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Defence Against Terrorism Review

Cubs of the Caliphate – How to Deal With a
New Generation of Child Soldiers?

Stephanie Elisabeth SPYRA

Terrorist Use of Unmanned Aerial Vehicles:
Turkey's Example

Osman ŞEN PhD. and Hüseyin AKARSLAN

A Literature Review on
"The Effects of Terrorism on Economy"

Rıza BAYRAK

The Use of Internet by DAESH

Oktay KIRAZOLUĞU

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Devlet Mahallesi İnönü Bulvarı
Kıralıdere Caddesi No:65 06582
Çankaya/ANKARA

Tel: 0 (312) 425 8215

Faks: 0 (312) 425 6489

E-posta: datr@coedat.nato.int

Baskı: Başkent Klşe Matbaacılık
Bayındır 2 Sok. No: 30/E
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The Defence Against Terrorism Review (DATR) is calling for papers for coming issues. The DATR focuses on terrorism and counterterrorism. All of the articles sent to DATR undergo a peer-review process before publication. For further information please contact datr@coedat.nato.int

Editor's Note

Dear Defence Against Terrorism Review (DATR) Readers,

The Centre of Excellence-Defence Against Terrorism (COE-DAT) encourages the sharing of expertise, information and best practices in countering terrorism, for allies within NATO and for partner nations. As an integral part of these efforts, COE-DAT proudly presents the 13th Volume of DATR. This issue of DATR features three research articles on a wide range of aspects of terrorism and a Literature Review on the Effects of Terrorism on Economy.

The current issue begins with an article by Stephanie Elisabeth Spyra titled “Cubs of the Caliphate – How to Deal with a New Generation of Child Soldiers?” In this article Spyra aims to explore that issue and try to find a satisfying answer to the following question: How do we deal with a new generation of child soldiers created by ISIS? The attention towards the recruitment of children into terrorist and extremist organizations and groups has increased over the past years, not least because the so-called Islamic State developed a comprehensive media, and in particular social media strategy to publicize their use of children as active fighters in their campaigns. With DAESH having lost a considerable amount of territory, a large number of these children are currently being held in refugee camps. This article proposes a holistic strategy for dealing with the child soldiers of the Islamic State. The proposed concept consists of a twofold approach, namely a civilian and a military component. Spyra concludes that a coordinated and well-structured approach is the only way to effectively and sustainably ensure global stability and security in the long-term.

Osman Şen and Hüseyin Akarşlan discuss the use of Unmanned Aerial Vehicles (UAV) by terrorists in the second article of this issue titled “Terrorist Use of Unmanned Aerial Vehicles: Turkey's Example”. In this study, the authors seek to answer the question of why the use of drones by terrorist organizations as a technological development threatens national and international security and how this threat can be prevented in the macro and micro dimensions. From this perspective, firstly the development process of UAV technology was examined, then the use of drones by terrorist organizations was evaluated in the context of the Turkish examples, and finally, the current situation of prevention measures were analyzed, and recommendations were made. The reason why Turkey is used as an example is because it is the only known country where UAVs have been used in an act of terrorism apart from direct conflict zones. Terrorist actions with a UAV in other countries appear to remain at the planning phase.

The third article of this issue by Rıza Bayrak focuses on the effects of terrorism on the economy. In his article entitled “A Literature Review on The Effects of Terrorism on Economy”, Bayrak argues that terrorism triggers government security expenditure and is an additional burden on the budget. It can also be asserted that terrorism has a negative effect on the stock market index and on the tourism sector. In this article, Bayrak asks three research questions (1) Does terrorism affect the economy? (2) What are the effects on the economy? (3) Is there any causality effect between terrorism and economic variables? For that purpose, the literature on the subject was reviewed in terms of the direct short-term effects and indirect long-term effects of terrorism on the economy. Totally, 159 articles and 15 books/book chapters - published between the years of 2001- 2019 - were examined closely using the content analysis technique. In the short-term, it was observed that terrorism generates cost, proportionate to the number of terrorist incidents, in the countries where it takes place; but this cost is small compared to natural disasters. As for the long-term effects of terrorism, it is asserted that terrorism has different kinds of indirect effects on economic variables, but these seem to emerge in the course of the middle and long-term. Bayrak observed that terrorism negatively affects growth/national income and terrorism seems to have a negative impact on the direct inflow of foreign capital.

In the last article of this issue entitled “The Use of Internet by DAESH”, Oktay Kirazoluđu examines the use of the internet by DAESH and provides an analysis of the narratives utilized in this medium. DAESH has utilized the internet more than its predecessors and in more creative ways. Its media and cyber presence are still effective although it has lost its physical foothold. Today most of the DAESH platforms which were active in the past have ceased their operations. So far, some have returned to the scene as its media and cyber network rehabilitates. They utilize almost every platform in an effective way and left the unusable ones for a new functioning platform, which may seem as an infinite source of communication medium. DAESH use the Deep and the Dark Web and social media effectively by creating channels through decentralized structures or its media agencies. The author intends to answer the following research questions: Through which mediums does DAESH take advantage of the internet? How is the rhetoric of the narratives structured in its publications? And, is the narration have specific narrative qualifications?

As DATR team, we would like to thank all authors and referees for the contributions they have made to this issue and encourage readers to send us comments and suggestions. DATR always welcomes and encourages contributions from experts, civil and military officers as well as academics to send us their best work on defence against terrorism.

Sincerely yours,

Uđur Gungör

Editor-in-Chief



Cubs of the Caliphate – How to Deal With a New Generation of Child Soldiers?

Stephanie Elisabeth Spyra¹

Abstract: *The attention towards the recruitment of children into terrorist and extremist organizations and groups has increased over the past years, not least because the so-called Islamic State developed a comprehensive media, and in particular social media strategy to publicize their use of children as active fighters in their campaigns. With Daesh² having lost a considerable amount of territory, a large number of these children are currently being held in refugee camps. It is becoming obvious that their previous indoctrination is deeply rooted inside of them and will continue to influence them further if no active measures are taken to properly deal with this new generation of child soldiers in a timely and appropriate manner. This paper finds that an understanding of the recruitment process of these children is crucial in order to develop prevention strategies and appropriate programs to achieve complete deradicalization, rehabilitation, and reintegration. Although some programs have already been established, few of them are tailored to the specific circumstances surrounding former*

¹ Stephanie Elisabeth Spyra serves as a Second Lieutenant in the German Armed Forces. She is a research assistant for the policy consulting Metis Project in Germany and is currently enrolled in a master's degree in International Law and Politics at the Bundeswehr University Munich with a specialization in counter-terrorism studies and women and children in terrorism. She formerly worked in the Military Defense Attaché department at the German Embassy in Seoul, South Korea and as a research assistant at the NATO Centre of Excellence – Defense Against Terrorism in Ankara, Turkey. spyra.stephanie@gmail.com

² Throughout this paper, the terms Islamic State, ISIS, ISIL and Daesh will be used as synonyms for one another.

ISIS child soldiers, especially regarding the specific radicalization and indoctrination methods used by the Islamic State.

Besides creating effective deradicalization programs, an in-depth understanding of these radicalization methods contributes to military operations in general, since better knowledge allows for improved mission preparation and training. Both the civilian as well as the military approach require extensive cooperation and information sharing within the global community, especially now, when returning foreign terrorist fighters (FTF's), amongst them multiple children, are becoming a pressing issue for the global community. The way ahead for dealing with this new generation of child soldiers must be to collectively establish appropriate programs and consistent guidelines within our society. A coordinated and well-structured approach is the only way to effectively and sustainably ensure global stability and security in the long-term.

Keywords: *Child Soldiers, Islamic State, Daesh, Deradicalization, Recruitment Strategy,*

1. Introduction

"I saw it with my own eyes. They used to tell these young kids that if they carried out suicide bombings, all their troubles would be over, and they would go straight to paradise."

Mohammad, former ISIS child soldier³

Childhood is supposed to be a time of joy and happiness, where children are allowed to grow up without worries and sorrow, nurtured by the love of their family and community. It is also a time when violence and hardship are supposed to be kept far away and when children should be protected from abuse and exploitation. Childhood is supposed to be one of the phases in life that is essential for character shaping and it paves the road for much of what is to come in the future. Childhood is so much more than just the time between birth and adulthood.

³ Tanzeem, Ayesha (2018): Child Soldiers Say Under IS, It Was Normal To Kill Someone, in: <https://www.voanews.com/east-asia-pacific/child-soldiers-say-under-is-it-was-normal-to-kill-someone>, accessed: 27.08.2019.

However, there is a different side of childhood. During the last three decades the global community has witnessed the exploitation of thousands of children in violent conflicts all around the globe and one of the most appalling exploitations has been the use of children as child soldiers.

Although there are numerous terrorist and extremist groups who recruit children into their ranks as soldiers, the one that has recently drawn the most attention towards its use of children has been the Islamic State. Not only has ISIS openly acknowledged their use of child soldiers, they have also developed a comprehensive social media strategy to publicize their use of the so-called *Cubs of the Caliphate*.

With ISIS having lost a considerable amount of territory, a large number of these children are currently being held in refugee camps and it is becoming obvious that their previous indoctrination is deeply rooted inside of them and will continue to influence them if no active measures are taken to properly deal with this new generation of child soldiers in a timely and appropriate manner.

This paper therefore aims to explore that issue and try to find a satisfying answer to the following question:

How do we deal with a new generation of child soldiers created by ISIS?

1.1. Theoretical Framework

This chapter is divided into two parts, each part addressing a different concept which then establishes the theoretical framework for the article. The first part describes a concept titled *The Six Stage Model of Child Socialization into ISIS*, a model that was first introduced by John Horgan, Max Taylor, Mia Bloom and Charlie Winter in 2017. Throughout the paper, this specific concept acts as a guideline in terms of analyzing Daesh's recruitment process specifically targeting children.

The second part examines the *Sexual Grooming Behaviors of Child Molesters*. At first glance, this approach may appear to have little to do with ISIS recruiting child soldiers. However, analysis of the recruitment process reveals numerous similarities between the approach used by ISIS recruiters and child molesters, especially with regard to the initial stages of recruitment and the grooming process.

1.1.1. The Six Stage Model of Child Socialization into ISIS

In their 2017 paper, Horgan et al discuss a case study they have conducted using the so-called Islamic State as a reference terrorist organization. It was their aim to explore how children were recruited and socialized into the distinct Daesh community. By conducting interviews with former child soldiers and analyzing data collected from propaganda material published by ISIS, a *Six Stage Model of Child Socialization into ISIS* was developed: *Seduction*, *Schooling*, *Selection*, *Subjugation*, *Specialization*, and *Stationing*.⁴

The authors go on to describe these individual stages, defining *Seduction* as “the initial exposure to ISIS ideas, norms and practices through propaganda, peripheral participation in public events, and indirect access to personnel”.⁵ *Schooling* is described as a “routine, direct exposure to personnel, accompanied by intensive indoctrination”.⁶ The third stage, *Selection*, is defined as “focused attention from recruiters, screening for aptitude and grooming for military training or other roles”⁷ whereas the fourth stage, *Subjugation*, is characterized as “physical and psychological brutalization through intensive training, isolation from family, wearing a uniform, and deepening of commitment through acts of loyalty, sacrifice, and discipline; [the goal being the] emergence of solidarity via shared hardship”.⁸ The stage of *Specialization* is aimed at “fostering expertise and exposure to specialized training”, and *Stationing* entails “role assignment and deployment; including participation in public events to recruit additional members”.⁹

1.1.2. Sexual Grooming Behaviors of Child Molesters

As mentioned before, the concept of *Sexual Grooming Behaviors of Child Molesters* appears to be out of place when discussing child soldiers and their handling after they have been separated from their respective armed group. However, this paper will show significant similarities in grooming behaviors used by child molesters and ISIS recruiters. These grooming behaviors will be illustrated, in order to generate an adequate basis for analysis later on in the paper.

⁴ Horgan, John et al. (2017): From Cubs to Lions: A Six Stage Model of Child Socialization into the Islamic State, in: *Studies in Conflict & Terrorism*, Vol. 40 (7), 654.

⁵ Horgan et al. (2017), 655.

⁶ Horgan et al. (2017), 656.

⁷ Ibid.

⁸ Ibid.

⁹ Ibid.

As noted by Canter, Hughes, and Kirby in 1998, almost fifty percent of child molesters employ what are commonly described to be “grooming” behaviors.¹⁰ Many attempts have been made to define these grooming behaviors and these attempts try to incorporate as many different behaviors as possible. The one used in this paper was introduced by Craven, Brown and Gilchrist and is one of the most specific, yet also holistic, explanations. They define sexual grooming as:

*a process by which a person prepares a child, significant others, and the environment for the abuse of this child. Specific goals include gaining access to the child, gaining the child’s compliance, and maintaining the child’s secrecy to avoid disclosure. This process serves to strengthen the offender’s abusive pattern, as it may be used as a means of justifying or denying their actions.*¹¹

In order to be successful in their grooming efforts, it is important for offenders to skill-fully manipulate the child and its environment.¹² These manipulations are employed strategically, specifically with regard to selecting an appropriate victim, gaining the child’s trust and gaining access in general, as well as desensitizing the victim to touch¹³. Various strategies are used to disguise the true intention of the interactions, such as the pretense of being kind, helpful and charming.¹⁴

As of today, no specific model of sexual grooming has been recognized but the literature on sexual grooming suggests a number of different stages that child offenders go through in order to groom their potential victim for the actual sexual abuse. Winters and Jeglic use this to propose three distinct stages of grooming.

The first stage consists of the *selection of a victim*. This selection can be based on multiple factors such as appeal and attractiveness of the child, as well as perceived vulnerabilities or ease of access. Other factors include an assessment of the victim’s current familial situation, as well as targeting according to perceived psychological vulnerabilities, including insecurity, low self-esteem or confidence

¹⁰ Canter, D./Hughes, D./Kirby, S. (1998): Paedophilia: pathology, Criminality, or Both? The Development of a Multivariate Model of Offence Behaviour in Child Sexual Abuse, in: Journal of Forensic Psychiatry, Vol. 9 (3), 532-555.

¹¹ Craven, S./Brown, S./Gilchrist, E. (2006): Sexual Grooming in Children: Review of Literature and Theoretical Considerations, in: Journal of Sexual Aggression, Vol. 12 (3), 287-299.

¹² Van Dam, Carla (2006): The Socially Skilled Child Molester. Differentiating the Guilty from the Falsely Accused, Birmingham, 61.

¹³ Winters/Jeglic (2016): I Knew It All Along: the Sexual Grooming Behaviors of Child Molesters and the Hindsight Bias, in: Journal of Child Sexual Abuse, 15.

¹⁴ Van Dam, Carla (2006): 54.

and naivety, but also isolation and lack of social support, which could in turn facilitate the isolation of the child from its environment.¹⁵

During the second stage, the offender aims to *gain access* to the potential victim. One of the strategies during this stage is isolating the child from its social environment, both emotionally and physically.¹⁶ It was also found that extra-familial offenders often seek out situations where it is easy for them to access the child away from their home. These situations may include malls, schools, parks or other outdoor facilities. In line with that, offenders produce reasons that make it necessary for them to spend time with the child without any other adults present, including babysitting or taking them on outings.¹⁷

The third stage is considered to be the central element within the grooming process. In this stage, the offender directs all their effort towards *establishing trust and cooperation* with the child.¹⁸ Using deceptive trust development mechanisms, offenders generally try to create the impression that they are a loving and nonthreatening individual by being helpful, sharing secrets with the child or by showering them with gifts and attention.¹⁹ Depending on the age of the child, these strategies can be adapted accordingly, and in seemingly difficult cases the offender may even resort to incentives like money, treats and other gifts, in order to widen the access to the child.²⁰

Once the molester has gained the trust of his victim, they usually begin to gradually increase physical contact with the intention of desensitizing the child to physical contact in order to prepare the child for the impending abuse.²¹

¹⁵ Finkelhor, D. (1994): The International Epidemiology of Child Sexual Abuse, in: Child Abuse & Neglect, Vol. 18 (5), 412.; Olson, Loreen/Daggs, Barbara/Rogers, Teddy (2007): Entrapping the Innocent: Toward a Theory of Child Sexual Predators' Luring Communication, in: Communication Theory, Vol. 17 (3), 238.

¹⁶ Olson et al. (2007): 243; Lanning, Kenneth V. (2010): Child Molesters: A Behavioral Analysis for Professional Investigating the Sexual Exploitation of Children, National Center for Missing and Exploited Children, 8.

¹⁷ Lanning, Kenneth (2010): 10.

¹⁸ Van Dam (2006): 58.

¹⁹ McAlinden, Anne-Marie (2006): Setting „em up“: Personal, Familial and Institutional Grooming in the Sexual Abuse of Children, in: Social & Legal Studies, Vol. 15 (3), 340.

²⁰ Winters/Jeglic (2016):3.

²¹ McAlinden, (2006): 342.

1.2. Limitations

The findings of this thesis are based on primary and secondary sources. The primary sources include information gained from propaganda videos posted online and from *Dabiq*, a propaganda magazine published by Daesh between July 2014 and July 2016 to specifically address and recruit foreign terrorist fighters. The secondary sources include a variety of literature published by leading scholars and experts, firstly in the field of research on children in armed conflicts, specifically child soldiers, and secondly research from scholars with a focus on Daesh and their recruitment strategy.

This secondary data includes research articles, notes, and also interviews and sets of quantitative data that have already been evaluated by the researchers who conducted the original analyses.

Unfortunately, no primary data other than the information obtained from Daesh propaganda material can be included in this paper as conducting field research would prove to be a rather difficult issue for the author for security reasons. A lack of in-depth knowledge of the environment, as well as a lack of connections to primary sources prevents the inclusion of more primary sets of data. Therefore, the information obtained from Daesh propaganda must be handled with care, since it remains difficult to verify that information completely until more extensive data emerges. However, the information obtained from videos and the magazine *Dabiq* are congruent with most of the information obtained from secondary sources.

2. Methodology and Case Selection

The following chapter is designed to establish an understanding of the methodology on which this thesis is based. The author's strategy of collecting and evaluating relevant data will be introduced and documented. A reflection of literature used to substantiate this written work will then be given, followed by a brief explanation of the chosen time frame for investigation.

The chapter then goes on to explain the case selection for this paper and why research on children in terrorism is of such great importance. Finally, this chapter will close with an explanation of why the Islamic State was chosen as a reference terrorist organization for investigating the question of how to deal with a new generation of child soldiers.

2.1 Methodology

As explained in the first chapter, this work relies on primary as well as on secondary data that has been collected and evaluated over a period of two and a half months. Because of the diverse nature of research regarding children in armed conflict, terrorism and specifically the topic of child soldiers, articles were collected from numerous sources.

In the beginning, search engines like *Google* and *Bing* were used by the author to generate basic information. On one hand, this was done to find out whether the intended topic of this thesis is of current interest and public concern. On the other hand, browsing through open access publications and other sources like media coverage, documentaries, movies or online articles was used to narrow and shape the topic into the specific form in which it is presented now.

In a second step, well-known databases from areas such as sociology, psychology and political science as well as library databases were searched. Relevant publications, namely articles, reviews, books and research notes were then gathered.

The purpose of the third step was to take a closer look at footnotes, references and bibliography sections of the resulting articles in order to discover as yet uncaptured research that could be used in this article. This process was repeated multiple times with every new piece of research that was discovered.

The primary sources, namely propaganda videos posted online and the *Dabiq* magazine were evaluated regarding content featuring children and child soldiers. Special attention was paid to videos showing children in Daesh training camps or schools, as well as videos featuring children committing acts of violence against prisoners held by the Islamic State.

All gathered information and publications were then arranged into categories that fit the outline of this paper.

2.1.1. Reflection of Literature

Over the past few decades an increasing amount of research has been produced on child soldiers, one area of focus being on why extremist and terrorist organizations recruit children into their ranks. In their research from 2013, Beber and Blattman have shown that children are not the optimal recruitment choice of rebel organizations, especially since they are not as fit for combat as adults may

be: so there must be other reasons that lead to such a vast number of children being present in some terrorist organizations.²² This argument is supported by Singer who claims that the rise in the availability of small arms that can easily be operated by children and the constant availability of children as an “unlimited and cheap” human resource, especially in areas demographically labelled as “young” populations, play a significant role in child recruitment. In addition, Haer states that groups tend to recruit children because they can, under certain circumstances, enhance the groups’ fighting capacities.²³ Another argument put forward by Beber and Blattman is that that children are attractive recruits “if and only if they are easier to intimidate, indoctrinate, and misinform than adults”.²⁴

Another part of this research has focused on how violent extremist groups go about recruiting children into their ranks. As stated by Faulkner, rebel groups forcibly and coercively recruit children.²⁵ This statement is supported by Vale, who describes traditional recruitment strategies to be forcible, including kidnapping and abduction from homes, school and even orphanages.²⁶ This argument finds further validation through the research conducted by Mahmoud who has found that warlords utilize “extreme indoctrination and fear tactics, including rape and sexual assault, [and have thus been] able to transform impressionable, dependent youth into loyal, ferocious armed forces”.²⁷

A third major concern that becomes evident in research reports to date is the impact that life in armed conflict has on these children and how child soldiery affects their lives after they are no longer affiliated with the respective terrorist organization.²⁸ In that regard, a great amount of research also deals with deradicalization and reintegration efforts and how programs to do so must be constructed in order to successfully help former child soldiers back towards a relatively normal life.

