and conduct) and teleological morality (concentrated on the result) are the most acceptable types, and in many situations they recommend opposite actions.⁶⁸ The Nazis considered themselves deontologically moral, although most societies and individuals disagreed. If morality is so difficult to assess, then moral accountability may not be the most appropriate and efficient way of evaluating responsibility in the type of case we have just examined.

In this context, the issue of the responsibility of AI entities will always return to the debate about the conceptual ability of machines to become human-like, so that the endless quest for *machina sapiens* would become an endless quest for ai accountability. The relevant question here exceeds the technological one, and it is mostly a social question. How do we, as a human society, choose to evaluate responsibility in situations of harm and danger to individuals and society?

The main social tool available for handling such situations in daily life is criminal law, which defines the criminal liability of individuals who harm society or

endanger it. Criminal law also has educational social value because it educates individuals on how to behave within their society. For example, criminal law prohibits murder; in other words, the law defines what is considered to be murder, and prohibits it. This has the value of punishing individuals for murder ex post, and prospectively educating individuals not to murder ex ante, as part of the rules of living together in society. Thus, criminal law plays a dominant role in social control. Subjecting ai robots to the criminal law may relax our fears of human robot coexistence. Criminal law plays an important role in giving people a sense of personal confidence. Each individual knows that all other individuals in society are bound to obey the law, especially the criminal law. If the law is breached by any individual, society enforces it by means of its relevant coercive powers (police, courts, and so on). If any individual or group is not subject to the criminal law, the personal confidence of the other individuals is severely harmed because those who are not subject to the criminal law have no incentive to obey the law.

The second part: Legal inference of the Roburates

The idea of legal immunity was raised in the introduction in order to address Croce's Cape Horn of legal philosophy and the difference between morals and the law. The traditional concept that "everything which is not prohibited is allowed" is summarized with the principle of legality and the corollary of the rule of law. The aim is to guarantee individual protection against arbitrary public action, so that criminal liability is imposed on the basis of specific norms in codes or statutes. This is why technological innovation continuously forces lawmakers to intervene, by adding norms regulation of new circumstances and new crimes.

That which has happened in the field of computer crimes since the beginning of the 1990s, is likely to occur as well in the field of robotic crimes. In addition to the employment of autonomous lethal weapons in battle as mentioned in the introduction, consider a new generation of robots connected to the internet automatically collecting information in open environments, i.e., out there in the real world, and bringing such environmental information to cloud servers. By replicating and spreading this data,

robots could seriously impinge on current legal safeguards concerning privacy and copyright protection, trade secrets, or national security. This twofold aspect of the principle of legality, e.g., immunity for cyber-thugs in the early 1990s, revolves around whether new technological applications provide loopholes within the field of criminal law. Things are different in civil law. Think about clauses of contracts and obligations, where conditions of immunity are traditionally summed up with the Latin expression, *ad impossibilia nemo tenetur*, that is, “no one is held to that which is impossible.” Here, the aim is to guarantee fair play in individual interactions and protection against the arbitrary behaviour of private individuals. Contrary to criminal law, analogy plays a crucial role in this field, as the tenet, say, of the voidability of contracts between humans could legitimately apply to artificial agents. Such a form of irresponsibility should be distinguished from cases where immunity is established *ex post*, that is, what US lawyers traditionally call “affirmative defences,” in order to stress the circumstances that a defendant might raise that would excuse her liability. In addition to clauses of voidability contemplate the annulments for mistakes in contracts, e.g., mistakes relating to the substance of the subject matter of a contract, or mistakes as to the value or market price of an item. Following Giovanni Sartor’s remarks in *Cognitive Automata and the Law* (2009), humans arguably would not be able to avoid the usual consequence of robots making a decisive mistake, i.e., the annulment of a contract, when the human counterpart should have been aware of the mistake due to any erratic robotic behavior. Finally, it should be clear that lawmakers can establish in both civil and criminal law further forms of immunity by statute and what common lawyers call safe harbour-clauses. Again, the meaning of these clauses varies according to the field of the legal system. In common law, immunity of political authorities and liability of private contractors in the field of military robotics technology are defined by such norms as prescribed by the US Federal Tort Claims Act, 28 U.S.C. §§ 2401 b and 2671. Here, the Federal Tort Claims Act bars lawsuits involving discretionary law enforcement functions and different types of intentional torts. In EU law, an example is given by Article 15 of the directive 2000/31 on e-commerce: in this case we find 2