²² Beber, Bernd/Blattmann, Christopher (2013): The Logic of Child Soldiering and Coercion, in: *International Organization*, Vol. 6, 78.

²³ Haer, Roos (2016): The Impact of Child Soldiers on Rebel Groups’ Fighting Capacities, in: *Conflict Management and Peace Science*, Vol. 33 (2), 160.

²⁴ Beber, Blattmann (2013): 77.

²⁵ Faulkner, Christopher M. (2016): Money and Control: Rebel Groups and the Forcible Recruitment of Child Soldiers, in: *African Security*, Vol. 9 (3), 219.

²⁶ Vale, Gina (2018): Cubs in the Lions’ Den: Indoctrination and Recruitment of Children Within Islamic State Territory, in: *International Centre for the Study of Radicalization*, Department of War Studies, King’s College, London, 13.

²⁷ Mahmoud, Sara (2016): Cubs of the Caliphate: The Islamic State’s Focus on Children, in: *Counter Terrorist Trends and Analyses*, Vol. 8 (19), 7.

²⁸ Benotman, Noman/Malik, Nikita (2016): *The Children of Islamic State*, Quilliam Foundation, 51.

Research in this field has been conducted by the United Nations, Joanne Corbin (2008), Chrysostome and Kiyala (2015), and Nduwimana (2013) among others. All of these studies examine the necessary steps towards complete Disarmament, Demobilisation and Rehabilitation (DDR) and take a closer look at some of the specific programs that have been established in Sub-Saharan Africa. However, they also note the problems that have arisen, either in implementing these programs or with regard to their long-term success.²⁹

In fact, most of the research conducted on child soldiers and how to effectively deal with this issue has used the experience of child soldiers on the African continent as the subjects. Since the circumstances in which children have been and still are being recruited into violent extremist groups on the African continent differs immensely from those surrounding recruitment of children into Daesh, the need for extensive research in this field is most evident, especially in view of establishing an appropriate and effective way ahead when it comes to dealing with these children.

More recently, with the so called Islamic State rising to be the most prominently featured terrorist organization in western media, the research focus gradually began to shift towards the children of the so called Islamic State, not least because of the extensive and comprehensive social media strategy developed by Daesh to publicize their use of children as active fighters. As a result, new fields of research opened up, the most prominent being an investigation of Daesh's recruitment process.

So far, though, research on recruitment strategies is comparatively limited. However, there are some authors who have presented studies and articles, including analyses of the different stages of recruitment into ISIS. Probably the most prominent experts in this field are Horgan and Bloom. According to their research, Daesh's recruitment strategy is a very complex and well thought-through strategy which can be divided into six distinct stages.³⁰ Similar research has been presented by Gina Vale in 2018. Different to Horgan and Bloom, Vale does not focus on specific stages during the recruitment process but, on the contrary, identifies and analyzes different pathways of influence that are being used by Daesh recruiters throughout the whole recruitment process.³¹ Other research on

²⁹ Nduwimana, Lt. Col. Donatien (2013): Reintegration of Child Soldiers in Eastern Democratic Republic of Congo: Challenges and Prospects, in: The International Peace Support Training Centre Nairobi, Kenya Occasional Paper Series, Vol. 4 (2), 18.

³⁰ Horgan et al. (2017): 655.

³¹ Vale (2018): 14.

the children of Daesh has been focused on the individual positions children reach within a terrorist organization, and how, once recruited into the Islamic State, they are transformed into militants.³²

Another aspect of research that has been gaining more attention recently is the question of what to do with the children who have been exposed to Daesh indoctrination, especially now that Daesh has lost a considerable amount of territory and hundreds, if not thousands, of children from the Daesh territory are being detained in refugee camps. The question of how to properly deal with these children is becoming more and more pressing. Since many of these children were also born to Foreign Terrorist Fighters, so properly dealing with them has been developing into a global challenge, desperately in need of solutions. Research conducted by Liesbeth van der Heide and Jip Geenen (2017), Jan Kizilhan (2019) and Roos Haer (2019) suggests that there are still major obstacles that need to be overcome in order to ensure successful deradicalization and reintegration. Some of these obstacles manifest themselves in the lack of differentiation between adults and juveniles in current programs, as well as the lack of specificity when it comes to addressing certain types of terrorists.³³ In addition, Kizilhan criticizes the lack of comprehensive long-term psychosocial care.³⁴

It is evident that one of the major problems of contemporary research on children in the Islamic State is the collection of primary data due to very few opportunities for collecting data from primary sources being available, either through conducting interviews or through personally observing relevant activities. This has led to a trend in this field of research which Jacques and Taylor describe as ‘discursive rather than descriptive’ (Jacques/Taylor 2012). They argue that scholars have so far failed to take descriptive data and apply it to already existing theories and concepts. In failing to do so, scholars are robbing themselves of the opportunity to test existing hypotheses and, if need be, to adapt them to changing developments.³⁵

³² Horgan et al. (2017): 656.

³³ Heide, Lisbeth van der/Geenen, Jip (2017): *Children of the Caliphate: Young IS Returnees and the Reintegration Challenge*, in: International Centre for Counter-Terrorism – The Hague, in: <http://icct.nl/wp-content/uploads/2017/08/ICCT-vanderHeide-Geenen-Children-of-the-Caliphate-1.pdf>, accessed: 20.02.2020.

³⁴ Kizilhan, Jan Ilhan (2019): *providing Psychosocial care to Child Soldiers Living in Post-IS Iraq*, in: The International Centre for Counter Terrorism – The Hague, Vol. 10, in: <http://icct.nl/wp-content/uploads/2019/05/ICCT-Kizilhan-Providing-Psychosocial-Care-to-Child-Soldiers-Living-in-Post-IS-Iraq-Ma2019-1.pdf>, accessed: 21.08.2019.

³⁵ Jacques, Karen/Taylor, Paul (2012): *Myths and Realities of Female-Perpetrated Terrorism*, in: *Law and Human Behavior*, Vol. 37 (1), 35.

2.1.2. Time Frame

This paper only includes arguments and findings from research conducted between 1999 and 2019. Furthermore, the information collected from primary sources comes solely from 2014 to 2019. The focus on this specific time period was chosen firstly because the Islamic State has been operating within this time frame.

In addition, this time frame also provides relevant research for the investigation of a new generation of child soldiers, its causes, and research regarding disarmament, deradicalization and reintegration. The selected time frame also coincides with child activity as active fighters in the reference group.

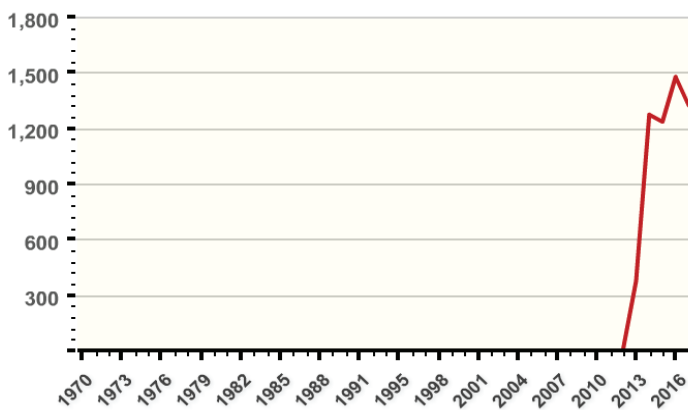


Figure 1: Total number of incidents carried out by ISIS between 1970 and 2017.

Depicted is the total number of incidents, 5684, accredited without doubt to the IS. It becomes evident, that the IS is a rather recent terrorist organization as all of their perpetrated incidents have occurred after 2011.³⁶

2.2. Case Selection

This section describes the approach used to gather, evaluate and analyze information in order to understand the recruitment process of children into the militant ranks of Islamic State. In addition, the second part will outline the strategy used to process information and research related to determining strategies to deal with a new generation of child soldiers. In a third step, the significance of research on children in terrorism, specifically child soldiers, will be illustrated, before this chapter closes with an argument as to why the Islamic State was selected as a reference terrorist organization.

³⁶ see Global Terrorism Data Base: [www. https://start.umd.edu/data-tools/global-terrorism-database-gtd](http://www.start.umd.edu/data-tools/global-terrorism-database-gtd), accessed: 20.01.2020.

2.2.1. Understanding Daesh's Recruitment Process

As mentioned above, all of the collected research was arranged into categories according to their specific research topics. All information specifically focusing on recruiting child soldiers into ISIS was then analyzed and evaluated accordingly.

In order to thoroughly investigate Daesh's recruitment strategy, it is important to gather information from as many different sources as possible. Therefore, the research used in this section illuminates the process from three different angles. The first angle consists of data obtained from propaganda videos and a propaganda magazine (*Dabiq*) published by Daesh which allows for the perspective of the perpetrator to be examined more closely.

The data that can be ascribed to the second angle was obtained from interviews conducted with former child soldiers now living in refugee camps. As mentioned above, these interviews were not conducted by the author. However, the information obtained from these interviews allow for a new and unique perspective towards the recruitment process, the victim's perspective.

Information gathered to present a third perspective on the recruitment strategy of the Islamic State makes up the most objective view on the matter at hand. In contrast to the first two angles, research presented under this category stems from academic research conducted by scholars and agencies who have not been directly engaged with.

2.2.2. Determination of Strategies to Deal with New Child Soldiers

The collected research was also evaluated with regard to measures that must be taken in order to effectively deal with this new generation of child soldiers. Information gathered to explore possible strategies deals with *DDR-Programs* (Disarmament, Demobilization, Reintegration) which are already in existence, and which are supposed to help reintegrate former child soldiers into society. Data obtained in this category also focusses on the question of whether there is still a lack of programs designed to specifically deal with former child soldiers from ISIS and opens up the discussion as to what needs to be done and by whom in order to effectively deal with them.

2.2.3. Significant Research on Children in Terrorism

Children continue to be affected by conflict all over the world. As long ago as 1996, Taylor and Horgan concluded, that future armed conflicts would see a deliberate targeting and usage of children by violent non-state actors and even state actors³⁷ which can be understood as “a willingness to broaden the acceptable limits of terrorism in order to maintain the overall climate of fear”.³⁸

A study by researchers from the Peace Research Institute Oslo found, that since the end of the Cold War, there has been a global increase of children affected by armed conflict. In 2017, “approximately 1.8 billion children under the age of 18 (81% of all children) were living in a conflict-affected country [...] and 420 million children (more than 1 in 6) were living in a conflict zone”.³⁹ This constitutes an increase of 110% compared to the 200 million children living in conflict zones in the early- and mid-1990s.

In armed conflict, children are an easy target, not only for violence but also for coercion and indoctrination because they often lack a pre-established system of values due to their young age, so children are more easily coerced and indoctrinated than adults.

Having witnessed the phenomenon of child soldiery over the past decades, researchers and specialists have examined the long-term effects this kind of violence can have in children and have studied the impacts of armed conflict on children living in regions prone to violence. However, the academic community has recently shifted its focus towards children under the rule of the Islamic State. A major concern of this research is the vast number of child soldiers recruited and deployed by ISIS during the past years, many of whom are currently being held in refugee camps. Not only have these children witnessed the horrors of armed conflict and war, many of them have also actively participated as *Cubs of the Caliphate*.

If they are not deradicalized and reintegrated in an appropriate manner, there is an imminent risk of these children one day soon becoming the next generation of the Islamic State.

As the mujahidin of the Islamic State continue their march against the forces of kufr there is a new generation waiting in the wings, eagerly anticipating the day that it is called upon to take up the banner of iman.

³⁷ Taylor, Max/Horgan, John (1999): Future Developments of Political Terrorism in Europe, in: Terrorism and Political Violence, Vol. 11, 87.

³⁸ Horgan et al. (2016):646.

³⁹ Østby, Gudrun/Rustad, Siri Aas/Tollefsen, Andreas (2018): Children Affected by Armed Conflict, 1990-2017, in: Conflict Trends, Vol. 10,1.

*These are the children of the Umma of jihad, a generation raised in the lands of malahim (fierce battles) and nurtured under the shade of Shari'ah, just a stone's throw away from the frontlines.*⁴⁰

Since many of these children were born to Foreign Terrorist Fighters (FTF), this issue not only affects countries which had a so-called Islamic State presence. On the contrary, states have now begun to repatriate FTF children and, as a consequence, now have to figure out how to properly deal with them in order to eliminate the looming threat of a new generation of jihadi fighters. Conducting research on this topic and sharing findings within a global community of interest is, therefore, imperative.

2.2.4. The Choice of ISIS as a Reference Group

The world was shocked in 2014 when the so-called Islamic State announced the establishment of a Caliphate in Iraq and Syria and, in the popular consciousness, it poses the greatest terrorist threat to the contemporary global community.

Contrary to other jihadist groups that follow a more vague approach of running a jihadi supra-nationalist world, Daesh pursues a very prominent and rigorous approach to the establishment of an Islamic caliphate as well as the dissemination of a jihadist ideology all throughout the Middle East.⁴¹

In line with this self-proclaimed goal, the Islamic State has been recruiting children into their ranks to what some believe to be an unprecedented extent.⁴² Researchers like Kara Anderson have observed that the motivation behind turning children into *Cubs of the Caliphate* differs from child recruitment in other terrorist organizations. ISIS is specifically recruiting children because of and not in spite of their age. Through online propaganda, they proclaim that these children are the means to secure the continued existence of the Caliphate, even if the ideology, for now, lives on only in their minds.

⁴⁰ Dabiq Magazine (2015), Iss. 8, 20, available at: <https://jihadology.net/2015/03/30/al-hayat-media-center-presents-a-new-issue-of-the-issue-of-the-islamic-states-magazine-dabiq-8/>, accessed: 20.01.2020.

⁴¹ Khelgat-Doost, Hamoon (2017): Women of the Caliphate: The Mechanism for Women's Incorporation into the Islamic State (IS), in: Perspectives on Terrorism, Vol. 11(1), 18.

⁴² Capone, Francesca (2017): Worse than Child Soldiers? A Critical Analysis of Foreign Children in the Ranks of ISIL, in: International Criminal Law Review, Vol. 17, 167.

In issue 8 of *Dabiq* it was stated:

As expected, the kuffar were up in arms about the Khilafah's use of "child soldiers." Yet this was the Sunnah of Allah's Messenger (sallallahu 'alayhi wa sallam), who would allow those capable from amongst the young Sahabah to participate in his battles against the mushrikin. [...] And just as the children of the Sahabah stained their swords with the blood of yesterday's taghut, the Fir'awn of the Ummah, so too will the children of the Khilafah stain their bullets with the blood of today's tawaghit, bi idhnillah..⁴³

With the ongoing debate over bringing foreign child soldiers from ISIS home to their respective countries of origin, or home to those of their parents, this proclamation is one that should be taken very seriously. Therefore, determining ways to eradicate Daesh's narrative from the minds of these children should be of great importance to the global community.

3. Child Recruitment into ISIS

As the Caliphate developed, Daesh leaders increasingly focused their attention on the children in their territory. As the next generation of the Islamic State, these children carry the ideas and ideologies of the state and ensure its long-term survival. Therefore, indoctrinating these children with Daesh extremist ideology as early as possible was of utmost importance for ISIS leaders.⁴⁴ As noted by Mahmood, in order to recruit children into their ranks, ISIS relies on voluntary, as well as forced recruitment.⁴⁵

Only if we can understand how exactly Daesh recruited and indoctrinated their child soldiers, can we create an effective counter-narrative to teach to these children, and, in the future, to prevent their recruitment in the first place.

Therefore, the focus of this chapter is an examination of Daesh's complex and multi-layered recruitment strategy. It was found that Daesh used two different recruitment strategies, namely predatory recruitment and structural recruitment. Together, both strategies were used to coerce and indoctrinate children into joining the Islamic State, thus trying to secure the long-term survival of the 'Caliphate'.

⁴³ Dabiq Magazine (2015), Issue 8, 21.

⁴⁴ Benotman/Malik (2016): 53.

⁴⁵ Mahmood (2016): 11.

3.1. Predatory Recruitment

This chapter takes a closer look at one of Daesh's main strategies used to recruit children into the ranks of their group. The main actors employing this strategy were Daesh recruiters aiming to recruit large numbers of children, most of whom were not known to the recruiter prior to the beginning of the recruitment process. This type of recruitment, also known as extra-familial ISIS-based grooming, "reflects a predatory type of recruitment through which children are prepared for participation in military and non-military operations to advance the terrorist organization's current and transgenerational aims".⁴⁶

Like extra-familial sexual offenders, ISIS recruiters have been observed to utilize what can be described as a 'soft- and long-term-approach' when recruiting children.

The measures and tactics used by Daesh recruiters in this type of recruitment process consisted of different manipulative and coercive actions. These measures target not only the child but were also used to manipulate the broader community in order to facilitate the undetected recruitment and enlistment of the designated young victim.⁴⁷ Included in this predatory strategy of recruitment were the selection of a suitable recruit, gaining access and the development of emotional trust, as well as an introduction to the ideological system of the group.

The first step to successful recruitment is to identify a suitable recruit. Although the decision which child to approach was up to the recruiter, there are similarities in the identifying and targeting of potential child recruits. Similar to the manner in which Winters and Jeglic describe trigger factors that can influence a child molester's decision to pursue a specific child, ISIS recruiters may be triggered by multiple factors, among them easy access, perceived psychological vulnerabilities and challenging familial situations like single parent households, a neglectful familial environment or a lack of supervision.⁴⁸

Once the recruiter has made the decision to pursue a specific individual or a specific group of children, gaining access became the objective. Extracts from interviews with former ISIS child soldiers published by Almohammad allow insight

⁴⁶ Almohammad, Assad (2017): ISIS Child Soldiers in Syria: The Structural and Predatory Recruitment, Enlistment, Pre-Training Indoctrination, Training, and Deployment, in: *The International Centre for Counter Terrorism – The Hague*, Vol. 8 (14),6, in: <https://icct.nl/publications-isis-child-soldiers-in-syria-the-structural-and-predatory-recruitment-enlistment-pre-training-indoctrination-training-and-deployment/>, accessed 21.08.2019.

⁴⁷ McAlinden (2006): 342; Almohammad (2017): 8.

⁴⁸ Winters/Jeglic (2010): 6.

into how access was obtained and shows that mosques and public gatherings specifically designed to attract children played an essential role in establishing access to potential child recruits. Information received by Almohammad from one of his sources reveals that

*“ISIS Dawa members gather in the tent/kiosk. Other members bring children in off the streets or go door-to-door asking for children to gather at a given tent/kiosk”*⁴⁹.

They then have to listen to speeches given by a Daesh preacher, a fighter or even a young member of the *Cubs of the Caliphate*. In addition, Daesh members offer drinks, food and candy to the group during these events as further incentives to return to the next gathering.⁵⁰ Along with gaining access, recruiters also aim to isolate the target from their environment. This is done to ensure influence over the child over the course of the recruitment process. In an interview, the mother of a former Daesh child soldier states that “Mazin [her son] started to disappear for long times...His father started to surveil his child. He saw his child and his child’s friend...riding in Abu al-Faruq’s (member of ISIS dawa) car after the afternoon prayer. The man [recruiter] took the children to his place”.⁵¹ The situation described above is a very common one as can be seen from information obtained through various other interviews with family members of former Daesh child soldiers:

*Abu Usama frequently visited us. That made me agitated. I was afraid to ask him to leave... He (Abu Usama [the recruiter]) [...] started to visit when I was out for work. He asked Thamir’s [the boy] mother to send the children to his house. Thamir and his younger brother would stay at the his [sic] apartment for hours.*⁵²

Along with this intention of isolation, recruiters aimed at gaining their recruits’ trust and developing a trusting relationship with the children as quickly as possible. In order to expedite the process, many of the recruiters use incentives such as food, drinks, gifts like mobile phones or other objects desired by children, as well as monetary incentives.

It is argued that this phase makes up the central element of the whole predatory recruitment process.⁵³ Once the trusting bond between the recruiter and the child

⁴⁹ Almohammad (2017):8.

⁵⁰ Mahmood (2016):10.

⁵¹ Almohammad (2017): 9.

⁵² Almohammad (2017): 8.