On Law, Philosophy and Technology³³ “no general obligation to monitor the information which [Internet Service Providers] transmit or store, nor a general obligation actively to seek facts or circumstances indicating illegal activity.” At the end of the day, is it wise to adopt such clauses of immunity in all legal fields of robotics. The third observable of legal responsibility hinges on that which individuals voluntarily agree upon through contracts or on damages provoked by their own fault. Most of the time, responsibility is not defined a priori, that is, by establishing it ex ante (strict liability rules), or excluding it at all (general irresponsibility via clauses of immunity). Rather, liability is established ex post, as occurs in tort law when the reasonable person fails to guard against foreseeable harm or a person has voluntarily performed the wrong *fulactio* prohibited by the law. This kind of liability therefore is grounded on the circumstances of the case: contrary to conditions of strict liability, the burden of proof falls on the plaintiff, who has to show either the wrongful intention of her counterparty or the negligence of the tortfeasor. This method of determining responsibility via the burden of proof can be illustrated with the *da Vinci* surgeon robots and a prostatectomy that a patient underwent at the Bryn Mawr hospital in Philadelphia in 2005. During the robot-assisted intervention, the machine started displaying error messages and, what is more, did not allow the human team of doctors to manually reposition its arm. After 45 min the doctors decided to undock the robot completely, they were able to manually proceed with the surgery. Still, 1 week later, the patient suffered a serious haemorrhage and, later on, erectile dysfunction and daily abdominal pains. A lawsuit against both the *Da Vinci* manufacturer and the hospital was brought in the Court of Common Pleas in Philadelphia. Leaving aside details of the case which are discussed below in Sect. 4.2, what matters here is that the burden of proof did not fall on the defendants but, rather, on the plaintiff. Since figures of the *da Vinci* robot show that such machines operate as well as, if not better than, humans. the fault of his counterparties Based on the circumstances of the case, this way of distributing responsibility and risk does not only apply to civil law, e.g., contracts. Another corollary of the principle of legality and the rule of law is that fault has to be proven by public prosecutors in criminal law according to a specific norm or statute.

The reversal of this method for determining responsibility via the burden of proof has to be considered an exception. Aside from cases of no-fault liability in tort law, it is only in authoritarian regimes and Kafkaesque scenarios that defendants need to prove their innocence.

Critical Perspectives on Legal Personhood:

The legal person is not a concept with a clear, real or true meaning, which jurisprudence could explain and lawyers use. It is a concept as any, that is, ambiguous, but even more ambiguous than some because it is a concept that includes, philosophical ideological and even biological connotations about what it means to be a human being. But a concept void of precise meaning is not a concept void of influence – on the contrary perhaps. The legal person, and its relative, the legal subject, are fundamental categories for Western legal thought. It is hard for lawyers to see how law could operate without them. They have vital importance in organising the law; its norms, institutions and practices. The legal person is a concept that is used, that is, put to use in the law. It is not a neutral instrument, but a productive one. Production here works in many directions. The concept shapes the law and its operations most importantly when used to include and exclude legal participation. Law has crucial effect on the society as it upholds certain ways of understanding the person, while shutting out others. But law, and the conception of legal personhood with it, are influenced by societal factors such as beliefs, values, policies and ideology. Law is politics legalised, and politics is of course not neutral. This analysis of legal personhood attempts to reveal its ideological embeddedness. Existing theoretical approaches to the legal person can be roughly divided into two main groups.³ In analytic theories the legal person is a pure, legal artifice. It is a concept used by lawyers for lawyering purposes, and it is not real, nor

does it necessarily have to reflect anything in the real world. According to these conceptions, the legal person does not – and should not – depend on metaphysical or moral presuppositions about human beings. The problems arising from these theories have to do with how an empty concept like this can be of use in the actual practices of the law. It is also worth asking whether the artificial legal person is really as pure a concept as it is claimed to be. Is it not necessary that the category of the legal person, as an instrument in organising legal life, gets filled with meaning that is not so pure or neutral, thus necessarily gaining normative, moral, or even political significance? It seems evident that some moral and metaphysical considerations – at least S. Lindroos-Hovinheimo³¹ implied ones – are unavoidable when the concept is brought to life in legal argumentation.