⁵³ Mooney, Jamie-lee/Ost, Suzanne (2013): Group Localised Grooming: What Is It and What Challenges Does It Pose for Society and Law?, in: Child and Family Quarterly, Vol. 4, 5.

has been established, permanent influence over the child can be asserted and it is easier to control the child's behavior and implant ideas and certain narratives into their head, even when the recruiter is not permanently present. The following excerpts from two interviews with the brother and the mother of Daesh child soldiers are an example of the successful establishment of trust and attachment between the recruiter and the child:

Abu Umar gave Abdullah special attention. He talked to him as though the child was an adult. Abu Umar also made jokes and managed to make the child attached to him. Abdullah would anticipate meeting Abu Umar with excitement. The child grew attached to the ISIS member. Abdullah started to visit Abu Umar after he finished working with his father, without the knowledge of his family.⁵⁴

Mazin...and his friend...became close to Abu al-Faruq [the recruiter]. The father argued with his child and forbade him from seeing Abu al-Faruq. The child told his father that he would continue seeing that man and asserted that it was not his father's business...The mother recounted... that her son threatened his father.⁵⁵

Once these personal bonds are established, Daesh recruiters often start ideological pre-schooling. This stage of recruitment came before the actual systematic education into the belief-system and ideology of the so-called Islamic State. It is, as a first step, used to slowly subject children to the frequent presence of violence in the everyday life of the 'caliphate', as well as to introduce basic ideological tenets and narratives into the child's life. To achieve this goal, Daesh recruiters often relied on various forms of media including speeches in public spaces or mosques, lectures at public events, and even public executions.⁵⁶ At these gatherings and events, Daesh recruiters often use videos of executions perpetrated by their members, but also show videos of violence perpetrated by Daesh's enemies and directed at Daesh fighters. As can be seen in the following notes from an interview conducted by a data collector with a member of the so-called Islamic State in September 2017, these videos are used to scout potential new child recruits by testing the children's attention and rewarding them accordingly.

⁵⁴ Almohammad (2017): 10.

⁵⁵ Ibid.

⁵⁶ Almohammad (2017): 11.

After screening some propaganda videos or speeches, the children are engaged in competitions. The idea is that those who were engaged would be able to recount content from the speeches/propaganda. ISIS would reward those engaged. Over time children would be more incentivized to pay attention to those speeches/propaganda.⁵⁷

In the same way, Daesh recruiters introduced jihadi songs to their child recruits. These songs were often played in public places like kiosks and tents, as well as during public gatherings. After the song, children are engaged in competitive recitals, again being rewarded if they participate and could recite the songs correctly.⁵⁸

With the ongoing recruitment process, the efforts of recruiters to coerce and motivate potential child recruits, as well as the children's exposure to ISIS propaganda material often leads to gradual desensitization to violence.⁵⁹

This well-designed process of predatory recruitment with its various steps and stages arguably creates a whole frame of reference. Furthermore, it replaces already established reference norms known to the child from their familiar social environment and thus provides a basis for further indoctrination and utilization by ISIS recruiters.⁶⁰

3.2. Structural Recruitment

In addition to predatory recruitment, the so-called Islamic State also made use of methods that can be categorized as elements of structural recruitment. This type of recruitment fits with Daesh's self-conjured imagery of being a state with bureaucracies and a functioning governance system. One of the means for recruiting children into their ranks was the state educational system or better, the absence of a proper educational system. Daesh managed to make use of existing structures and institutions and specifically shaped and transformed them to serve their own ideology. Since the Syrian Civil War impacted the national education system in a devastating way, it was easy for ISIS to fill this educational void with their own "educational curriculum", luring children and their parents with the promise of free

⁵⁷ Ibid.

⁵⁸ Ibid.

⁵⁹ Schwartz, Seth J./Dunkel, Curtis/Waterman, Alan (2009): Terrorism: An Identity Theory Perspective, in: Studies in Conflict and Terrorism, Vol. 32 (6), 539.

⁶⁰ Almoammad (2017): 12.

education.⁶¹ To this day, mandatory attendance at these so-called ISIS schools is still strongly debated. In this regard however, the degree to which parents had any choice in sending their children to these ‘schools’ remains debatable.⁶²

As stated by Robbie Gramer, Daesh transformed “schools into successful recruitment arenas, allowing the group to indoctrinate children directly through its customized textbooks and mobile apps”.⁶³ The Islamic State’s curriculum is thus a reflection of isolation from, and rejection of, external, westernized influences and information. Besides withdrawing, in their eyes, “unholy” topics, they also prohibited subjects requiring creativity and critical thinking, like art, philosophy, music, history, literature or geography., Daesh instead introduced mandatory jihadi and extremist religious education. This type of education consisted of “lessons in Qur’anic memorization and recitation, Hadith, *tawhid* (Unity of God), *fiqh* (Islamic jurisprudence), *aqida* (creed), and physical preparedness”.⁶⁴

Generally speaking, the Islamic State managed to transform the former state education system into a means of mass-indoctrination for vulnerable children, exploiting the absence of alternative educational opportunities due to ongoing conflict and instability. ISIS-run schools being used solely for recruitment purposes is underlined by the following statement made by a father of two boys enrolled in such a school:

*A school...is a recruitment centre, no more and no less, where class hours are used to brainwash the students, especially the younger ones, and train them to take orders and carry them out without any objection, and to memorise the Qur’an robotically without comprehension, in addition to dozens of fatwas that incite murder and bloodshed.*⁶⁵

As noted by Almohammad, ISIS seems to separate child recruits into four distinct groups for educational purposes. These groups were made up of local Syrian children, children from the Middle Eastern and North African (MENA)

⁶¹ Najm, Rashid (2014): Life Under ISIL Caliphate: Recruitment of Child Soldiers, in: Al Shorfa, available at: http://al-shorfa.com/en_GB_articles/meii/features/2014/07/15/feature-01, accessed: 12.06.2019.

⁶² Horgan et al. (2017): 653.

⁶³ Gramer, Robbie (2017): J is for Jihad: How the Islamic State Indoctrinates Children With Math, Grammar, Tanks, and Guns, in: Foreign Policy, available at: <https://foreignpolicy.com/2017/02/16/j-is-for-jihad-how-isis-indoctrinates-kids-with-math-grammar-tanks-and-guns/>, accessed: 21.08.2019.

⁶⁴ Vale (2018): 17.

⁶⁵ Bloom, Mia (2019): Weaponizing the Weak: The Role of Children in Terrorist Groups, 2, in: Drumb, Mark/Barret, Jasmine (Eds.): Research Handbook on child Soldiers, in: https://papers.ssnr.com/sol3/papers.cfm?abstract_id=3316395, accessed: 21.08.2019.

region, children of other foreign fighters and orphans. Children from the MENA region and other foreign children allegedly underwent significantly more intense physical and combat training than the other two groups.⁶⁶ Some sources also state that age appropriate involvement in the Islamic State played an important role. In an interview conducted by Vice News, a member of the ISIS press section claimed that children below the age of 13 do not take part in ISIS (military) training camps and that children under the age of 15 instead attend sharia camps where they learn about religion and their creed and only boys above the age of 16 have the possibility of attending military camps.⁶⁷ However, contrary to this statement, there were multiple reports between 2015 and 2016 of boys below the age of 15 actively participating in the Islamic State's military operations, be it as suicide bombers, regular foot soldiers or spies. Furthermore, multiple ISIS propaganda videos show very young boys holding guns and rifles, participating in military training and even conducting executions of prisoners captured by the Islamic State.⁶⁸

Education under ISIS was also used as a way to desensitize children to acts of violence and to socialize them into believing in violence against so called infidels to be something normal and necessary.⁶⁹ This normalization of violent behavior was further promoted by peer pressure; an instrument ISIS used strategically when recruiting children into their ranks.

*ISIS uses children to entice and recruit more children, parading them at "da'wa caravan" events and featuring them as aspirational figures in its training videos. In many respects, young people are effective recruiters because children might be less suspicious of their peers and more inclined to trust people their own age.*⁷⁰

3.3. Analysis

As seen above, the Islamic State made use of two basic strategies when it came to recruiting children into their ranks as future child soldiers. These two strategies

⁶⁶ Almomhammad (2017): 15.

⁶⁷ Clarion Project (2017): Teaching to Kill: The Islamic State's Jihad Camps for Kids, in: <https://m.clarionproject.org/news/teaching-kill-islamic-states-jihad-camps-kids>, accessed: 01.10.2019.

⁶⁸ Horgan et al. (2017): 655.

⁶⁹ Danner, Chas (2015): How ISIS Abducts, Recruits, and Trains Children to Become Jihadists, in: New York Magazine 19. July 2015, available at: <http://nymag.com/daily/intelligencer/2015/07/how-isis-abducts-recruits-and-trains-children.html>, accessed: 209.09.2019.

⁷⁰ Horgan et al. (2017): 655.

can broadly be labelled as predatory and strategic recruitment. Throughout the whole recruitment process, elements from both strategies were used by Daesh recruiters and it is often difficult to clearly separate the predatory from the structural type of recruitment. However, it is possible to divide the whole recruitment process into different stages, a necessity when it comes to identifying starting points for action aimed to counter Daesh's narrative and to prevent child recruitment into their ranks in the future.

In 2017, it was proposed by Horgan et al. that the Islamic State's strategy to effectively socialize children into their community of practice consists of six distinct stages. These stages are labelled as *Seduction*, *Schooling*, *Selection*, *Subjugation*, *Specialization*, and *Stationing*. Taking this model and using it to examine Daesh's two types of recruitment strategies (strategic and predatory recruitment) it becomes evident, that the first two stages, *Seduction* and *Schooling* played an important role in the Islamic State's recruitment process. At least in part, the third and fourth stage, *Selection* and *Subjugation* can also be viewed as parts of the predatory and strategic recruitment approach. The last two stages, *Specialization* and *Stationing* are also important stages in the Islamic State's recruitment process. However, since the success or failure of child recruitment into Daesh mostly depends on the first two stages which provide access to the child and lay the foundation for indoctrination, they are the most important stages when trying to understand the so-called Islamic State's recruitment process and when trying to identify where to aim counter narratives and counter strategies at. Therefore, the remainder of this analysis will specifically focus on the first two stages.

The *Seduction* stage, the basis for every other element of the Daesh recruitment strategy, is the most important and thus most relevant stage of initial recruitment and contains elements of both, the predatory and strategic approach. Regarding the strategic aspect of the initial stage, research shows that ISIS strategically recruited children from at least five distinct sources. These potential child recruits firstly come from foreigners, including foreign terrorist fighters, who had travelled to territories under ISIS control, as well as from internally displaced people. The second source were children who had been volunteered by civilians and local fighters, while the third source was drawn from orphanages under the influence of the Islamic State. The fourth source consisted of children who were involuntarily and forcibly taken from their families, including children from families of different faiths who were abducted or enslaved. The final source of child recruits were comparatively older

children who volunteered themselves due to the prospect of escaping poverty or violence in their home.⁷¹

It was found that recruitment from all five sources contained elements of a predatory nature and that the only major difference throughout the process was the intensity with which these elements were used by ISIS recruiters.

In general, the Islamic State's predatory recruitment strategy comprises many characteristics which have been witnessed in the sexual grooming behaviors of child molesters.⁷² These behaviours especially surface during the initial recruitment stage where ISIS recruiters identify potential recruits and focus on gaining access to these children and contain a set of manipulative as well as coercive methods and actions which are not only aimed at the children but also towards their surrounding community. As has been shown above, similarly to sexual child molesters, the initial stage in Daesh's recruitment strategy can be divided into four sub-stages, namely recruit selection, establishing access, gaining trust and ideological pre-schooling.

Elements of both the strategic and predatory approach can be seen in the second recruitment stage, *Schooling*. Whereas in the first stage, the predatory elements of recruitments outweighed the strategic aspect, the opposite is the case in the second stage. Schooling in general is very methodical with certain curriculums, classes and grades, thus naturally being a more strategic tool.

Daesh schooling also contained a significant predatory aspect which only becomes apparent upon close examination. Besides Daesh-run schools and sharia camps, where IS teach their narrative and indoctrinate children with their world view, the so called Islamic State also specifically focusses on women (mothers to be precise) to raise the next generation of Daesh soldiers.⁷³ The so called Islamic State believes that women should raise their children in alignment with the Islamic State narrative from early on, which is underlined by a statement made in *Dabiq*, describing mothers as the "teacher of generations and the producer of men" who must regard their male child as a "conquering leader".⁷⁴ By specifically involving the mother of potential future child soldiers and by specifically targeting them with coercive and manipulative means, as well as the threat of, or actual, violence, Daesh

⁷¹ Ibid.

⁷² Almohammad (2017): 6.

⁷³ Morris, James/Dunning, Tristan (2018): Rearing Cubs of the Caliphate: An Examination of Child Soldier Recruitment by Da'esh, 12, in: Terrorism and Political Violence, available at: <https://www.tandfonline.com/doi/full/10.1080/09546555.2018.1495628>, accessed: 21.08.2019.

⁷⁴ Al-Mujhahirah, Umm Sumayyah (2015): A Jihad Without Fighting, in: Dabiq Vol. 11, 44.

makes sure that the next generation's self-perception is already aligned with its own narrative and interests before even beginning strategic education and training.

3.4. Results

As can be seen above, it is not always possible to distinguish between strategies of predatory and structural recruitment, as they overlap and blend into each other in many aspects. What can be established, however, is that both types of recruitment employed by Daesh are made up of different stages that can be aligned with the six-stage model proposed by Horgan et al.

Furthermore, it was observed that the importance of predatory, as well as structural recruitment methods decreased as the entire recruitment process utilized by Daesh progressed towards its later stages. This was due to the fact that with the ongoing recruitment process, the children were becoming more and more socialized into the so-called Islamic State's society in a holistic manner and there was no need for ongoing indoctrination and other early stage preparatory measures anymore.

Current research shows that Daesh has been using children in ways that no other terrorist organization has done before. In particular, they understand the necessity of formal planning in order to eventually achieve their ultimate goal, the building of a long-lasting, sustainable state. This aim is reflected in the entire process of recruitment, indoctrination and training of children.⁷⁵ In this way, indoctrination into the Daesh world view as early as possible was of utmost importance to the so called Islamic State since early indoctrination minimizes the chance for future counter narratives to be able to re-educate Daesh children, thus creating an even more potent generation of jihadi fighters than the current one.⁷⁶

A thorough and in-depth understanding of these recruitment strategies and methodologies is therefore essential in order to develop appropriate prevention programs and mechanisms to counter child recruitment into the Islamic State.

It is here, in the initial two stages that counter narratives and prevention strategies need to be introduced in order to prevent children at risk of being recruited into the ranks of ISIS with an appropriate alternative outlook and to make sure that former

⁷⁵ Capone (2017): 172.

⁷⁶ Pinheiro, Cole (2015): The Role of Child Soldiers in a Multigenerational Movement, in: CTC Sentinel, Vol. 8 (2), 11.

ISIS child soldiers receive adequate help concerning their rehabilitation and (re-) integration into a society outside of the Islamic State.

4. Deradicalizing and Rehabilitating ISIS Child Soldiers

The issue of child soldiers is not a new one and many scholars have occupied themselves with the question of how Governments should handle this challenge. Programs have been created that incorporate elements of disarmament, de-radicalization, rehabilitation and reintegration into society. However, as previously noted, most programs have been designed to deal with child soldiers from armed conflicts different to the one involving the so-called Islamic State.

It is not the intention of the following chapter to single out specific deradicalization and reintegration programs which already exist and to analyze them in regard to their efficiency when it comes to dealing with child soldiers. Instead, this section argues that dealing with ISIS child soldiers, especially children of Foreign Terrorist Fighters who are now beginning to return to their respective countries, needs to be addressed in a twofold manner, comprising a civilian and a military component. Therefore, the first part of this chapter will deal with a civilian approach, what it entails and what needs to be done to effectively deal with these children, while the second part will look towards a military approach.

4.1. The Civilian Approach

This part of the paper will focus on how to deal with a new generation of child soldiers created by the so-called Islamic State and possible future generations of Daesh child soldiers in terms of deradicalization, rehabilitation and reintegration. Special focus is placed on children of Foreign Terrorist Fighters, a matter that has become more urgent since the Islamic State has lost vast amounts of its territory which in turn has led to the detention of numerous FTF's and their children in refugee camps.

4.1.1. Deradicalization

As mentioned before, the Islamic State aims to create a long-lasting and sustainable state which is why their recruitment and radicalization strategy of children into their ranks follows a long-term and holistic approach. Children were

constantly exposed to the Daesh narrative with the youngest, having been born in Daesh controlled territory, being completely unaware of any narrative other than the one indoctrinated into them from the beginning of their lives. It is precisely this “prolonged exposure and desensitization” that has huge effects on the children’s psychological and physical well-being, “both in the short term and in the long term”.⁷⁷

Even now that Daesh has lost considerable amounts of their territory, these children continue to be exposed to Islamic State ideology in refugee camps where they are being detained since many states have only recently started to deal seriously with the question of how to deal appropriately with these children. In a recent analytical brief by the United Nations Security Council Counter-Terrorism Committee Executive Directorate it was stated that, to date, only seven European countries have started to repatriate children since September 2018, mainly young orphans and unaccompanied children. Overall, 21 UN Member States have repatriated children over the course of the past year. However, hundreds, if not thousands, of children from more than 42 UN Member States are still being detained in refugee camps, and are thus still subject to the Islamic State narrative.⁷⁸

Existing counter-radicalization programs have struggled with the definitional term for radicalization and what it actually entails. This is because a single definition of radicalization does not exist, and radicalization processes rarely follow a linear structure but are instead composed of various layers and facets. Current deradicalization programs do, in fact, incorporate different measures to target different groups of children and may aim to achieve completely different objectives.⁷⁹

The main objective with respect to former Daesh child soldiers, no matter if they are FTF children or not, should be to remove them from the life of violence and radicalization indoctrinated into them by the so called Islamic State and to spare no efforts in doing so since a failure to do so could lead to a re-emergence of Daesh as well as continuing violence in the areas that have been affected by the so-called Islamic State so far.

⁷⁷ Benotman/Malik (2016): 28.

⁷⁸ United Nations Security Council Counter-Terrorism Executive Directorate (2019): CTED Analytical Brief: The Repatriation of ISIL-Associated Children, 22.

⁷⁹ United Nations Office of Drugs and Crime (UNODC) (2017): Handbook on Children Recruited and Exploited by Terrorist and Violent Extremist Groups: The Role of the Justice System, Vienna, 9.

4.1.2. Rehabilitation

Hand in hand with deradicalization goes the rehabilitation of former Daesh child soldiers. Again, rehabilitation is important for children born to Foreign Terrorist Fighters, as well as for children from the territories previously controlled by the so-called Islamic State, the latter group probably facing more hardship in rehabilitation and deradicalization efforts due to the lack of a functioning community with values and a narrative different from Daesh's.

The International Centre for Counter-Terrorism in The Hague defines rehabilitation as

a purposeful, planned intervention, which aims to change characteristics of the offender (attitudes, cognitive skills and processes, personality or mental health, and social, educational or vocational skills) that are believed to be the cause of the individual's criminal behavior, with the intention to reduce the chance that the individual will re-offend (Veldhuis 2012).⁸⁰

The most basic requirement for the successful rehabilitation of former ISIS child soldiers is a safe environment in which these children feel secure and are not constantly threatened by persecution and other dangers such as re-radicalization. Only if these children feel safe, will they then open up about what they have experienced and endured, a necessity that needs to occur in order to create appropriate programs and achieve full rehabilitation. In addition, open dialogue and acceptance are key for both sides, both the child and those working to deradicalize and rehabilitate them.

The lack of such a secure environment, however, poses a major problem in rehabilitating these children. To date, thousands of children, the majority of whom are under the age of 12, are still being detained in overcrowded refugee camps in Iraq and Syria. Access to everyday necessities like food and medical care, as well as education and other fundamental rights is extremely limited. Furthermore, the vast majority have been exposed to ISIS indoctrination, violence and abuse but appropriate care and rehabilitation assistance, as well as access to post-trauma counselling or psychosocial support are being denied or simply do not exist in these camps.⁸¹

⁸⁰ Veldhuis, Tinka (2012): Designing Rehabilitation and Reintegration Programmes for Violent Extremist Offenders: A realist Approach, in: The International Centre for Counter- Terrorism – The Hague, Vol. 3 (2), 2.

⁸¹ CTED (2019): 43.

4.1.3. Reintegration

Reintegration can be defined as

*a safe transition to the community, by which the individual proceeds to live a law-abiding life following his or her release and acquires attitudes and behaviors that generally lead to a productive functioning in society.*⁸²

Something that is agreed upon throughout the international community is that successful reintegration can only work if the child in question is permanently removed from the armed group it has been brought up in and socialized into. However, simply removing a child from the grip of the Islamic State is certainly not enough. In fact, successful reintegration also incorporates creating and sustaining positive working relationships with members of the community, regaining or (re-) creating identity, as well as “managing their intrusive thoughts and reveries amidst the stigma they face as former child soldiers”.⁸³ The United Nations has declared it a goal to facilitate successful reintegration of former child soldiers, as part of its DDR framework. In general, these DDR programs consist of educational and economic support packages with the intention to “prevent or mitigate the social, economic, and psychosocial sequelae of participation in an armed group”.⁸⁴ In addition, these DDR programs are meant to involve family members and the community, respectively in order to ensure the psychosocial well-being of reintegrated child soldiers.⁸⁵

However, with children who have been subjected to religious or political indoctrination, as is the case with the child soldiers of ISIS, traditional DDR programs tend to be inadequate since their main focus lies on short term and immediate physical health needs. Another factor that renders these types of programs inadequate is their time frame, which is typically shorter than three months. As noted earlier, Daesh relies on a soft but long-term recruitment strategy which needs a counter strategy of adequate duration, especially with their child soldiers as the ‘next generation of the Islamic State’, in order to completely erase the radical narrative from the minds of these children.

⁸² Veldhuis (2012): 2.

⁸³ Boothby, N./Thomson, B. (2013): Child Soldiers as Adults: The Mozambique Case Study, in: Journal of Aggression, Maltreatment & Trauma, Vol. 22 (7), 738.

⁸⁴ Kohrt, Brandon/Rai, Sauharda/Maharjan, Sujen (2015): Child Soldiers, in: International Encyclopaedia of the Social & Behavioral Sciences, 2nd Edition, Vol. 3, Durham, NC, 434.

⁸⁵ Borisova, I.I./Betancourt, T.S./Willet, J.B. (2013): Reintegration of Former Child Soldiers in Sierra Leone: The Role of Caregivers and Their Awareness of the Violence Adolescents Experienced During the War, in: Journal of Aggression, Maltreatment & Trauma, Vol. 22 (8), 810.

Further obstacles and shortcomings of existing DDR programs, as well as what needs to change in order to promote successful deradicalization, rehabilitation and reintegration will be analyzed and discussed after the introduction of another important component to a holistic deradicalization and reintegration strategy, namely the military approach.

4.2. The Military Approach

If asked about the components of a successful deradicalization and reintegration strategy, most people will probably not include a military component. However, in dealing with child soldiers, especially when focusing on child soldiers of the Islamic State, there is a need to incorporate military aspects.

The elements of a military approach that are relevant are threefold.

The first element is how and what the military learns from existing operations where child soldiers are encountered since generating information from these missions will be helpful in possible future military activities as well as in the process of threat assessment and mission preparation.

The second element is a more domestic one, also focused on threat assessment, and deals with the possible threat that may stem from former Daesh child soldiers re-entering their country of origin without being first deradicalized. In this regard, extensive cooperation between the military and police force is of the utmost importance.

The third element deals with providing a safe environment not just for these former child soldiers but rather for the whole community to rebuild itself in a way that prevents re-radicalization. This element becomes especially important in peacekeeping or military observational missions.

The following chapter therefore aims to explain the need for a military approach and is used to describe its three main objectives: threat assessment, mission preparation and implications for military operations.

4.2.1. Threat Assessment

Dealing with children in armed conflict always requires sensitivity and caution. These children have been exposed to violence and hatred and have often experienced the horrors of armed conflict firsthand. In armed conflict, there are

numerous situations that are unclear and incalculable: sometimes children are present accidentally, sometimes they actively participate in civilian unrest and at other times they fight in their capacity as child soldiers.

Therefore, a correct assessment of the whole situation is imperative, especially considering the damage that can come from inappropriate actions based on flawed assumptions.

The so-called Islamic State has shown that it can use children in ways that have in the past been unimaginable since they go against society's belief that children are naturally peaceful. However, it is wrong to assume that all children recruited by Daesh willingly and enthusiastically participate in their fight against the western world and western beliefs. On the contrary, interviews conducted with a former Daesh child soldier show that he was, in fact, very scared when an explosive-filled vest was strapped onto him and he was ordered to detonate himself amongst a group of enemies to the so-called Islamic State. Instead of trying to stay undetected until reaching his designated position, he actively sought out military personnel, let himself be arrested and freed from the suicide vest and from the grip of the Islamic State.

This case shows that a correct threat assessment is imperative for environments that feature child soldiers and that military personnel need to be extremely careful when encountering children in areas of battle. It is also important to be aware of the local context and local conditions that may factor into assessing threats. Conditions may include characteristics of the specific location as to how it might be used strategically, whether civilians are present in the battle area, possibly with children amongst them, and what is known about the violent extremist group that is operating in that specific area. Since this knowledge is also important when it comes to mission preparation, a fuller elaboration follows.

Taking a step back from the active and local encountering of child soldiers and children during military missions, threat assessment is imperative in a completely different situation as well, namely when dealing with (former) child soldiers being detained in camps or returning to their respective countries of origin. Of course, this assessment cannot just be made by military personnel but instead is dependent on joint efforts between the military (being present in detention camps or on the battle ground) and the police force at home being involved in bringing these children home.

In this sense, the threat assessment needs to focus on the intensity of radicalization these children have been exposed to and in addition needs to focus on the question

of whether these former child soldiers will pose a threat to one's own society. Are they liable to carry out a terrorist attack following the narrative of the Islamic State? Furthermore, threat assessment in this sense includes an assessment of every individual with regard to not just their degree of radicalization but also how to best deradicalize them through appropriate DDR measures and programs.

4.2.2. Mission Preparation

Planning a military mission requires time, effort and detailed work in order to ensure the wellbeing of military and civilian personnel, the wellbeing of innocent civilians in the battle area and the best possible outcome for the mission. Therefore, before being deployed, every soldier must go through a process that can broadly be described as mission preparation. This process entails general military training and training specifically designed for the upcoming deployment, as well as legal training and training about the specific local and regional conditions in the country of deployment.

Naturally, missions in areas of deployment where encounters with child soldiers are to be expected need extensive preparation. However, preparing for these encounters is not an easy task. How do you train for an encounter with armed children? How do you prepare yourself mentally for this specific situation? Is it even possible to prepare yourself and train for this scenario?

Knowledge about the violent extremist group that is operating in the designated deployment area is key for conducting a successful mission, no matter the character of the mission, e.g. peacekeeping, stabilization missions or humanitarian aid missions. In the case of ISIS and its child soldiers, therefore, a knowledge of the operational tactics of the Islamic State and their use and deployment of children are not the only important factors that need to be included in a successful mission preparation. In addition, knowledge of the group's core narrative as well as its recruitment and communications strategies is also important. Not only does this kind of knowledge allow for the necessary operational preparations, it is also essential for each individual soldier's preparation for the mission since it helps the soldier to mentally prepare for what can be expected and helps them to better understand their opponents and their ways of thinking. In this specific instance, knowledge about how ISIS child soldiers have been recruited, trained and prepared for missions can create an understanding of the best approaches to counteract them when they occur.

4.2.3. Implications for Military Operations

Having to deal with child soldiers as actual opponents in armed conflict is generally uncommon. However, since Daesh spread their ideology and their narrative through an extensive social media campaign, it was able to reach out to individuals and groups all across the globe. The phenomenon of child soldiers and the likelihood of being confronted by them in armed conflict has already become a battlefield reality and will continue to increase in frequency in the future. Already, terrorist and violent extremist groups all over the globe that are affiliated with Daesh or strive to follow in their path have been observed to copy the so-called Islamic State's recruitment tactics regarding the use of children as active fighters within their structures.

So, what does this mean for future military operations? First of all, there is a growing need for accurate and holistic mission preparation that includes specific scenarios regarding encountering child soldiers. These scenarios need to be as realistic as possible, which calls for extensive information sharing between military units, civilian personnel and the police on the one hand, and whole nations and supranational organizations that already have experience in this field and possess the necessary capacities and capabilities for successfully dealing with child soldiers (including those indoctrinated and recruited by Daesh) on the other.

Along with this, training and preparation for future missions needs to be adjusted in its approach to the topic of child soldiers in a more holistic manner. This must include not only military training but also legal training and psychological preparation in addition to lessons about the specific violent extremist group that will most likely be encountered.

4.3. Results

The previous section shows that dealing with child soldiers is a very complex undertaking and needs to include a civilian component, as well as a military component. It was not the intention of this chapter to come up with specific guidelines or procedures that provide one successful way for dealing with this topic. Instead, the aim is to introduce ideas for a holistic concept as a way of tackling the global issue of child soldiers and, more specifically, the new generation of child soldiers created by the Islamic State.

In order for these concepts to work, a great deal of effort is necessary to design this training according to the specific needs of each individual mission and, in

this case, the possibility of encountering child soldiers. However, efforts need to be made regarding sharing information and joining capacities and skills, not just between different units but also between different institutions and organizations that operate in the sphere of international security and defense politics, as well as in domestic politics in their respective countries.

Furthermore, the civilian, as well as the military approach are two sides of the same coin. If the aim is to effectively approach the subject of child soldiers, especially in respect to child soldiers of the Islamic State, both approaches need to be followed in the same manner. They cannot be separated from each other but need instead to interact with each other and share certain aspects like basic ideas and concepts in order to provide for effective mechanisms to properly deal with the issue of child soldiers created by the Islamic State.

5. Conclusion

The last section of this article reflects on this paper and the findings that were generated in it. Not only is it not the aim to recapitulate the so-called Islamic State's recruitment strategy, but this chapter will not serve as simply another overview of the two approaches explained before.

It is much rather the intention to attempt to link these results together in order to contribute to a deeper understanding of the still largely unexplored question of 'What do we do?' with child soldiers from the Islamic State. Finally, suggestions for further research are also presented.

5.1. Discussion and Final Remarks

So, what do we do with these so-called *Cubs of the Caliphate*?

Throughout this article the Islamic State's recruitment strategy has played a big part, especially with regard to the twofold approach ISIS is using to recruit children into their ranks as child soldiers. Both recruitment strategies, namely the predatory and the structural forms of recruitment, consist of multiple elements and stages that can be identified very clearly. In the author's opinion, the identification of these two strategies with all their different steps are the foundation for trying to understand and be able to comprehend how children are affected by their time under the so called Islamic State and how they can come to be active parts of this terrorist organization. This understanding is absolutely imperative when dealing

with these children after they are no longer under Daesh's influence and now have to be deradicalized, rehabilitated and reintegrated. If we lack an understanding of how these children ended up in their current situation, how are we supposed to know how to help them get out of it?

This article proposes a holistic strategy for dealing with the child soldiers of the Islamic State. The proposed concept consists of a twofold approach, namely a civilian and a military component.

It is not enough to simply look at existing programs that deal with the child soldiers of other terrorist groups and in other parts of the world, to take these concepts and programs for deradicalization and reintegration specifically tailored to other situations and use them as blueprints for dealing with this new generation of child soldiers. In fact, a universal and generalized approach will most likely not be successful in dealing with these children since conditions such as the environment of upbringing, the type of recruitment strategy used on the individual child and the duration of being under the Islamic State's influence are major factors in how the child can be deradicalized. Contrary to traditional DDR programs, where the involvement of the family and the community is a key element of the DDR effort, the community and society in the so called Islamic State were themselves utilized by Daesh to propagate and enforce their narrative, meaning that this traditional element of support during existing DDR programs ceases to be relevant. This is just one example of what situation-specific approaches to deradicalization need to bear in mind, arguably being the most important one. Therefore, one of the main aims of future deradicalization efforts dealing with Daesh child soldiers must be to separate them from the Daesh lifestyle, possibly including a (temporary) separation from their close social environment.

However, we also need to consider the possibility that this separation does not work and civilian deradicalization and reintegration measures fail. In addition, in order for these children to be admitted into DDR programs and be subject to appropriate measures, the environmental conditions (meaning the surrounding community as well as living conditions and other external factors) need to be appropriate.

It is also important to consider the second component of a holistic concept, namely the military approach.

The military approach should not be understood as an invasion of Daesh's (former) territories with the intention of imposing government and rules for the whole region

and the people living in it to obey. This approach is multifaceted, and every facet is of great and equal importance. As described above, it consists of three major parts (threat analysis, mission preparation and the ability to learn from previous missions) which themselves can be divided into further smaller components.

The civilian as well as the military approach in dealing with child soldiers of the Islamic State must always be viewed as interconnected parts of a whole. Regarding the civilian approach, it is important to not view the individual parts as a sequence of individual stages of deradicalization, rehabilitation and integration that follow a distinct, sequential progression. Instead, it needs to be clear that all of them must be pursued simultaneously in order for the successful treatment of these children. If there continues to be a separation of DDR measures into multiple, disconnected approaches, successfully handling the children of Daesh is bound to fail, thus leaving a whole generation of children to fend for themselves and possibly enabling them to become an even greater threat in the future.

“Therefore, the approach to rehabilitate and reintegrate these children requires a multiagency approach which needs not only to include security agencies and law enforcement but also needs strong involvement of child protection services and other social service providers in order to ensure both, security and welfare of the child”.⁸⁶

5.2. Suggestion for Further Research

In the future, research must focus on the implementation of adequate DDR measures tailored to the specific situation and needs of the child soldiers of the so-called Islamic State. Furthermore, short-term, as well as long-term effects and success rates of established programs need to be evaluated and adapted accordingly. Other research should focus on the phenomenon of re-radicalization.

Regarding the military element, research should focus on operational planning and training and should contribute to analyzing and re-evaluating existing preparation programs for deployment to regions where child soldiers will possibly be encountered.

Furthermore, the ethical implications, as well as the legal issues regarding the preparation for missions where child soldiers might be encountered must be researched extensively, in order to allow for the best possible preparation of the individual soldier.

⁸⁶ Heide/Geenen (2017): 3.

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Terrorist Use of Unmanned Aerial Vehicles: Turkey's Example

Osman ŞEN PhD. and Hüseyin AKARSLAN¹

Abstract: *Unmanned Aerial Vehicles (UAV) have been developed for different purposes for many years. But recently drones have been used in terrorist activities in Conflict Zones and Turkey. From now on governments are facing the reality of UAVs in terrorist actions day by day. In this paper the concept of the UAV is described in detail and some case examples about how they are used in terrorist activities are given. Existing Counter-UAV (counter-drone) systems are analyzed according to their capabilities. The aim of this study is to draw attention especially to swarm attacks with drones and to guide the defence community about the requirements of C-UAS (Counter-Unmanned Aerial Systems) solutions.*

Keywords: UAV; Drone; Terrorism; DAESH²; PKK

¹ Osman ŞEN, osman.sen3@egm.gov.tr (ORCID ID: 0000-0002-4539-6243) and Hüseyin AKARSLAN, hakarslan@egm.gov.tr (ORCID ID: 0000-0002-7637-1508) Counter Terrorism Department, Turkish National Police, Ankara, TURKEY

² Both the terms "DAESH (ad-Dawlah al-Islamiyah fil-Iraq wa ash-Sham) and DEASH" are accurate and they are used in the international formal reports and academic papers. In this study the term "DAESH" is used according to the UN Security Council Resolution 2368 (Available at: [https://www.undocs.org/S/RES/2368\(2017\)](https://www.undocs.org/S/RES/2368(2017))) and the sanctions list (Available at: https://www.un.org/securitycouncil/sanctions/1267/aa_sanctions_list).

Introduction

At the beginning of the 21st century, major developments in technology have changed the nature of the conflict between governments and terrorist organizations. Unmanned aerial/land vehicles and robots which were seen in science fiction movies a decade ago, have begun to be used in conflict areas now. Military or commercial Unmanned Aerial Vehicles commonly known as 'Drones' are the most particular manifestations nowadays. The USA and other NATO member countries have also made important investments in UAVs. The elimination of targets, the ability to operate in areas that are difficult and dangerous for people, the low cost in comparison to other aircraft, and minimal risk of losses are the main reasons for preferring UAVs. UAVs and drones were used by the US Military against Al-Qaeda for counter terrorism for the first time.³ And more recently most governments are now using UAVs for the fight against terrorism in different fields.

The operational usage of air vehicles like UAVs and drones against terrorism has been discussed in the context of human rights, the general principles of law and civilian casualties for a long time.⁴ While this discussion is continuing, terrorist organizations have adapted drone technology to their own activities in terms of asymmetric warfare. Taking advantage of drone technology by terrorist organizations was clearly not a desirable consequence of technological improvements. Anyone who has enough technical capacity and information about UAVs can attack governments' critical infrastructures from kilometers away even with low cost drones. Militants can hide their identities during terror activities in a secure area far from the target.

On the other hand, 3D printers and related online video content which demonstrates how to produce guns and weapons puts ordinary citizens in difficult position against governments who want to control the defence industry. With 3D printers it is possible to make simple guns⁵ and drones⁶ even at home. As a result of the recent improvements and technological developments in the commercial

³ Peter Hough, et al., *International Security Studies: Theory and Practice* (New York: Routledge, 2015), 98-99

⁴ Hough et al., "International Security Studies: Theory and Practice", p. 99

⁵ Guy in a garage, "Songbird 3D Printed Pistol - .357 Magnum," YouTube, last modified 01 September 2016, Available at <https://www.youtube.com/watch?v=1jFjtE7bzeU> (accessed 01 August 2019)

⁶ Creative Channel, "How to make a DJI Mavic Clone Quadcopter With 3D Printer," YouTube, last modified 29 October 2017, Available at <https://www.youtube.com/watch?v=bQib0sAhUc4> (accessed 26 October 2019)

UAV industry, designing and producing drones is no longer under government monopoly anymore. Different sized drones can be purchased easily online in global or local e-commerce web sites. Effortless access to this technology has attracted the attention of terrorist organizations and they have adapted drones to their actions. Some of the drone attacks organized by terrorist organizations have been prevented by security forces with special measures but others have been successful.

Since the use of a drone is a new threat in the activities of terrorist organizations, it should be clear that this study is important. In this study, we will seek to answer the question of why the use of drones by terrorist organizations as a technological development threatens national and international security and how this threat can be prevented in the macro and micro dimensions. From this perspective, firstly the development process of UAV technology will be examined, then the use of drones by terrorist organizations will be evaluated in the context of the Turkish examples, and finally, the current situation of prevention measures will be analyzed, and recommendations will be made. The reason why Turkey is used as an example is because it is the only known country where UAVs have been used in an act of terrorism apart from direct conflict zones. Terrorist actions with a UAV in other countries appear to remain at the planning phase.

Methodology, Scope and Limitations

In this research the problem of “the usage of UAVs for terrorist actions and the inefficiency of counter drone systems” is directly encountered by the authors to their professional positions. Root cause analysis of the problem was made by direct observation in the field and interviewing counter drone system experts. After an extensive literature review about potential solutions, the conclusions and suggestions discussed in this article were verified with counter terrorism officials from Turkey and other partner countries.

In this study, an inference was made on terrorist organization activities which are published in open sources and upon technical documents of enterprise aviation companies about UAVs. To express the problem in the wider aspect discussed in this study, sources have been selected based on the field experience of the authors.

Concept of UAVs

The basic definition of an Unmanned Aerial Vehicle (UAV) is; “an aircraft piloted by remote control or onboard computers”⁷. According to national and international aviation organizations the definition of the “Unmanned Aerial Vehicle” and other related terms have changed in the recent near past depending on technological improvements and policies. NATO (North Atlantic Treaty Organization) defines the UAV in the Standardization Agreement (STANAG) document number 4671 as⁸;

“A reusable aircraft which is designed to operate with no human pilot on board and which does not carry personnel. An UAV is capable of sustained flight by aerodynamic means, remotely piloted or automatically flies a pre-programmed flight profile and is not classified as a guided weapon or similar one-shot device designed for the delivery of munitions.”

While in the first edition of the document in 2007 the term UAV (Unmanned Aerial Vehicle) was defined, in the following and the latest edition (Edition B Version 1) of the document in 2019 the term was changed to UAS (Unmanned Aerial System) with the same definition.

Similarly, The Ministry of Defence of the UK has provided two different definitions;

“An Unmanned Aircraft (UA) is defined as an aircraft that does not carry a human operator. An Unmanned Aircraft System (UAS) is defined as a system, whose components include the unmanned aircraft and all equipment, network and personnel necessary to control the unmanned aircraft.”⁹

The key word of the definitions “system” means remotely command-controlled and ground support systems. Any aircraft without these systems is defined as an Unmanned Aircraft (UA) or Unmanned Aerial Vehicle (UAV).

The term Unmanned Aircraft System is used by the United States Federal Aviation Administration and defined as;

“UAS consists of the unmanned aircraft platform and its associated elements--including communication links, sensors, software and power

⁷ “Definition of UAV by Lexico,” Lexico Dictionaries, Available at <https://www.lexico.com/en/definition/uav> (accessed 22 August 2019)

⁸ “NATO Unmanned Aircraft Systems Airworthiness Requirements (Usar) Edition B Version 1,” NATO, Available at <https://nso.nato.int/nso/zPublic/ap/PROM/AEP-4671%20EDB%20V1%20E.pdf> (accessed 04 August 2019)

⁹ Louisa Brooke-Holland, “Overview of Military Drones Used by the UK Armed Forces,” London: House of Commons Library, Available at <http://researchbriefings.files.parliament.uk/documents/SN06493/SN06493.pdf> (accessed 14 August 2019)

supply--that are required for the safe and efficient operation in the national airspace system (NAS).”¹⁰

The General Directorate of Civil Aviation of Turkey lays down the rules and procedures about importation, sale, registration, airworthiness, air traffic services and the operations of civil UASs systems that will be operated or used in Turkish air space within the framework of provisions of the Unmanned Aircraft System Instruction (SHT-IHA) based on the Turkish Civil Aviation Law no. 2920 and dated 14 October 1983 as well as the Law on Organization and Duties of the General Directorate of Civil Aviation no. 5431 dated 10 November 2005.¹¹

The term UAV is defined as a core component of UAS in Unmanned Aircraft System Instruction (SHT-IHA);

“Unmanned Aerial Vehicle (UAV): Aircraft, which is operated as a component of the UAS (Unmanned Aircraft System), capable of continuous flight through aerodynamic forces, controlled by a remote UAV pilot or operated autonomously based on the plan which is made by the UAV pilot.”