The second approach can be called ‘essentialist’ in want of a better term. Essentialist theories claim that the legal person has certain necessary characters. They may be considered natural, ontological, or, especially in older versions, Godgiven. The legal person is here characterised through the morally relevant status of being a human being.⁴ The problems related to this theoretical framework are different than the ones related to analytical theories. What kind of argumentation is required in order to define ‘the person’ by referring to the equally ambiguous ‘human being’? This is what courts are forced to do for instance in some human rights cases, and the argumentation tends to become hesitant. Naturally so, because a judge may understandably be reluctant to take upon himself the task of defining what a human being is. For the purposes of this chapter, which aims at a deconstruction of EU legal personhood, the essentialist framework is a helpful instrument. However, even though it may be the approach that is more attentive to the values and ideological stakes inherent in the legal category of personhood, this does not mean that it would automatically be able to take a critical stance on them any more than the analytical framework.

The position developed here argues that the legal person is not a pure, empty or

artificial category, but neither is it helpful to conceive it having essential characteristics pertaining to ethics or metaphysics. Instead of describing what a legal person

is, we need to see how the category works in operations of the law and what is done with it. The legal person takes part in the basic architecture of the law and is one of the pillars on which legal thinking rests. And it is laden with ideological baggage. Convictions about distribution of power, inclusion and exclusion, as well as assumptions about equality, democracy and rights are always attached to it. The framework of this kind of enquiry needs to be critical legal theory. As described earlier, the most common way to deal with the instrumental use of individuals in the commission of offenses is the general form of perpetration-through-another.³⁵ To impose criminal liability for perpetration of an offense through another, it is necessary to prove awareness of such instrumental use. Therefore, perpetration-through-another is applicable only in the case of *mens rea* offenses. In most cases, the person being instrumentally used by the perpetrator is considered an innocent agent, and no criminal liability is imposed on him. The analysis of perpetration-through-another in the context of *mens rea* offenses has already been discussed. Nevertheless, a person instrumentally used can also be considered a semi-innocent agent who is criminally liable for negligence, although at the same time, the perpetrator is criminally liable for a *mens rea* offense. This is the case when negligence may be relevant for the perpetration through-another, and that completes the discussion toward it. For example, a nurse in an operating room realizes that a person who had attacked her in the past is about to be operated on, and she decides that he deserves to die. She infects the surgical instruments with lethal bacteria, telling the surgeon that the instruments have been sterilized.

A few hours after the surgery, the patient dies as a result of an infection. Legal analysis of the case suggests that the nurse is the perpetrator through-another of murder, having instrumentally used the surgeon to commit the murder. The surgeon's

criminal liability in this case depends on his mental state. If he is an innocent agent, he is exempt from criminal liability. But if he has the legal duty to make sure that the instruments have been sterilized, he is not an entirely innocent agent because he failed to fulfill his legal duties.

At the same time, because he was not aware of the infected instruments, this is a case of negligence. When the agent is not aware of crucial elements of the offense, but a reasonable person in the same situation could and should have been aware, the agent is negligent and is called a semi-innocent agent.³⁶ Thus, when a person instrumentally uses another person who is negligent regarding the commission of the offense, this is perpetration-through-another, but both persons are criminally liable: the perpetrator for a *mens rea* offense (for example, murder) and the other person for a negligence offense (for example, negligent homicide). Given that AI systems are capable of forming negligence as a mental element, the question is whether they can function as semi-innocent agents. A case in which an AI system can be a semi-innocent agent is one in which the perpetrator (human, corporation, or AI entity) instrumentally uses an AI system for the commission of an offense, and although it was used instrumentally, the AI system was negligent with regard to committing the offense. Only AI systems that are capable of fulfilling the mental.