An UAV is designed for intelligence, surveillance, target acquisition, and reconnaissance (ISTAR) purposes, but for combat purposesUCAVs (Unmanned Combat Aerial Vehicle) have also been developed. UCAVs are expected to replace and complement manned strike aircraft at some point in the future.¹²

History of UAVs

Most professionals believe that UAVs are recent inventions that have been improved over the last decades, but unmanned flight history goes back to ancient times. Modern UAVs as defined today are quite recent and mainly involve the reconnaissance drones that were first developed and deployed during the cold war.¹³

¹⁰ “Unmanned Aircraft Systems,” Federal Aviation Administration, Available at https://www.faa.gov/data_research/aviation/aerospace_forecasts/media/unmanned_aircraft_systems.pdf (accessed 26 October 2019)

¹¹ “İNSANSIZ HAVA ARACI SİSTEMLERİ TALİMATI (SHT-IHA),” General Directorate of Civil Aviation, last modified 21 April 2016, Available at https://iha.shgm.gov.tr/public/document/SHT-IHA_REV1.pdf (accessed 26 October 2019)

¹² George J. Vachtsevanos and Kimon P. Valavanis, “Military and Civilian Unmanned Aircraft,” in: *Handbook of Unmanned Aerial Vehicles*, ed. George J. Vachtsevanos and Kimon P. Valavanis (Dordrecht: Springer Netherlands, 2015), pp. 93-103

¹³ Konstantinos Dalamagkidis, “Aviation History and Unmanned Flight,” in: *Handbook of Unmanned Aerial Vehicles*, ed. George J. Vachtsevanos and Kimon P. Valavanis (Dordrecht: Springer Netherlands, 2015), pp. 57-81

From the 18th century to the present there are some major improvements in the history of UAVs as we know them today;¹⁴

- 1782 - The Montgolfier brothers in France developed hot-air balloons.
- 1806 - Lord Thomas Cochrane of the British Royal Navy launched kites from HMS Pallas (a 32-gun frigate) in order to drop propaganda leaflets on French territory.
- 1848 - Austria launched a pilotless balloon bomb attack against Venice.
- 1898 - During the Spanish-American war the U.S. military deployed cameras-attached to kites to take some of the first aerial surveillance photographs of enemy sites.
- 1898 – A Radio-Controlled Boat was unveiled by Tesla. The following year he demonstrated to the Chicago Commercial Club that he could run a boat without touching it, making it turn, accelerate and flash its lights whenever he sent signals to it.
- 1903 – The Wright Brothers flew for twelve seconds and covered 120 feet.
- 1911 - The Italian pilot Lieutenant Giulio Gavotti dropped bombs from an airplane during the Italy-Ottoman Empire war in Libya.
- 1940s - The GB-1 was developed to allow bombers to release bombs from outside the range of enemy defenses, over one thousand GB-1s were used by US Army Air Forces against Germany during WWII.
- 1951 – The Ryan Firebee one of the first jet-propelled drones was used as a remote combat aircraft.
- 1962 – The Lightning Bug was introduced as a reconnaissance RPV (Remotely Piloted Vehicle) and used in the Vietnam War.
- 1986 – The AAI RQ-2 Pioneer was developed by AAI Corporation (US) and Israel Aircraft Industries for reconnaissance and surveillance missions.
- 1991 - According to a May 1991 Department of the Navy report, “At least one UAV was airborne at all times during Desert Storm.”
- 1994 - NASA acquired the Perseus unmanned aircraft, one of the first advanced weather drone programs. Perseus became a centerpiece of

¹⁴ David Attard, “The History of Drones: A wonderful, Fascinating Story Over 235+ Years,” DonesBuy. Net, last modified 23 March 2017, Available at <https://www.dronesbuy.net/history-of-drones> (accessed 25 October 2019)

NASA's Environmental Research Aircraft and Sensor Technology project, which launched in 1994.

- 1999 - MQ-1 Predators (Predator A) were used for surveillance and reconnaissance in Kosovo, Afghanistan and other war zones.
- 2001 – The first-ever combat strike by a remotely piloted aircraft was used to kill Taliban militants in Afghanistan.
- 2006 – The first year that the US Federal Aviation Administration issued a commercial drone permit.
- 2007 – The MQ-9 Reaper (Predator B) was used in combat missions in Iraq and Afghanistan, armed with Hellfire missiles.
- 2010 - Parrot (www.parrot.com) released their Parrot AR Drone, the first ready-to-fly drone which can be controlled entirely via Wi-Fi communication, using a smartphone.
- 2013 - Amazon published a concept video about a drone-based package delivery system.
- 2014 - The consumer drone industry was at an all-time high.

Classification of UAVs

Classification of UAVs is mainly based on two different methods: firstly, technical specifications; and, secondly, usage areas. There are many metrics that have been used for UAV classification, including mean takeoff weight (MTOW), size, operating conditions, capabilities, or any combination of these and other specific characteristics.¹⁵ One of the most admissible classifications of UAVs in both industry and academia is made by the Unmanned Vehicle Systems International Association¹⁶ shown in table 1.

¹⁵ Konstantinos Dalamagkidis, "Classification of UAVs," in: *Handbook of Unmanned Aerial Vehicles*, ed. George J. Vachtsevanos and Kimon P. Valavanis (Dordrecht: Springer Netherlands, 2015), pp. 83-91

¹⁶ "UVS International – Remotely Piloted Systems: Promoting International Cooperation & Coordination," Available at <https://uvs-international.org> (accessed 26 October 2019)

Table 1. General Classification of UAVs¹⁷

Acronym	Category	Mass (kg)	Range (km)	Flight Altitude	Endurance
μ	Micro (μ)	< 5	< 10	250	1
Mini	Mini	< 20/25/30/150	< 10	150	< 2
CR	Close Range	25 - 150	30-Oct	3	4-Feb
SR	Short Range	50 - 250	30 - 70	3	6-Mar
MR	Medium Range	150 - 500	70 - 200	5	10-Jun
MRE	MR Endurance	500 - 1.500	> 500	8	18-Oct
LADP	Low Alt. Deep Penetration	250 - 2.500	> 250	50 - 9.000	0,5 - 1
LALE	Low Alt. Long Endurance	15 - 25	> 500	3	> 24
MALE	Medium Alt. Long Endurance	1.000 - 1500	> 500	5/8.000	24 - 48
HALE	High Alt. Long Endurance	2.500 - 5.000	> 2000	20	24 - 48
Strato	Stratospheric	> 2.500	> 2000	> 20.000	> 48
EXO	Exo-stratospheric	TBD	TBD	> 30.500	TBD
UCAV	Unmanned combat AV	> 1.000	+/- 1.500	12	+/- 2
LET	Lethal	TBD	300	4	4-Mar
DEC	Decoys	150-500	0 - 500	50 - 5.000	< 4

NATO's classification made by JAPCC (Joint Air Power Competence Centre)¹⁸ is shown in table 2.

¹⁷ Peter van Blyenburgh, "Unmanned Aircraft Systems the Current Situation," last modified 01 February 2008, Available at: [https://www.easa.europa.eu/sites/default/files/dfu/ws_prod-g-doc-Events-2008-February-1-Overview-of-the-UAV-Industry-\(UVS\).pdf](https://www.easa.europa.eu/sites/default/files/dfu/ws_prod-g-doc-Events-2008-February-1-Overview-of-the-UAV-Industry-(UVS).pdf) (accessed 27 October 2019)

¹⁸ "Some Facts about the Joint Air Power Competence Centre," JAPCC, Available at: <https://www.japcc.org/about-japcc> (accessed 22 October 2019)

Table 2. NATO UAV Classification Table¹⁹

Class	Category	Normal Employment	Normal Operating Altitude	Normal Mission Radius	Primary Supported Commander	Example Platform
CLASS I (less than 150 kg)	SMALL >20 kg	Tactical Unit (employs launch system)	Up to 5K ft AGL	50 km (LOS)	BN/Regt, BG	Luna, Hermes 90
	MINI 2-20 kg	Tactical Sub-unit (manual Launch)	Up to 3K ft AGL	25 km (LOS)	Coy/Sqn	Scan Eagle, Skylark, Raven, DH3, Aladin, Strix
	MICRO <2 kg	Tactical PI, Sect, Individual	Up to 200 ft AGL	5 km (LOS)	PI, Sect	Black Widow
CLASS II (150 kg to 600 kg)	TACTICAL	Tactical Formation	Up to 10,000 ft AGL	200 km (LOS)	Bde Comd	Sperwer, Iview 250, Hermes 450, Aerostar, Ranger
CLASS III (more than 600 kg)	Strike / Combat	Strategic/ National	Up to 65,000 ft	Unlimited (BLOS)	Theatre COM	
	HALE	Strategic/ National	Up to 65,000 ft	Unlimited (BLOS)	Theatre COM	Global Hawk
	MALE	Operational/ Theatre	Up to 45,000 ft MSL	Unlimited (BLOS)	JTF COM	Predator B, Predator A, Heron, Heron TP, Hermes 900

In Turkey the General Directorate of Civil Aviation brought UAVs under regulation. UAVs are divided into four classes according to Unmanned Aircraft System Instruction (SHT-IHA) shown in table 3.

Table 3. Classification of UAVs in Turkey

Class	MTOW (Maximum Takeoff Weight)
UAV0	500 gr – 4 kg
UAV1	4 kg – 25 kg
UAV2	25 kg – 150 kg
UAV3	> 150

According to formal and informal documents the term ‘drone’ has a narrow scope, so every drone is an UAV, but not every UAV is a drone.

¹⁹ “Strategic Concept of Employment for Unmanned Aircraft Systems In NATO,” JAPCC Joint Air Power Competence Centre, last modified 04 January 2010, Available at: http://www.japcc.org/wp-content/uploads/UAS_CONEMP.pdf (accessed 27 October 2010)

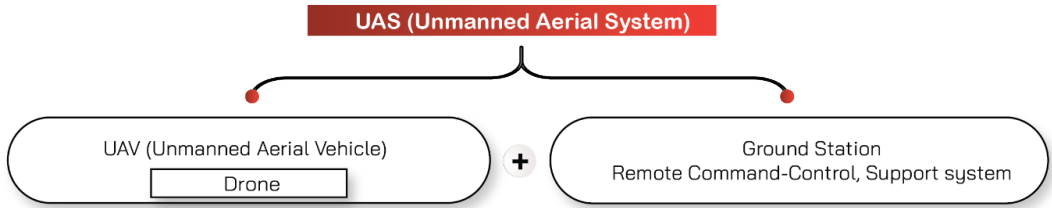


Figure 1. Drone, UAV & UAS

UAVs could also be classified according to other properties;

Operator: Military, Civil

Shape: Fixed Wing, Rotary Wing, Compound

Power Source: Electricity, Oil

Ownership: State, Public

Usage Areas;²⁰

Civilian Uses;

- Aerial photography (Video, film, still, etc.)
- Agriculture (Crop monitoring and spraying; herd monitoring and driving)
- Border management (Human trafficking, Search and rescue operations)
- Environmental Conservation (Pollution and land monitoring)
- Customs and Excise (Surveillance for illegal imports)
- Energy companies (Powerline inspection)
- Fire Services and Forestry (Fire detection, incident control)
- Fisheries (Fisheries protection)
- Gas and oil supply companies (Land survey and pipeline security)
- Information services (News information and pictures, feature pictures, e.g. wildlife)
- Lifeboat Institutions (Incident investigation, guidance and control)
- Local Authorities (Survey, disaster control)

²⁰ Reg Austin, "Unmanned Aircraft Systems UAVs Design, Development and Deployment," (Wiltshire: Wiley, 2010), pp. 1-2

- Meteorological services (Sampling and analysis of atmosphere for forecasting, etc.)
- Traffic agencies (Monitoring and control of road traffic)
- Oil companies (Pipeline infrastructure security)
- Ordnance Survey (Aerial photography for mapping)
- Police Authorities (Search for missing persons, security and incident surveillance)
- Rivers Authorities (Water course and level monitoring, flood and pollution control)
- Survey organizations (Geographical, geological and archaeological survey)
- Water Boards (Reservoir and pipeline monitoring)

Military roles;

- Reconnaissance
- Surveillance of enemy activities
- Monitoring of nuclear, biological or chemical (NBC) contamination
- Intelligence gathering
- Target designation and monitoring
- Location and destruction of land mines
- Shadowing enemy fleets
- Decoying missiles by the emission of artificial signatures
- Counterintelligence operations
- Relaying radio signals
- Protection of ports from offshore attack
- Placement and monitoring of sonar buoys and possibly other forms of anti-submarine warfare
- Long-range, high-altitude surveillance
- Radar system jamming and destruction
- Open Source Intelligence (OSINT)
- Airfield base security
- Airfield damage assessment
- Elimination of unexploded bombs

Main Components of UAVs

Some basic parts and components are present in all UAVs but according to type and usage areas other more specialized elements are included for specific purposes. The term unmanned aerial system (UAS) means a system consisting of an unmanned aerial vehicle (UAV) and associated support systems including a ground station and data link.

Body: The body or frame is the main part of the UAVs. The shape and the material of the body vary based on the flight principle and strength requirement.

Engine: There are three main types of engines used for UAVs. Turbine Engines (turbofan, turbojet, turboprop, cruise missiles, gas turbine for naval applications), Reciprocating Engines (diesel and spark ignition, two and four strokes, turbocharged and naturally aspirated) and Electric Motors.²¹ Hybrid engines are also being developed in response to demand by the industry.²²

Propeller: The propeller converts rotary motion from an engine or other power source into a swirling slipstream which pushes the propeller forwards or backwards. The purpose of propellers is to generate thrust and torque to keep the UAV flying, and to maneuver.²³

Power Supply / Battery: The engine type, flight time and the size of the UAV defines and characterises the power supply of the UAV. Although larger UAVs rely on conventional engines which consume fuel, most of the UAVs are manufactured with electric motors that need batteries. Lithium-Polymer (Li-Po) batteries are efficient and the best solution for multi-copter UAVs.²⁴ Solar power is another option for electric motor UAVs.²⁵

²¹ Daniele Cirigliano, "Engine-type and Propulsion-Configuration Selections for Long-Duration UAV Flights, A brief Dissertation" (M.Sc. Thesis, University of California, 2017), p. 6

²² "Propulsion-By-Wire Technology," LaunchPoint Technologies, Available at: <http://www.launchpnt.com/portfolio/aerospace/propulsion-by-wire-technology> (accessed: 21 October 2019)

²³ "Quadcopter Propeller Basics for Drone Pilots," Drone Omega, Available at: <https://www.droneomega.com/quadcopter-propeller> (accessed: 20 October 2019)

²⁴ Swee K. Phang, "Systematic Design Methodology and Construction of Micro Aerial Quadrotor Vehicles," in: Handbook of Unmanned Aerial Vehicles, ed. George J. Vachtsevanos and Kimon P. Valavanis (Dordrecht: Springer Netherlands, 2015), pp. 181-206

²⁵ Bohwa Lee, Poomin Park, and Chuntaek Kim, "Power Managements of a Hybrid Electric Propulsion System Powered by Solar Cells, Fuel Cells, and Batteries for UAVs," in: Handbook of Unmanned Aerial Vehicles, ed. George J. Vachtsevanos and Kimon P. Valavanis (Dordrecht: Springer Netherlands, 2015), pp. 495-524

Flight Controller Platform: Each UAV must have an avionics system to collect measurement signals, drive the actuators, and support communications and real-time operation of autonomous flight control laws.²⁶ A flight controller platform consists of hardware and software.²⁷ Military and commercial UAVs have their own unique flight controller systems but much open source flight controller hardware and software is also available for end users.²⁸

Sensors: The objective of the sensors is to “sense,” “see,” “hear,” and “understand” the world around it so that it may function intelligently in an unknown and cluttered environment without an on board pilot.²⁹ Sensors can be divided into three categories according to their functions; navigation, environment detection and imaging.

Global Positioning System (GPS) Sensor: GPS is the Global Navigation Satellite System of the USA (**GNSS**) used to determine the ground position of an object. A GPS receiver combines the broadcasts from more than three satellites to calculate its exact position using a process called triangulation. At least three satellites are required to determine a receiver's location, though a connection to four satellites is ideal since it provides greater accuracy.³⁰ Glonass (Russia), Beidou (China) and Galileo (EU) are the other GNSS applications.

Space-Based Augmentation Systems (SBAS): SBAS systems are geosynchronous satellite systems that provide services for improving the integrity, accuracy and availability of basic GNSS signals.

²⁶ Kemao Peng, Guowei Cai, Ben M.Chen, Miaobo Dong, Kai Yew Lum and Tong H.Lee, “Design and Implementation of An Autonomous Flight Control Law for A UAV Helicopter,” *Automatica* 45 no. 10 (2009): pp. 2333-2338

²⁷ Emad Ebeid, Martin Skriver and Jie Jin, “A Survey on Open-Source Flight Control Platforms of Unmanned Aerial Vehicle,” *2017 Euromicro Conference on Digital System Design (DSD)* (Vienna, 2017), pp. 396-402

²⁸ Sulaiman Sabikan and Sophan Nawawi, “Open-Source Project (OSPs) Platform for Outdoor Quadcopter,” *Journal of Advanced Research Design* 24 no. 1 (2016) pp. 13-27

²⁹ Kimon P. Valavanis and George J. Vachtsevanos, “Sensors and Sensing Strategies: Introduction,” in: *Handbook of Unmanned Aerial Vehicles*, ed. George J. Vachtsevanos and Kimon P. Valavanis (Dordrecht: Springer Netherlands, 2015), pp. 383-384

³⁰ Per Christensson, “GPS Definition,” TechTerms, Available at: <https://techterms.com/definition/gps> (accessed 27 October 2019)

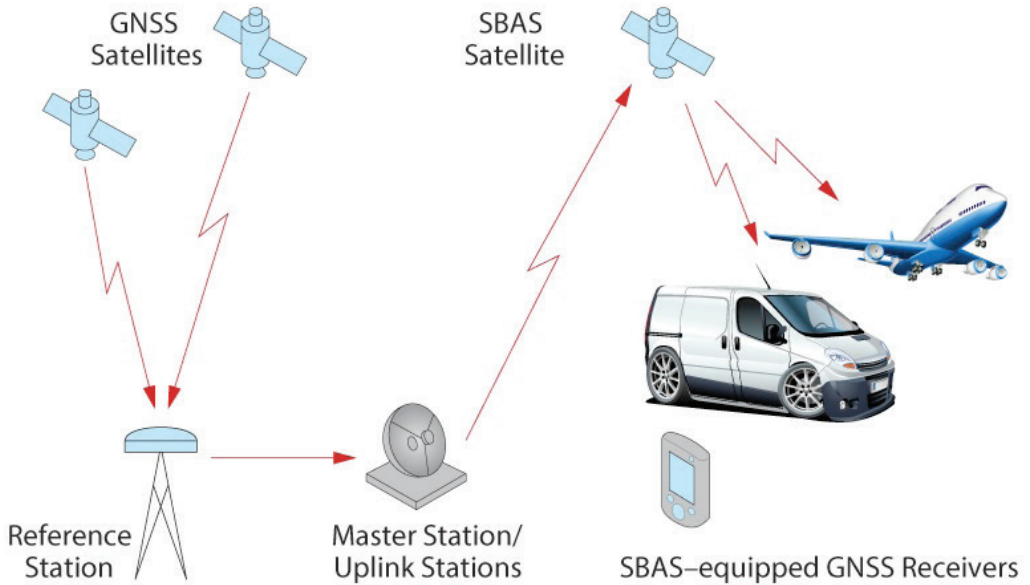


Figure 2. SBAS System Overview³¹

Inertial Measurement Unit (IMU): IMU is an electronic device that measures and reports orientation, velocity, and gravitational forces using accelerometers (a device that measures changes in gravitational acceleration)³² and gyroscopes (a device containing a rapidly spinning wheel or circulating beam of light that is used to detect the deviation of an object from its desired orientation)³³ and often magnetometers (an instrument for measuring the intensity of a magnetic field - compass).³⁴ IMUs are the main components of the **inertial navigation systems** used in aircraft, UAVs and other unmanned systems, as well as missiles and even satellites.³⁵