Although natural persons and legal persons have, for a long time, been the key players in our legal system this has not always been the case. Large and small businesses, private organizations and government organizations are entitled to carry out all kinds of acts as legal entities and can be held responsible for the things they do. But, in the Middle Ages, for instance, animals could also be held responsible for their acts.¹⁰ Technological development develops in the direction of artificially intelligent

programs possibly embodied in all kind of physical instruments and a variety of robotic entities in more or less anthropomorphic shapes that can perform a variety of tasks. Coupled with the exponentially expanded Internet, decision-making by these AI entities with legal consequences is creeping up to us. The consideration whether an autonomously functioning artificial intelligent entity or robot must have a certain legal subjectivity or not, will be dependent upon social and economic necessities and not least of all, the cultural social and legal acceptance by other actors. In other words, can a future society function without any form of legal personality for autonomous, artificially intelligent entities or is it a “*conditio sine qua non*”? It is important to consider what kind of reasoning will be applied to the determination of the legal status of AI and robots. This status could be built on an augmented layer of required legal elements based on the continuous development of autonomy and intelligence of the robot. Or one could analyze the characteristics of the current players with legal personality and select which elements will be desirable to give robots that degree of legal personality that is considered useful in society. Cautious proposals are already being made to comply with the future and to find legal solutions. However, the actual legal implications of an AI integrated society are set aside. Although the European Parliament accepted a motion on the civil law.

Liability Rules and Causes of Harm

Why is it so important to define the shape of a certain legal personality for robots? If the robot acts with the intention to change the legal circumstances, be it autonomous and sentient, be it instrumental as instructed by another legal or natural person, they must also have a certain legal status beyond that of a legal object. In

addition, we will need to find some form of liability that will ultimately best suit the practical qualifications and role of the robot in society. It must be deemed likely that robots in the surveillance and security areas as well as in the advisory and in the health sector, as well as in more exotic services, will play an important role without direct control by natural persons. The acts have to be recognized by other legal subjects based on trust and acceptance. The responsibility of persons who are performing legal acts for others will ultimately rest with legal persons, a group or single identifiable individuals, the government, the official, political leaders and representatives accredited to a natural person. With the use of robots in those areas, that same responsibility will usually be traced to the same group and the robot will play a preparatory policy role or even a representative role.

It is conceivable that the robot will also be given a certain mandate attributed to them by authorities in the public sector to perform certain specified duties. Responsibility has to be determined. The arrest of a suspect by a “Robocop” has also to be secured legally. Legal and natural persons may be represented by robots in the future. This is a different situation than the legal representation by natural persons.

This is only possible when it is established which specific competencies are relevant to the performance of the task of the robot. The attribution of competences has to be recognized by law. Only then there will be a legally credible acceptance of the legal effect of the performed acts by the robot.

The actions of an automated system may have legal implications. The advanced search robot meets other bots and will exchange some codes which can result in an agreement to reserve a seat or buy a product or service. The robot will enter a possible electronic agreement to be accepted by both electronic “parties” without any intervention or even confirmation by a natural person. Can this “Crawler Bot” still be considered an object if it has a kind of legal subjectivity? 114 This requires a clear

explanation of the legal circumstances, preferably in the law and the contract, general terms and conditions.

Up until today, the fact that individual machines and devices were used for a purpose made the question of legal personhood irrelevant. A surgeon using a knife to make an incision in a patient and making a mistake cannot blame the knife or the knife producer for the mistake made by the surgeon (except in the case of a material error). In times of war, the producer of weapons cannot be held responsible for the casualties resulting from the war. However, the supreme commander, but also subordinates, may well be held responsible for possible war crimes. But what happens when these weapons are no longer instructed or directed by individuals? Or, if they provide information that will determine their operation without human intervention? If a drone is designed to recognize impending danger and subsequently destroys this danger without further instructions or intervention of individuals?