³¹ "An Introduction to GNSS | Satellite Based Augmentation Systems," NovAtel, Available at <https://www.novatel.com/an-introduction-to-gnss/chapter-5-resolving-errors/satellite-based-augmentation-systems> (accessed 08 August 2019)

³² Margaret Rouse, "What is accelerometer?" WhatIs.com, last modified January 2014, Available at: <https://whatis.techtarget.com/definition/accelerometer> (accessed 28 August 2019)

³³ The Editors of Encyclopaedia Britannica, "Gyroscope," Encyclopædia Britannica, last modified 07 May 2019, Available at: <https://www.britannica.com/technology/gyroscope> (accessed 27 October 2019)

³⁴ "Magnetometer," Dictionary.com, Available at: <https://www.dictionary.com/browse/magnetometer> (accessed 27 October 2019)

³⁵ "What is an IMU?," Sparton, last modified 16 September 2015, Available at: <https://www.spartonnavex.com/imu> (accessed 27 October 2019)

Electro-optical sensor: Electro-optical sensors become a standard fit for navigation or surveillance onboard many aerial vehicles.³⁶ Electro-optical components utilize a combination of electronics and optics to generate, detect, and/or measure radiation in the optical spectrum with sensors. These systems are used for both targeting and imaging in UAVs. Thermal imaging, night-vision imaging and image intensification technologies operate through electro-optical principles.³⁷

Infrared attitude sensors: Infrared Earth horizon sensors are capable of detecting attitude information for satellites in low Earth orbit by using thermopile measurements of the Earth's infrared emission to locate the Earth's horizon.³⁸ For small to medium sized fixed wing UAVs which operate in both day and night Visual Meteorological Conditions (VMC) the infrared Horizon Sensing Attitude Stabiliser (HSAS) is another effective and low-cost solution.³⁹

Barometric Sensor: The barometric sensor, also commonly known as the BAP (barometric air pressure) sensor is capable of measuring the atmospheric pressure of the environment that an UAV is operating in. Digital BAP sensors are compact devices for altitude stabilization in consumer drones.⁴⁰

Radar Sensor: Radar is a system that uses radio waves to find the position of objects that cannot be seen.⁴¹ In air vehicles radar and Identification Friend or Foe (IFF) equipment can detect the forward elements of complex systems that have appeared throughout the world.⁴² Smaller size Synthetic Aperture Radar (SAR) systems are more suitable for UAVs⁴³ especially micro-SAR systems which have

³⁶ Luis Mejias, John Lai and Troy Bruggemann, "Sensors for Missions," in: Handbook of Unmanned Aerial Vehicles, ed. George J. Vachtsevanos and Kimon P. Valavanis (Dordrecht: Springer Netherlands, 2015), pp. 385-399

³⁷ "Electro-Optical Systems," EO System Suppliers for UAV UGV Robotics, Available at: <https://www.unmannedsystemstechnology.com/category/supplier-directory/cameras-imaging-systems/electro-optical-systems> (accessed 27 October 2019)

³⁸ Tam Nguyen, Kerri Cahoy and Anne Marinan, "Attitude Determination for Small Satellites with Infrared Earth Horizon Sensors," *Journal of Spacecraft and Rockets* 55 no. 6 (2018): 1466-1475

³⁹ Brian Taylor, Cees Bil, Simon Watkins and G. Egan, "Horizon Sensing Attitude Stabilisation: A VMC autopilot," *18. International UAV Systems Conference* (Bristol, 2003)

⁴⁰ "Barometric Pressure Sensor," Bosch-Sensortec, Available at: https://www.bosch-sensortec.com/bst/products/all_products/bmp388 (accessed 27 October 2019)

⁴¹ "Radar," Cambridge Dictionary, Available at: <https://dictionary.cambridge.org/dictionary/english/radar> (accessed 27 October 2019)

⁴² Harry Davis, "Warning System," Encyclopædia Britannica, last modified 18 March 2019, Available at: <https://www.britannica.com/technology/warning-system> (accessed 27 October 2019)

⁴³ Mike Hanlon, "ScanEagle UAV gets Synthetic Aperture Radar (SAR)," New Atlas, last modified 19 March 2018, Available at: <https://newatlas.com/scaneagle-uav-gets-synthetic-aperture-radar-sar/9007> (accessed 27 October 2019)

been designed for military or civilian applications, and to be carried by small or medium UAVs.⁴⁴

LiDAR Sensor: LiDAR (Light Detection and Ranging) is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth for mapping.⁴⁵ LiDAR sensors are mostly mounted on land and air vehicles or pedestrians, to implement pose estimation, mobile mapping and navigation in both indoor and outdoor environments, standalone or with other sensors.⁴⁶

Thermopile Sensor: A thermopile is a temperature or radiation sensor⁴⁷ that measures the temperature such as used in infrared thermometers. Low-cost thermopile IR sensors are used in UAVs for thermography applications.⁴⁸

Ultrasonic Sensor: An Ultrasonic sensor is a device which can measure the distance to an object by using sound waves. It measures distance by sending out a sound wave at a specific frequency and listening for that sound wave to bounce back. By recording the elapsed time between the sound wave being generated and the sound wave bouncing back, thus it can be possible to calculate the distance between the sonar sensor and the object.⁴⁹ In multicopter type UAVs ultrasonic sensors are used to estimate the altitude and the vertical displacements of the UAV.⁵⁰

⁴⁴ Piotr Samczynski, Krzysztof Kulpa, Mateusz Malanowski, Maciej Wielgo, Piotr Baranowski, Kselpi Ndini, Pawel Roszkowski and Pawel Dzwonkowski, "SARENKA - C-band SAR radar for UAV application," *EUSAR 2014; 10th European Conference on Synthetic Aperture Radar* (Berlin, 2014), 1-4

⁴⁵ "What is LIDAR?," The National Ocean Service, last modified 25 June 2018, Available at: <https://oceanservice.noaa.gov/facts/lidar.html> (accessed 27 October 2019)

⁴⁶ Shifei Liu, Mohamed Maher Atia, Yanbin Gao and Aboelmagd Noureldin, "Adaptive Covariance Estimation Method for LiDAR-Aided Multi-Sensor Integrated Navigation Systems," *Micromachines* 6 (2015): 196-215, doi: 10.3390/mi6020196

⁴⁷ Suvhashis Thapa, Siva Mahesh Tangutooru, Eric J. Guilbeau and Niel D. Crews, "The Thermopile: An Anisotropic Temperature Sensor," *Sensors and Actuators A: Physical* 187 (2012): 132-140

⁴⁸ João Valente, Juan Jesús Roldán, Mario Garzón and Antonio Barrientos, "Towards Airborne Thermography via Low-Cost Thermopile Infrared Sensors," *Drones* 3 no. 30 (2019), doi: 10.3390/drones3010030

⁴⁹ "What is an Ultrasonic Sensor?," Carnegie Mellon Robotics Academy, Available at: http://cmra.rec.ri.cmu.edu/content/electronics/boe/ultrasonic_sensor/1.html (accessed 27 October 2019)

⁵⁰ Pierre-Jean Bristeau, François Callou, David Vissière and Nicolas Petit, "The Navigation and Control technology inside the AR.Drone micro UAV," *18th World Congress The International Federation of Automatic Control* (Milano, 2011)

Digital Camera Sensor: Consumer UAVs generally have their own embedded digital cameras⁵¹ but in some commercial UAVs additional higher-spec, low-weight digital cameras are mounted.⁵² On the other hand more specific camera systems with other sensing components are have been developed for tactical military UAVs.⁵³

Thermal Camera Sensor: Thermal imaging is a method of improving visibility of objects in a dark environment by detecting the objects' infrared radiation and creating an image based on that information.⁵⁴ Thermal camera sensors are available with various applications for different scale UAVs.^{55 56}

Infrared (IR) Camera Sensor: IR Cameras (generally known as IR Night Vision Cameras) use light in the much higher frequency range of the near infrared region while thermal cameras use radiation from within the far infrared region of the spectrum.⁵⁷ IR Night Vision cameras which are cheaper than thermal cameras are the preferred solution for low cost UAVs.

Multispectral Camera Sensor: An ordinary camera sensor captures light across three wavelength bands in the visible spectrum, red, green, and blue (RGB) but spectral imaging may use the infrared, the visible spectrum, the ultraviolet and x-rays. Combinations of unmanned aerial platforms and multispectral sensors are considered low-cost tools for various applications in remote sensing.⁵⁸

⁵¹ "Consumer Drones Comparison," DJI, Available at: <https://www.dji.com/products/compare-consumer-drones> (accessed 27 October 2019)

⁵² James O'Connor and Mike Smith, "Selecting Cameras for UAV Surveys," GIM International, last modified 06 October 2016, Available at: <https://www.gim-international.com/content/article/selecting-cameras-for-uav-surveys> (accessed 27 October 2019)

⁵³ Abayomi Agbeyangi, Joseph O. Odiete and Adam B Olorunlomeye, "Review on UAVs used for Aerial Surveillance," *Journal of Multidisciplinary Engineering Science and Technology (JMEST)* 3 (2016): pp. 2458-9403

⁵⁴ Margaret Rouse, "What is Thermal Imaging?," Whatis.com, last modified April 2011, Available at: <https://whatis.techtarget.com/definition/thermal-imaging> (accessed 27 October 2019)

⁵⁵ Fintan Corrigan, "10 Thermal Vision Cameras for Drones And How Thermal Imaging Works," DroneZon, last modified 03 September 2019, Available at: <https://www.dronezon.com/learn-about-drones-quadcopters/9-heat-vision-cameras-for-drones-and-how-thermal-imaging-works> (accessed 27 October 2019)

⁵⁶ Al Savvaris, Marco Melega and Antonios Tsourdos, "Advanced Surface Movement and Obstacle Detection Using Thermal Camera for UAVs," *IFAC-PapersOnLine* 48 no. 9 (2015): pp. 43-48

⁵⁷ Stephen Scholnik, "What Is the Difference Between A Thermal Infrared Imaging Camera and Infrared (IR) CCTV IR LED Night Vision Cameras?," Quora, last modified 06 December 2018, Available at: <https://www.quora.com/What-is-the-difference-between-a-thermal-Infrared-imaging-camera-and-infrared-IR-cctv-IR-LED-Night-vision-cameras> (accessed 27 October 2019)

⁵⁸ Susana Del Pozo, Pablo Rodríguez-González, David Hernandez and Beatriz Felipe, "Vicarious Radiometric Calibration of Multispectral Camera on Board Unmanned Aerial System," *Remote Sensing* 6 (2014): pp. 1918-1937

Ground Control Station: The ground control station allows the control and monitoring of the UAV at the exception of launch and recovery situations.⁵⁹ While military UASs operating with complicated ground control stations small UASs (SUAS) have only a laptop computer with a data link as the ground control station.⁶⁰

Data Link (Communication): The data link is an important part of the UAV and contact with the ground control station. Data Link does not only complete the remote control of UAV but also transmits airborne information such as videos and images to the operator screen.⁶¹

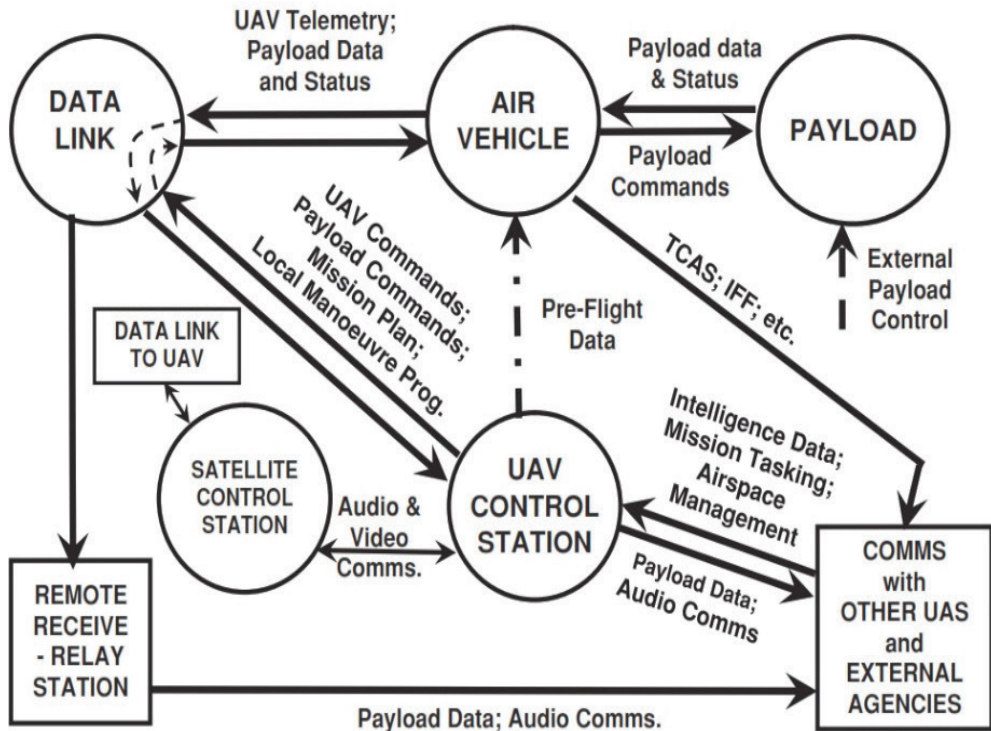


Figure 3: UAS Architecture ⁶²

⁵⁹ Alain Ajami, Thibault Maillot, Nicolas Boizot and Jean F. Balmat, "Simulation of A UAV Ground Control Station," *9th International Conference of Modeling, Optimization and Simulation - MOSIM'12* (Bordeaux, 2012)

⁶⁰ Demoz Gebre-Egziabher and Zhiqiang Xing, "Analysis of Unmanned Aerial Vehicles Concept of Operations in ITS Applications," Department of Aerospace Engineering and Mechanics University of Minnesota (2011)

⁶¹ Jinxi Li, Yongfei Ding and Zheng Fang, "Key Techniques Research on UAV Data Link," *Procedia Engineering* 99 (2015): pp. 1099-1107

⁶² Austin, "Unmanned Aircraft Systems UAVs Design, Development and Deployment,"

UAVs in Terrorist Activities

In international relations technological developments are very important depending on who controls them.⁶³ Access to important information and technology by individuals can have a positive impact on social development but, in the hands of non-governmental and/or terrorist organizations this can pose new threats to national and international security. Cyber terror attacks are rarely today but, in the future- it is expected these will increase in number and they will be more dangerous than suicide bombs. It is predicted that cyber-attacks will be capable of causing systematic collapse in the community and that destructive activities which strike public security will occur.⁶⁴ Technological developments give advantages to terrorist organizations the opportunity to improve their operational capacity.⁶⁵ Drone technology is one of the technological developments that has been/could be adapted to terrorist actions. At first, simple UAVs were used in terrorist activities, but later more sophisticated drones have been designed and assembled by different terrorist groups and have been deployed as part of terrorist operations.

The terrorist attack using sarin gas which was organized by Aum Shinrikyo was one of the first examples of drone usage in terrorist activities. AUM (Aum Shinrikyo terrorist organization) had intended to release sarin gas in the Tokyo subway with a remote-controlled mini helicopter. The organization changed the method of the attack because of an accident with the RC Helicopter during the preparation of the action. Since 2001, there have been six unsuccessful terrorism attacks involving UAVs by Al Qaeda and related groups. In 2002 Colombian military forces also captured nine remote controlled planes in a camp area belonging to the FARC (Revolutionary Armed Forces of Colombia) terrorist organization.⁶⁶

⁶³ Ivan V. Danilin, "Emerging Technologies and Their Impact on International Relations and Global Security," *Governance Emerging New World* 118 (2018): pp. 8-15

⁶⁴ Johan Eriksson and Giampiero Giacomello, "Introduction: Closing the Gap Between International Relations Theory and Studies of Digital-Age Security," in: *International Relations and Security in the Digital Age*, ed. Johan Eriksson and Giampiero Giacomello (New York: Routledge, 2007)

⁶⁵ Ivan V. Danilin, "Emerging Technologies and Their Impact on International Relations and Global Security," *Governance Emerging New World* 118 (2018): pp. 8-15

⁶⁶ Robert J. Bunker, "Terrorist and Insurgent Unmanned Aerial Vehicles: Use, Potentials, and Military Implications," (Pennsylvania: U.S. Army War College Press, 2015)
Andrea Beccaro, "Modern Irregular Warfare: The ISIS Case Study," *Small Wars & Insurgencies* 29 no. 2 (2017): pp. 207-228, doi: 10.1080/09592318.2018.1433469
Gordon C. Oehler, "Continuing Threat from Weapons of Mass Destruction", Central Intelligence Agency, last modified 27 March 1996, Available at: https://www.cia.gov/news-information/speeches-testimony/1996/go_toc_032796.html (accessed 27 October 2019)

In the first attempts drone technology was still developing and was not being used widely. These circumstances were the main reasons for the failed terrorist attempts with drones. With the development of drone technology, commercial consumer drones are now available on the market for customers so terrorist groups can use drones in their activities more effectively. Today's terrorist organizations are using UAVs that they obtained from commercial brands such as DJI Phantom, DJI Spreading Wings, RVJET, X-UAV Talon, Sky Walker X8, RC4Y Sky Hunter, DJI M600 and 3DR Solo Quadcopter and UAVs that they make in their own workshops.⁶⁷ With the beginning of the Syrian Civil War, terrorist organizations also started to use drones for organizational purposes in Iraq and Syria.

The DAESH terrorist organization used drones for the first time in Syria in August 2014 for propaganda and reconnaissance.⁶⁸ According to the videos "Allah ve Resulü Doğru Söylemişlerdir", "Biz Onları Mutlaka Yollarımıza İleteceğiz", "Dicle Vilayetinde Savaşın Seyri", "Divanların Süvarileri" ve "Yiğitlerin Kılıcı" that have been shared in DAESH Telegram accounts, drones are being used for dropping Improvised Explosive Device (IEDs) from the air onto crowds, as air support before suicide bomb attacks, and for the aforementioned propaganda and reconnaissance activities.

DAESH related terrorist groups like HTS (Hay'at Tahrir al-Sham)/Al-Nusrah Front which follows the Al-Qaeda ideology and separatist terrorist organizations like PKK/KCK were inspired by the DAESH's usage of UAVs in terrorist actions. (Table 4.) HTS/Al-Nusrah terrorist organization carried out the most feared swarm attack by drones in the conflict zones. Outside of conflict zones, in Turkey, terrorist attacks with drones have been conducted by DAESH and the PKK/KCK terrorist organizations. In November 2018, during the "November 10 Atatürk Remembrance Day", a drone swarm attack was used by the PKK/KCK terrorist organization. Turkey resisted this assault without any loss.

⁶⁷ Serkan Balkan, "Devlet Dışı Silahlı Aktörler ve Terör Örgütlerinin Yeni Aracı: İHA Raporu," SETA, Available at: <https://setav.org/assets/uploads/2019/02/130.Rapor-tamrapor-.pdf> (accessed 27 October 2019)

⁶⁸ Asaad Almohammad and Anne Speckhard, "ISIS Drones: Evolution, Leadership, Bases, Operations and Logistics," International Center for the Study of Violent Extremism ICSVE Research Reports, Available at: <https://www.icsve.org/isis-drones-evolution-leadership-bases-operations-and-logistics> (accessed 27 October 2019)



Figure 4: Drone1 which was used by the PKK/KCK terrorist organization for a swarm attack.⁶⁹



Figure 5: Drone2 which was used by the PKK/KCK terrorist organization for a swarm attack.⁷⁰

⁶⁹ "Cemal Acar on Twitter", <https://twitter.com/Acema171/status/1061194893392011264/photo/1>, (accessed 04 February 2020)

⁷⁰ "Cemal Acar on Twitter", <https://twitter.com/Acema171/status/1061194893392011264/photo/2>, (accessed 04 February 2020)



Figure 6: Drone3 which was used by the PKK/KCK terrorist organization for a swarm attack.⁷¹

As shown in the images, the drones used by the PKK / KCK terrorist organization for their swarm attack in November 2018 are not standard consumer market drones but custom-made devices. According to the reports of ASELSAN and the General Directorate of Security which are accessible from open sources, the drones are made of styrofoam and do not have any equipment for landing. The drones used have 172 cm wings and 108 cm body length as well as 1-2.5 kg load carrying capacity. It has been determined that the members of the terrorist organization flew the drones to the targets by entering the coordinate from the city of Zaho in the Northern Iraq and the drones carried plastic explosives with electric detonators, with lethality further enhanced by nails. The terrorist organization attacked the official ceremony area held in the Sirnak Governorship at 09.05 am, along with the Şırnak 23rd Infantry Division Command Barracks, the Kayatepe Base Area, Aydoğdu Base Area, Kasrak Valley Area, and Silopi Şehit Mesut Border Division with nine drones. Two of the nine drones returned to Iraq while seven of the drones

⁷¹ "Cemal Acar on Twitter", <https://twitter.com/Acema171/status/1061194893392011264/photo/4>, (accessed 04 February 2020)

seen in Figures 4, 5 and 6 were downed or crashed.⁷² Even though there was no loss of life as a result of the attacks, the organization will use its experience and its equipment from conflict zones and will improve its drone usage capacity by trial and error, which will likely result in more loss of life and property.

The PKK / KCK terrorist organization has also attempted such attacks. For example, in 2017, in the Ağrı Doğu Beyazıt countryside, a tactical bomb material mounted to Chinese-made drone was found.⁷³ Many attacks by terrorist organization against military targets have also been prevented by Turkish Armed Forces. While the terrorist organization tried to facilitate attacks only by installing bombs to the Chinese-made drones in 2017, by 2019 it had reached the level of being able to combine drone parts with plastic explosives for use in swarm attacks.



Figure 7: Explosive mounted drone by the PKK/KCK terrorist organization.⁷⁴

⁷² “Terör Örgütü PKK’nın Drone Üssü Tesit Edildi”, 15.11.2018, <https://www.internethaber.com/teror-orgutu-pkknin-drone-ussu-tesit-edildi-1919187h.htm>, (accessed 04 February 2020)

⁷³ Gündem Haber Ajansı, “PKK’nın taktik bombalı drone’u ele geçirildi”, 11.11.2017, <http://www.gundemhaberajansi.com/haber/104/pkknin-taktik-bombali-droneu-ele-gecirildi.html>, (accessed 04 February 2020)

⁷⁴ Gündem Haber Ajansı, “PKK’nın taktik bombalı drone’u ele geçirildi”, 11.11.2017, <http://www.gundemhaberajansi.com/haber/104/pkknin-taktik-bombali-droneu-ele-gecirildi.html>, (accessed 04 February 2020)

As can be seen in these examples from many different locations the usage of UAVs in terrorist attacks has gone from probability to reality. It is obvious that in the near future, drones will be used for terrorist activities like assassination, sabotage against airplanes (Bunker 2015), spreading chemical weapons, the destruction of critical infrastructures and the dropping IEDs onto the public. The drone swarm attack on 31 December 2017 at Hmeymim Air Base organized by HTS/Al-Nusra, increased the level of threat from the national to the international. After this attack the PKK/KCK terrorist organization organized drone swarm attacks in Turkey. It is likely that the UAV usage in terrorist attacks in different locations of the world, particularly in conflict zones, will become an important threat to individuals, societies and governments. Drone swarm attacks against metropolises, airports, oil and gas warehouse, oil tankers, nuclear facilities and other critical infrastructures could potentially be very destructive in both financial, physical and emotional terms.

Table 4. Terrorist Activities with UAVs.⁷⁵ (The table shows the possibility of the terrorists using UAVs in terrorist attacks for a number of different purposes.)

USAGE	AL-QAEDA /JNIM	DAESH /BOKO HARAM	HTS/AL-NUS-RAH FRONT	PKK/KCK	FARC	AUM
Act of Violence	-	8	14	25	-	-
Action Preparation	6	1	-	1	9	1
Reconnaissance	-	7	1	-	-	-
Air Support	-	9	4	-	-	-
Propaganda	1	28	19	-	-	-
TOTAL	7	34	19	26	9	1

UAV Detect and Avoid Principles

UAVs, -like many technological products developed to meet a demand, have caused security problems especially small UAVs that while not designed for military purposes, but for photography or as a hobby, are now being exploited for harmful intent. In the first instance, UAV detection and avoidance systems were developed to counter military UAVs, but today, with the growth of the consumer drone market, it is now accepted that UAV detection and avoidance systems for a different scale of threat are essential.

⁷⁵ See Appendix A for the sources of the Table 4.

C-UAS Systems

Counter-UAV (counter-drone) technology, also known as Counter-UAS, C-UAS, refers to systems that are used to detect and/or intercept unmanned aircraft. The most detailed report about C-UAS systems, the technology it relies upon and the products in the market, is published by the Center for the Study of the Drone at Bard College.⁷⁶ Their Counter-Drone Systems Report is accepted as the key/primary reference document in this article.⁷⁷

Small UAV proliferation has largely caught the defense authorities by surprise. Even at the simplest level, devices such as special detectors and jammers will be needed to counter the small drone threat.⁷⁸ Many terrorist organizations such as the PKK and DAESH have used different sized military, commercial or off-the-shelf UAVs for various goals like reconnaissance or attacks.⁷⁹ In the conflict in Syria and Iraq, terrorist groups have seen the advantage of using small UAVs.⁸⁰ Demand and supply of C-UAS Systems has increased the value of the market.

Classic air defense systems which have been developed for use against manned aircraft are of no use in detecting and/or countering drones. These systems are also very expensive in comparison to the low-cost of UAVs.⁸¹ Counter-UAS solutions in the market have different capabilities. While some of the products can only detect or interdict UAVs, new combined systems can both detect and interdict.

⁷⁶ "The Center For the Study of The Drone," Bard College, Available at: <https://dronecenter.bard.edu> (accessed 28 October 2019)

⁷⁷ Arthur Holland Michel, "Counter-Drone Systems," (New York: Center for the Study of the Drone at Bard College, 2018), Available at <http://dronecenter.bard.edu/counter-drone-systems> (accessed 28 October 2019)

⁷⁸ David Hambling, "How Islamic State is Using Consumer Drones," BBC, last modified 09 December 2016, Available at: <http://www.bbc.com/future/story/20161208-how-is-is-using-consumer-drones> (accessed 28 October 2019)

⁷⁹ Almohammad et al., "ISIS Drones: Evolution, Leadership, Bases, Operations and Logistics,"

⁸⁰ Dan Gettinger, "Drones Operating in Syria and Iraq," (New York: Center for the Study of the Drone at Bard College, 2016), Available at <https://dronecenter.bard.edu/drones-operating-in-syria-and-iraq> (accessed 28 October 2019)

⁸¹ Michel, "Counter-Drone Systems,"

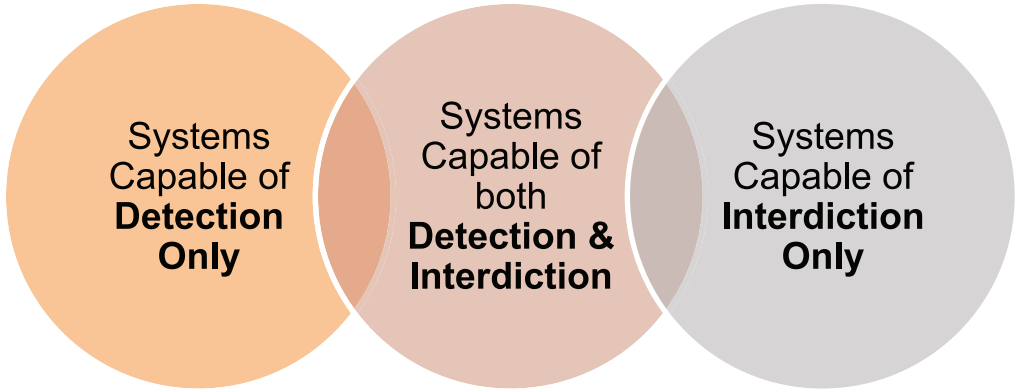


Figure 8: C-UAS System Capabilities

The newest C-UAS products are being developed for three main goals to ensure full security against drones. Combined C-UAS solutions are capable of detection, localization (tracking) and neutralization (interdiction).⁸²



Figure 9: Combined C-UAS System Features

Table 5: Methods and Techniques Used by C-UAS Systems⁸³

Detection and Tracking Systems	
Radar	Detects the presence of small unmanned aircraft by their radar signature, which is generated when the aircraft encounters RF pulses emitted by the detection element. These systems often employ algorithms to distinguish between drones and other small, low-flying objects, such as birds.

⁸² "Auto Anti Drone System," SZMID, Available at: www.uav-defender.com/index.html (accessed 28 October 2019).

⁸³ Michel, "Counter-Drone Systems,"

Radio-frequency (RF)	Identifies the presence of drones by scanning for the frequencies on which most drones are known to operate. Algorithms pick out and geo-locate RF-emitting devices in the area that are likely to be drones.
Electro-Optical (EO)	Detects drones based on their visual signature.
Infrared (IR)	Detects drones based on their heat signature.
Acoustic	Detects drones by recognizing the unique sounds produced by their motors. Acoustic systems rely on a library of sounds produced by known drones, which are then matched to sounds detected in the operating environment.
Combined Sensors	Many systems integrate a variety of different sensor types in order to provide a more robust detection capability. For example, a system might include an acoustic sensor that cues an optical camera when it detects a potential drone in the vicinity. The use of multiple detection elements may also be intended to increase the probability of a successful detection, given that no individual detection method is entirely failproof.
Interdiction	
RF Jamming	Disrupts the radio frequency link between the drone and its operator by generating large volumes of RF output. Once the RF link, which can include WiFi links, is severed, a drone will either descend to the ground or initiate a "return to home" manoeuvre.
GNSS Jamming	Disrupts the drone's satellite link, such as GPS or GLONASS, which is used for navigation. Drones that lose their satellite link will hover in place, land, or return to home.
Spoofing	Allows one to take control of the targeted drone by hijacking the drone's communications link. (Also known as protocol manipulation.)
Laser	Destroys vital segments of the drone's airframe using directed energy, causing it to crash to the ground.
Nets	Designed to entangle the targeted drone and/or its rotors.
Projectile	Employs regular or custom-designed ammunition to destroy incoming unmanned aircraft.
Combined Interdiction Elements	A number of C-UAS systems also employ a combination of interdiction elements most commonly, RF and GNSS jamming systems that work in tandem.
Platform Types	
Ground-based	Systems designed to be used from either stationary or mobile positions on the ground. This category includes systems installed on fixed sites, mobile systems, and systems mounted on ground vehicles.
Hand-held	Systems that are designed to be operated by a single individual by hand. Many of these systems resemble rifles or other small arms.
UAV-based	Systems designed to be mounted on drones, which can come into proximity with the targeted unmanned aircraft in order to employ interdiction elements at close range.

Challenges

UAV technology is developing rapidly and military, commercial and personal UAV markets are growing year by year. It is, inevitably, difficult to advance a counter technology against a developing technology.

Apart from technical challenges there are other issues in countering UAVs such as legal, financial, environmental and, of course, the human factor on the operator side.

Most of the UAVs are small and flying at low altitude, so conventional aircraft detection methods do not work efficiently. But if the detection sensitivity of the C-UAS system is adjusted too high it is possible to confuse UAVs with birds.⁸⁴

UAV detection techniques are also open to being manipulated. C-UAS systems are not capable of differentiating whether a drone, is a friend or an enemy.

Detection and tracking of UAVs in an urban environment with many high buildings is more challenging than in open areas because of the small radar cross section, so distributed radar systems were developed to handle this aspect.⁸⁵ But even with this technological advance, neutralizing or shooting down an UAV in the urban environment could be very dangerous for people and property. Even small size drones could be very harmful when falling fast from the air, especially in crowded locations.

Conclusion and Suggestions

On the one hand technological advances make life easier for people and societies but on the other hand innovative improvements like UAVs offer new opportunities for terrorist organizations: consequently, governments are facing new threats. Turkey has survived terrorist attacks using UAVs by DAESH and PKK/KCK without any loss. Swarm attacks with drones which have been organized by the PKK/KCK indicate that the organization will likely continue and expand the usage of drones for terrorist activities in the future. Swarm type drone attacks against metropolises and political leaders have the potential to cause catastrophic destruction in the

⁸⁴ Arthur Holland Michel, "Counter-Drone Capabilities in the Middle East and Beyond: A Primer", Available at: <https://www.washingtoninstitute.org/policy-analysis/view/counter-drone-capabilities-in-the-middle-east-and-beyond-a-primer>, (accessed 18 May 2020)

⁸⁵ Dirk Nuessler, Alex Shoykhetbrod, Christian Krebs, Sabine Gütgemann, Nils Pohl, Benedikt Welp and Andries Küter, "Detection of unmanned aerial vehicles (UAV) in urban environments," Proc. SPIE 10799, *Emerging Imaging and Sensing Technologies for Security and Defence III*; and *Unmanned Sensors, Systems, and Countermeasures* (Berlin: 2018), doi: 10.1117/12.2325637

context of national and international peace. Although technical meetings and academic research been delivered through international platforms, these efforts are not enough compared to the scale of the threat. With the development of the drone industry and spread of home-made technological devices, terrorist activities could well evolve into technology related actions.

The trigger by Gavrilo Princip one of the causes of the World War I, which killed millions of people. Al Qaeda's actions, especially on 9/11, resulted in the invasions of Afghanistan and Iraq. While the discussion about the new balance of power in the international axis continues, swarm type drone attacks which were organized by Al-Nusrah Front in Hmeymim Air Base and the PKK/KCK against different places in Turkey, have the potential to cause another worldwide shock. Sophisticated measures counter to drone attacks could become a critical necessity in the near future. These measures will have to be implemented across a wide range, from interrupting the process of radicalization to encouraging international cooperation. Developing policies and tactics for countering drone attacks are very important in the context of deterrence strategy.

At present, counter-UAS products in the market are not developed enough to combat drone-based terrorist attacks. Most of the products are only capable of detecting and/or interdicting the specific UAVs of the biggest vendors. But generally, UAVs which are used in terrorist activities are not standard off-the-shelf drones. In some cases, standard well-known drones have been used but in recent attacks custom made drones have been designed by the terrorist organizations for specific targets. Therefore, to ensure full security against drone attacks security forces need combined systems that are capable of detecting, localizing and neutralizing (interdicting) every kind of UAV.

The human element is also very important in the context of countering UAVs. At first sight a C-UAS system could seem easy to use, but the operator has to be well-trained and aware of possible drone attacks. A 24/7 joint task force which consists of well-trained specialists in terrorist attacks with drones is crucial to reach the appropriate level of security combined with C-UAS systems.

It is obvious that; to understand the importance of the threat, multidisciplinary studies like this one have to increase. In addition to these measures aimed at preventing drone usage in terrorist activities, national and international regulations by the United Nations could be developed to enable the tracing of the critical components of UAVs.

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APPENDIX A

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A Literature Review on “The Effects of Terrorism on Economy”¹

Rıza Bayrak²

Abstract: *The main purpose of this study is to examine the effects of terrorism on the economy with three research questions. These research questions are: (1) Does terrorism affect the economy? (2) What are the effects on the economy? (3) Is there any causality effect between terrorism and economic variables? For that purpose, the literature on the subject was reviewed in terms of the direct short-term effects and indirect long-term effects of terrorism on the economy. The method of the study was a stand-alone literature review. Totally, 159 articles and 15 books/ book chapters - published between 2001-2019 - were examined closely using the content analysis technique. In the short-term, it was observed that terrorism generates a cost, proportionate to the number of terrorist incidents, in the countries where it takes place; but this cost is small compared to natural disasters. As for the long-term effects of terrorism, it is asserted that terrorism has different kinds of indirect effects on economic variables, but these seem to emerge in the course of the middle and long-term. It can be observed that terrorism negatively affects growth/national income and terrorism seems to have a negative impact on the direct inflow of foreign capital. However, the effect of terrorism on trade is ambiguous.*

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- ¹ This study has been conducted in the Research Assistantship Program held by COE-DAT between 1st of March 2019 and 1st of September 2019. Since this study was conducted as a literature review, the volume of study is naturally more than intended by the DATR principles.
- ² Asst. Prof. Dr., OSTİM Technical University Faculty of Economic and Administrative Sciences, rbayrak07@hotmail.com, ORCID: 0000-0002-7397-2295

It can be deduced that terrorism discourages private investment and distorts patterns of private consumption and saving to some different degrees. Terrorism triggers government security expenditure and is an additional burden on the budget. It can also be asserted that terrorism has a negative effect on the stock market index and on the tourism sector. Moreover, there seem to be causalities between terrorism and some economic variables.

Key Words: *Growth, FDI, Investment, Savings, Consumption, Economic Variables, Terrorism.*

Introduction

Terrorism remains a major problem for countries since it has significant effects not only on the society, but also on the economy, and on international relations between countries. There is not currently a commonly agreed definition of terrorism among countries because of the different perceptions of term.

Terrorism may distort the efficient allocation of resources of countries. Terror events can make destructions or damages to the infrastructure of the country. lead direct foreign investments to that one regarded as safe, and also causes a decrease in foreign direct investment³ and savings⁴; It may divert public funds allocated for investments, and additionally enhances military expenditures⁵. It may cause some negative effects on growth rates⁶. Moreover, terrorism can make domestic and foreign investors avoid investing in the regions in which it takes place, and finally affects negatively the economic development of those regions, which might cause many long-term social problems.

Countries try to tackle not only the roots of terrorism but also the economic and social its consequences. Unfortunately, owing to the aforementioned issues, predicting the results of terrorism does not seem to be easy for countries, since terrorism has both direct and indirect effects. The economic burden does not just comprise of the short-term direct costs such as infrastructure, wounded and killed people, etc.; but in the medium-term, confidence is lost and long-term productivity

³ Fielding, (2004).

⁴ Fielding, (2003).

⁵ Eckstein and Tsiddon, (2004).

⁶ Öcal and Yildirim, (2010).

should be considered as well⁷. Some social and political effects of terrorism, for instance voting tendency of the community in selections, are extremely difficult to measure because of the intangible nature of them.

Examining the literature, it can be seen that the economic effects of terrorism have been mainly studied on one economic variable, such as FDI, growth, budget etc. Therefore, we preferred to review all studies on the effect of terrorism on economic variables altogether to reach a comprehensive conclusion. In that context, the purpose of this study is to examine the related literature about the effects of terrorism on the economic variables and determine the effects of terrorism on the economic structure in order to reach some implications for policymakers and academicians. The first chapter is related to the conceptual framework of terrorism. The definition of terrorism, its development in time, and the main roots of terrorism are briefly discussed in this chapter. The second section describes the methodology of the study. The third chapter covers the literature about the effects of terrorism on economic variables. In that chapter, the studies covered in the literature are elaborated upon and a conclusion reached on how to describe these effects on the economy. Finally, the last chapter includes a summary of the findings and additionally some implications for the policymakers and academicians.

Conceptual Framework

In order to completely conceive the term terrorism objectively, this chapter aims to cover firstly the definitional problem of terrorism and its development over time. Then, briefly, the main roots of terrorism are laid out.

In order to collect valid data and estimate correctly the results of the terror incidents, the term "terrorism" needs to be defined. Unfortunately, there is not a commonly agreed description of terrorism. For the purposes of this article, some well-known definitions of terrorism are included below.

Terrorist acts have been defined by the United Nations General Assembly⁸:

"Criminal acts intended or calculated to provoke a state of terror in the general public, a group of persons or particular persons for political purposes are in any circumstance unjustifiable, whatever the considerations of a

⁷ Ibid, p.477.

⁸ United Nations General Assembly "United Nations Declaration on Measures to Eliminate Terrorism". 84th Plenary Meeting (A/RES/49/60), (1994).

political, philosophical, ideological, racial, ethnic, religious or any other nature that may be invoked to justify them”.

As per NATO sources; *terrorism is “the unlawful use or threatened use of force or violence, instilling fear and terror, against individuals or property in an attempt to coerce or intimidate governments or societies, or to gain control over a population, to achieve political, religious or ideological objectives”*⁹.

The Council of the European Union has defined terrorist offences¹⁰ thus:

“Attacks upon a person’s life which may cause death; attacks upon the physical integrity of a person; kidnapping or hostage-taking; causing extensive destruction to a government or public facility, a transport system, an infrastructure facility, including an information system, a fixed platform located on the continental shelf, a public place or private property likely to endanger human life or result in major economic loss; seizure of aircraft, ships or other means of public or goods transport; manufacture, possession, acquisition, transport, supply or use of weapons, explosives or of nuclear, biological or chemical weapons, as well as research into, and development of, biological and chemical weapons; release of dangerous substances, or causing fires, floods or explosions the effect of which is to endanger human life; interfering with or disrupting the supply of water, power or any other fundamental natural resource the effect of which is to endanger human life; threatening to commit any of the acts listed above ones”.

One of the most extensive definitions of terrorism is that of Alex P. Schmid and Albert J. Jongman. They examined 109 different definitions and identified 22 elements in them. Thereafter, they defined terrorism including 22 elements as follows:

“Terrorism is an anxiety-inspiring method of repeated violent action, employed by (semi-) clandestine individuals, groups, or state actors, for idiosyncratic, criminal, or political reasons, whereby – in contrast to assassination – the direct targets of violence are not the main targets. The immediate human victims of violence are generally chosen randomly (targets of opportunity) or selectively (representative or symbolic targets) from a target population, and serve as message generators. Threat- and

⁹ NATO Military Committee Concept for Counter-terrorism (MC 0472/1 Final), (2016).

¹⁰ European Union (EU) “The Council of European Union: Council Framework Decision of 13 June 2002 on Combating Terrorism”, (2002).

*violence-based communication processes between terrorist (organization), (imperilled) victims, and the main targets are used to manipulate the main target (audience(s)), turning it into a target of terror, a target of demands, or a target of attention, depending on whether intimidation, coercion, or propaganda is primarily sought"*¹¹.