For now, the destruction takes place by the action of a natural person using a joystick but even in that case the decision is based on data and intelligence that is going beyond the user. Several times, warnings were issued by concerned scholars and captains of industry concerning the dangers of autonomous AI weapons—so-called “killer robots”—recently in an open letter by the Future of Life Institute to the UN Convention on Certain Conventional Weapons. What is the qualification of the above case if the surgeon does not perform the surgery, but has recourse to sophisticated data supplied by a laser instrument that includes all medical information, including patient documentation? Or, if the computer or the social robot determines which drugs a patient requires, based on the patient records in the database? Why should an independent AI system not be capable to declare a valid death certificate. This should be an accepted legal act with legal consequences. Is there a distinction between an independently operating electronic system as an autonomous player and the use of this system as a tool? After all, in both cases the systems perform activities that have legal consequences. Legal acts will be performed by persons, being legal entities. Automated systems,

electronically or otherwise, are increasingly used in all kinds of relationships within our global society. Algorithms command the trading of the stock-market and buy and sell within milliseconds. The fact that these systems, robots and other devices can act independently and will create changes in legal relations will eventually have an effect on the position of legal persons, parties or third parties. What is, ultimately, the difference between the agent in human form, then a tural person and the robot representative?

In the command phase of the natural person or group of persons, the identification of the responsible player(s) normally is no problem. The difference in functional execution is not relevant. The use of search engines for finding tickets, drones for delivering packets to a client or sending of missiles on a perceived enemy will make no legal difference.

If the practical and legal responsibility can be traced back to a legal identification there is no change necessary in the legal position of the practical actor. The robot or AI system remains an instrument and legal object for which the legal entity remains responsible. Additionally, this includes the arrangements with respect to product liability in the case of a defective product

For this aspect I refer to the exception in Article 185 sub paragraph e of Book 6 of the Dutch Civil Code where it is stated that a party who brings a product to the market of which, at the state of scientific and technical knowledge at the time he put the product into circulation, it was not possible to discover the existence of the defect of the product, will not be responsible for the defect And yet, this exception is pushed aside by producers of autonomous or semiautonomous functioning cars like the Google car, Volvo and Tesla. It would also not be wise, at this time and from a public relations standpoint, if this risk would not be accepted by the producers. Regarding liability, a construction of risk liability and payment of damages from a kind of public foundation could be a solution and removing the “chilling effect” for further development of AI generated robots. Even in the case of natural persons, as an attributed representative who loses their reason and sanity, the proceedings may be

annulled as a non-deliberate disturbance of the system. One can draw a parallel with the robot in the latter cases; it can reduce the liability of the initiating individual in the use of this system or can exculpate all parties of the legal action, maybe even the robot itself, if the robot has legal responsibility.

This view I share with Voulon, in the sense that any legal effect which is caused by an autonomous and less autonomous system must be attributed to the natural or legal person who has made the decision to commission the system in its service

Robots are affecting tenets of current legal systems in a twofold way. First, robotic technology is inducing a number of critical legal loopholes, which are proper of the criminal law field, *e.g.*, the employment of autonomous robot soldiers in battle. Significantly, Christof Heyns, Special Rapporteur on extrajudicial executions, urged in his 2010 Report to the UN General Assembly that Secretary-General Ban Ki-moon convene a group of experts in order to address “the fundamental question of whether lethal force should ever be permitted to be fully automated.” On the other hand, we have to determine whether the behaviour of robots falls within the loopholes of the system, necessitating the intervention of lawmakers at both national and international levels, as they did in the early 1990s when establishing a new class of computer crimes. Besides the immunity of military and political authorities for the use of robots in battle, a second class of hard cases concerns how the growing autonomy of robots affects key notions of the system, such as reasonability, predictability, or foreseeability, on which an individual’s fault depends. This is the class of hard cases that criminal lawyers share with experts in tort law and contracts.

Recommendations

With this widespread prevalence, crimes related to robots and artificial intelligence will increase, and therefore it was necessary to search for criminal responsibility for crimes committed by a method, and for who will be responsible, to

determine the true perpetrator until the legal punishment and his responsibility for what the robots do, the rules of tort liability and harm are applied in order to return those facts. To the laws that criminalize it, and that requires the enactment of legislation regulating the production and development of artificial intelligence techniques to reach a legal perception that allows for criminal accountability

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