Some other different definitions of terrorism can be argued, but that of Alex P. Schmid and Albert J. Jongman (1998) was accepted as extensive enough in the scope of this study.

Taking into account the developing understanding of terrorism in time it is reasonable to conceive the phenomenon thus: that terrorism differs from conventional war and guerilla-type actions in terms of not only unit size, but at the same time weapons, tactic, target, intended impact, control of territory, recognition of war zone, and also legality¹².

This term was first used for the "regime de la terreur" of Maximilien Robespierre during the French Revolution. Thereafter, it was employed first for by anarchist and social-revolutionary attackers in the late 19th century. Subsequently, the world witnessed the "Red Terror" of Communist regimes and the terror of the Nazi and other fascist regimes. Specific tactics of terrorism and its associated excesses were used during the period of decolonization. After the 1960s, Latin American and European "urban guerilla" attacks and Palestinian struggle were labelled as terrorism. Since the 1990s, this term has been used for religious fundamentalists¹³.

One more important point that was discounted until the 20 March 1995 sarin gas attack on the Tokyo subway is the use of chemical, biological, and nuclear terrorist attacks. After that time the countries have focused on the terrorist usage of weapons of mass destruction (WMD). It is clear that WMDs can increase the threshold of incidents, especially the number of the casualties¹⁴.

It can be seen that, after 11 September 2001, terrorism has evolved into a new form, and the terms 'international' and 'transnational' terrorism appeared. As Schmid (2005) denotes, some changes in the nature of terrorism took place in the aftermath of the 11 September 2001 attacks, which caused almost 3000 people to be killed. These changes can be indicated as below:

¹¹ Schmid and Jongman, (1988).

¹² Merari, (1994).

¹³ Schmid, (2004).

¹⁴ Enders and Sandler, (2006).

“Terrorism/terrorists: are becoming more lethal; have become less dependent on state sponsorship; have become increasingly non-secular; have become more suicidal; link increasingly up with transnational organized crime groups; are organized in more loosely affiliated groups; allegedly strive to obtain Weapons of Mass Destruction (WMD)¹⁵”.

The root causes of terrorism must also be clarified to overcome the troubles facing us.

The Root Causes of Terrorism

No consensus on the root causes of terrorism has been reached¹⁶. But it may be possible to classify the more emphasized causes in literature into subheadings such as ideological, political, psychological, religious and also economic causes.

Considering terrorist incidences, there seems no common ideology. In other words, it has been observed that almost every ideology has been used as a tool by terrorists. Also, ideology is employed as a means by terrorists to influence the audience in their intended direction. Accordingly, some scholars in the Club de Madrid Conference¹⁷ declared the ideological roots of terrorism in the following items¹⁸.

- *“Ideologies differ in type as well as the function”.*
- *“In a transnational world, ideologies help members of far-flung groups to coordinate action. They may be used to justify nationalist aspirations, calls for revolution, cultural purification, or a mix of these”*
- *“Ideology is not always necessary for terrorist activity. A collective or individual desire for revenge against acts of repression may be motivation enough”.*
- *“The presence of charismatic ideological leaders able to transform widespread grievances and frustrations into a political agenda for violent struggle is a decisive factor behind the emergence of a terrorist movement”.*
- *“Terrorist organizations respond to cyclical declines in economic performance by using an ideological message to increase their recruitment”.*

¹⁵ Schmid, (2005).

¹⁶ Bjorgo, (2005).

¹⁷ Club de Madrid Conference. *Addressing the Causes of Terrorism*, (2005).

¹⁸ Gurr, (2005).

- *"People whose lives are disrupted by rapid modernization are especially susceptible to extremist ideologies".*

According to Leeman (1987), terrorism can be described as a strategy that has roots in political discontent that help justify and maintain violence. Ideologies of nationalism, revolution, religion, and defense of the status quo can trigger terrorism¹⁹. Bergesen and Lizardo (2003) argue that terrorism in the political system has come in four waves. In the first wave of terrorism which lasted from 1879 to 1914, Russian Inspired Anarchism prevailed. This era ended its presence with the Thirty Years Wars (1914-1945). As for the second wave of terrorism, which was between 1945-1960, this period was mainly related to the anti-colonial terrorist activity such as African and Asian nationalist movements, especially against European colonial control. The third wave, which was defined as radical leftist terrorist groups, prevailed between 1960-1989 especially in Europe and Latin America. The fourth wave, which has been religiously inspired, has emerged from 1979 to the present²⁰. Apart from those views, Wilkinson (1977) stressed that terrorism may be interpreted as the response of weak and powerless groups who try to challenge the unfair resource distribution of the current system²¹. As a result, it is possible to assert that terrorism is used both by the countries and by powerless and weak ones as a political instrument against the current legal system.

Some studies in the literature on terrorist psychology reported that terrorists do not disclose any severe psychiatric pathology.^{22,23} In fact, emotionally disturbed individuals are often not accepted by terrorist groups because they represent a security risk. These individuals generally act alone.²⁴ Bjorgo (2005) stated that terrorists are not irrational actors. They do not represent common symptoms of psychopathology. So, there is not a fixed personality profile that describes most terrorists.²⁵

As for religious roots of terrorism, according to Juergensmeyer (2005), even if religion was an important determinant in the latest incidences of terrorist, it is rarely the single cause. Religious ideologies and motivations often play a role in connection with economic, social, and political reasons. Generally speaking,

¹⁹ Leeman, (1987).

²⁰ Bergesen and Lizardo, (2003).

²¹ Wilkinson, (1977).

²² McCauley and Segal, (1987).

²³ Crenshaw, (1990).

²⁴ Post, (2005).

²⁵ Bjorgo, (2005).

a decision to use violence is situational and is seldom particular to the religious customs that the group belongs to. In that sense, both Islam and other religions do not cause any terrorist act²⁶.

The economic roots of terrorism is a source of controversy in the literature. Some authors^{27,28} denote that there is not a direct link between terrorism and economic circumstances. Some authors such as Bjorgo (2005) declared that the relationship between poverty and terrorism is not only weak but also indirect. Terrorists are not generally from the poorest segment of society. Conversely, in terms of education and socio-economic background, they are from average/above-average strata of society²⁹. In line with Bjorgo (2005), Schmid (2005) observed a low correlation between terrorism and poverty.³⁰

On the other hand, Mohammad (2005) argued that weak socio-economic conditions in many Middle Eastern societies has yielded outbreaks of terrorism³¹. In the same vein, Hariz (1996) noted that terrorism arises from economic and social insufficiency. So, Middle Eastern youths without a job and with many other unsatisfactory conditions seem to incline to terrorism³².

Scholars who attended the Club de Madrid (2005) argued around the economic causes of terrorism. The important conclusions of their arguments are³³:

- *“Poverty per se is not a direct cause of terrorism”.*
- *“Macro-studies show that terrorism can occur anywhere, but is more common in developing societies, rather than in poor or rich countries, and is most likely to emerge in societies characterized by rapid modernization”.*
- *“Economic change creates conditions that are conducive for instability, the emergence of militant movements and extremist ideologies”.*
- *“Structured inequalities within countries are breeding grounds for violent political movements in general and terrorism specifically”.*

According to a study conducted by Burgoon (2006) (see Figure 1), the relationship

²⁶ Juergensmeyer, (2005).

²⁷ Krueger and Maleckova, (2003).

²⁸ Maleckova, (2003).

²⁹ Bjorgo, (2005).

³⁰ Schmid, (2005).

³¹ Mohammad, (2005).

³² Hariz, (1996).

³³ Gurr, (2005).

between economic insufficiency and terrorism seems to be direct. This result is supported later by the studies of Krieger and Meierrieks (2015; 2016)^{34,35}. Poverty and economic development are positively related to terrorism. Moreover, poverty and economic development have an indirect effect on terrorism while affecting religious and political practices. Economic insecurity is associated not only with political extremism but also with terrorism. Social policies might decrease terrorism while reducing poverty, inequality, political-religious extremism, and general economic insecurity. But the social policy may also increase resources in order to organize and carry-out terrorism³⁶. In sum, if adequately funded, welfare policies may reduce terrorism.

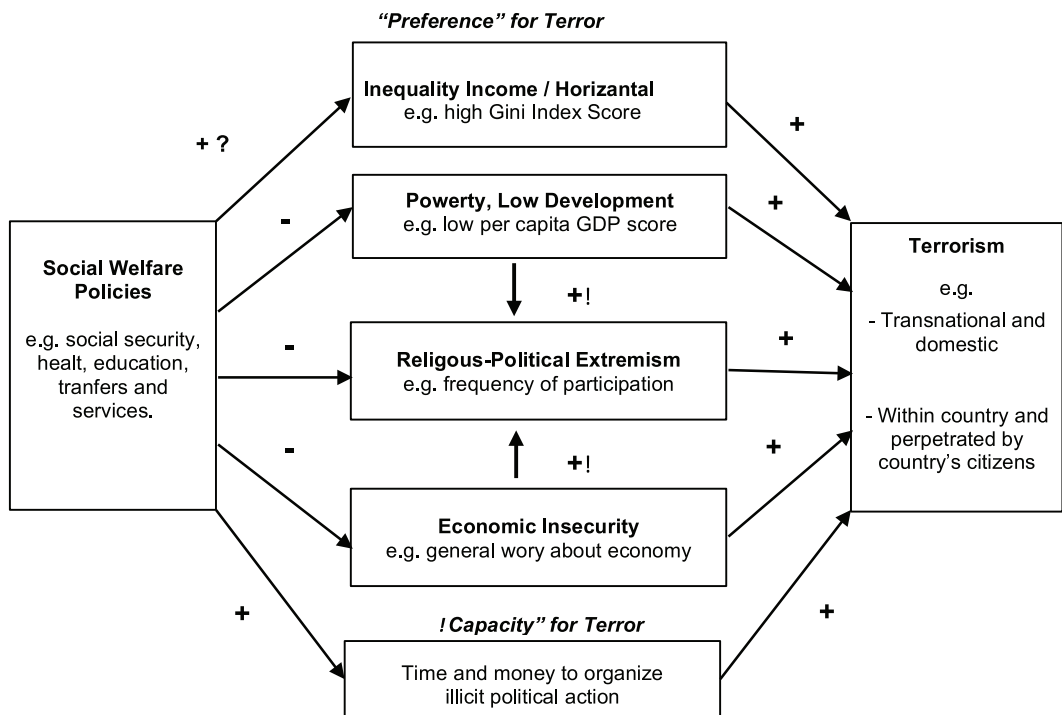


Figure 1. Social Welfare Policies and the Preferences and Capacities for Terrorism

Source: Burgoon, (2006). p.179

³⁴ Krieger Meierrieks, (2015).

³⁵ Krieger and Meierrieks, (2016).

³⁶ Burgoon, (2006).

The root causes of terrorism were investigated by Akhmat et al. (2014) in South Asia using the panel data analysis technique with the data from 1980–2011. According to results: (1) GDP per capita helps decrease terrorism incidence. It is seen that these findings were obtained again later with some studies (Feridun and Sezgin³⁷, 2008; Bassil, 2013³⁸) in literature. (2) The other factors such as population, unemployment, inflation, poverty, inequality and political instability are associated with terrorist activities, (3) The unemployment rate is related to terrorism, (4) There seems to be a significant relationship between poverty and the incidence of terrorism. If there is a 1% increase in the poverty rate, this can cause the incidence of terrorism to increase by 0.758%³⁹.

In that mentioned context above; the research questions of this study has been determined as follows:

Research Question-1: Does terrorism affect the economy?

Research Question-2: What are the effects on the economy?

Research Question-3: Is there any causality between terrorism and economic variables?

The Methodology of the Review

A three-phase process was used for this study: (1) Analysing the related literature; (2) Conducting detailed content-based analysis of the literature; (3) Analysing of articles to elucidate the research questions^{40,41,42}.

Stage -1: Identifying of the related literature

The inclusion and exclusion criteria used in this study are as follows:

Inclusion Criteria: We included articles that have the following features: (a) English language, (b) Primary studies, (c) Double-blind peer-reviewed academic journal publications⁴³. Additionally, we included book/book chapters that have empirical findings and conceptual and theoretical arguments⁴⁴.

³⁷ Feridun Sezgin, (2008).

³⁸ Bassil, (2013).

³⁹ Akhmat et al., (2014).

⁴⁰ Theurer et al., (2018).

⁴¹ Armstrong et al., (2012).

⁴² Turner et al., (2013).

⁴³ Podsakoff et al., (2005).

⁴⁴ Theurer et al., (2018).

Exclusion criteria: Purely practitioner-oriented articles such as magazine articles that are not based on theory or empirical findings were excluded from this study⁴⁵.

We used Google Scholar and EBSCO search engines with multiple social sciences journals to search the related articles. Considering 2001 as a milestone, the empirical studies were limited to the period from 2002 to 2019. This process resulted in 159 journal articles (28 articles out of 159 articles were related to the conceptual framework of the study), 15 book/book chapters (see Table 1-3 and Figure 2).

Table 1. Distribution of the Articles by Subjects

YEARS	SUBJECTS							TOTAL
	Growth	FDI	Budget	Consumption, Saving, and Investment	Trade	Stock Exchange	Tourism	
2002	-	-	1	-	-	-	-	1
2003	-	-	-	2	-	-	1	3
2004	1	-	1	2	1	1	-	6
2005	-	1	-	-	-	2	-	3
2006	1	-	-	-	2	-	-	3
2007	1	-	-	-	-	-	-	1
2008	2	-	1	1	-	3	-	6
2009	1	-	-	-	-	3	-	4
2010	1	-	-	1	2	5	-	9
2011	4	-	1	1	-	4	-	10
2012	1	1	1	-	-	1	1	5
2013	4	1	-	-	1	4	2	12
2014	2	1	-	-	3	2	1	9
2015	4	1	1	-	1	1	2	10
2016	1	1	2	1	-	3	3	11
2017	3	1	-	-	-	5	2	11
2018	2	5	1	-	1	6	1	16
2019	3	-	-	-	1	4	3	11
TOTAL	30	12	9	8	12	44	16	131

Note: 28 articles were related to the conceptual framework of the economic effects of terrorism.

⁴⁵ Ibid, p.157.

It is observed that the articles on the economic effects of terrorism are widespread from 2001, which is therefore accepted as a milestone⁴⁶.

As seen in Figure 2, the studies conducted are mainly concentrated on the stock exchange and growth. Fewer studies are related to budget/government expenditures.

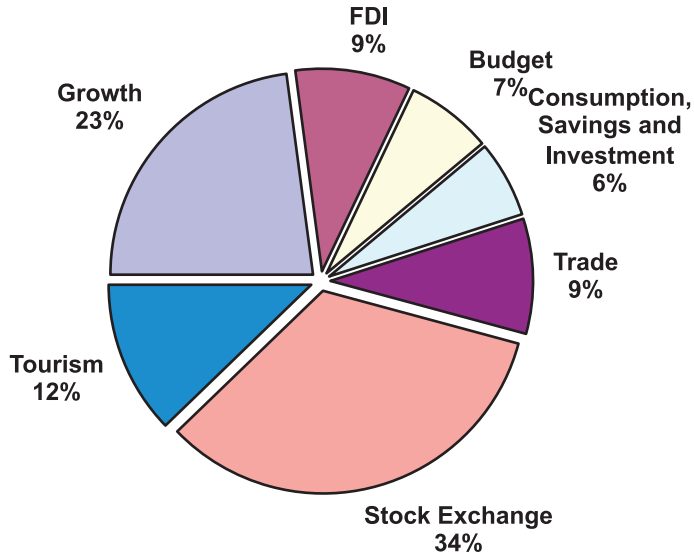


Figure 2. Distribution of the Studies by the Subjects

As for the distribution of studies, it can be seen that most of the studies reference are empirical. The other studies and books/book chapters are mainly concerned with the conceptual framework of the economic effects of terrorism.

Table 2. Distribution of Literature by Type of the Study

Type of Study	Total	
	Number	%
Empirical studies	131	75
Conceptual studies	28	16
Book/Book chapters	15	9
TOTAL	174	100

⁴⁶ Sandler, (2014).

When examined as per the analysis method, it can be seen that the empirical articles were mainly conducted by time series and panel data analysis.

Table 3. Distribution of Articles by Analysis Method

Analysis Technique	Total	
	Number	%
Unit Root Tests	2	1.5
Cointegration Analysis	5	3.8
Time Series Analysis	40	30.5
Panel Data Analysis	83	63.4
Others (such as usage of elasticities, case study, etc.)	1	0.8
TOTAL	131	100

Stage -2: In-depth structural and content-based analysis of the literature

The content analysis could be described as a research technique⁴⁷. "It uses a set of procedures to make valid references from the text"⁴⁸. It helps researchers to eliminate huge data by facilitating a systematic process⁴⁹.

All articles obtained from stage 1 were examined and categorized according to some macro-economic variables. In this study, we tried to study the effect of terrorism on growth/national income, FDI, international trade, public expenditure/ budget, consumption, savings, investment, stock exchange and finally tourism.

Stage -3: Integration of articles to clarify the research questions

At this stage, we read all articles to reach a comprehensive result in line with our research questions by making use of the method used by Webster and Watson (2002)⁵⁰ and Theurer et al. (2018)⁵¹.

⁴⁷ Krippendorff, (1980).

⁴⁸ Weber, (1990).

⁴⁹ U.S. General Accounting Office (1996).

⁵⁰ Webster and Watson, (2002).

⁵¹ Theurer et al., (2018).

The Effects of Terrorism on Economic Variables

According to Bloomberg et al. (2004), the relationship between terrorism and economic standing is based on “peaceful status quos”. The status quos are mainly impeded by violent organizations eager to increase their share of wealth⁵². There are also some other approaches connecting terrorism with economic deficiencies or marginalization. However, in reality, the relationship between economic underperformance and terrorism seems to be less obvious and direct⁵³.

Some provisional assistance, such as shelter, food, etc. - can be provided in the short run after incidents occur. But, as mentioned before, the aim of terrorist groups is to raise concern, the sense of insecurity and to intimidate. This can lead to an undermining of consumer and investor confidence in the medium term. Additionally, this may yield a situation that can spread to the rest of the world through the normal business and trade cycle. Moreover, terrorist activities may decrease productivity in the long run by causing higher security expenditure, insurance premiums, and the costs associated with counterterrorism regulations. Finally, it may disrupt efficient resource allocation and management⁵⁴.

In this section, the economic effects of terrorism are discussed in terms of the direct effects of terrorism on economic variables, and then the indirect effects of terrorism .

1. Direct Effect of Terrorism

As mentioned previously/before, the direct effect of terrorism is the short-term cost of terrorism, that is casualties – deaths, wounded-, and the cost in terms of infrastructure such as a demolished building, etc. Considering the Global Terrorism Index (GTI), the scores of countries that are most impacted by terrorism are presented in Table 4. The scores vary between “0” and “10”. The high scores indicate the most impacted country by terrorism.

⁵² Bloomberg et al., (2004).

⁵³ McAllister and Schmid, (2013).

⁵⁴ Johnston and Nedelescu, (2006).

Table 4. Global Terrorism Index (GTI) Scores of the Countries in 2017

Rank	Country	Score	Rank	Country	Score	Rank	Country	Score
1	Iraq	9.746	16	Cameroon	6.615	31	Palestine	5.330
2	Afghanistan	9.391	17	Thailand	6.252	32	Burundi	5.316
3	Nigeria	8.660	18	Sudan	6.178	33	Nepal	5.295
4	Syria	8.315	19	Kenya	6.114	34	Russia	5.230
5	Pakistan	8.181	20	USA	6.066	35	Lebanon	5.154
6	Somalia	8.020	21	Ukraine	6.048	36	China	5.108
7	India	7.568	22	Mali	6.015	37	B. Faso	4.811
8	Yemen	7.534	23	Niger	6.004	38	Chad	4.752
9	Egypt	7.345	24	Myanmar	5.916	39	Germany	4.601
10	Philippines	7.181	25	Bangladesh	5.697	40	Mozambique	4.579
11	Dem.Rep.Congo	7.050	26	Ethiopia	5.631	41	Israel	4.578
12	Turkey	7.036	27	Colombia	5.611	42	Indonesia	4.543
13	Libya	6.987	28	UK	5.610	43	Angola	4.473
14	South Sudan	6.756	29	S. Arabia	5.479	44	Iran	4.399
15	Cent. Afr. Rep.	6.719	30	France	5.475	45	Greece	4.291

Source: Institute for Economics and Peace (2019) "Measuring the Impact of Terrorism". *Global Terrorism Index-GTI (2018)*, p.8-9

One important point in Table 4 is that the countries whose scores are above 8 (>8) are among the developing or underdeveloped ones. This finding is consistent with that⁵⁵of Burgoon (2006) in which poverty is associated with terrorism positively.

The economic effects of terrorism through the years from 2000 to 2017 is seen in Figure 3.

⁵⁵ See Figure 1 for commentation.

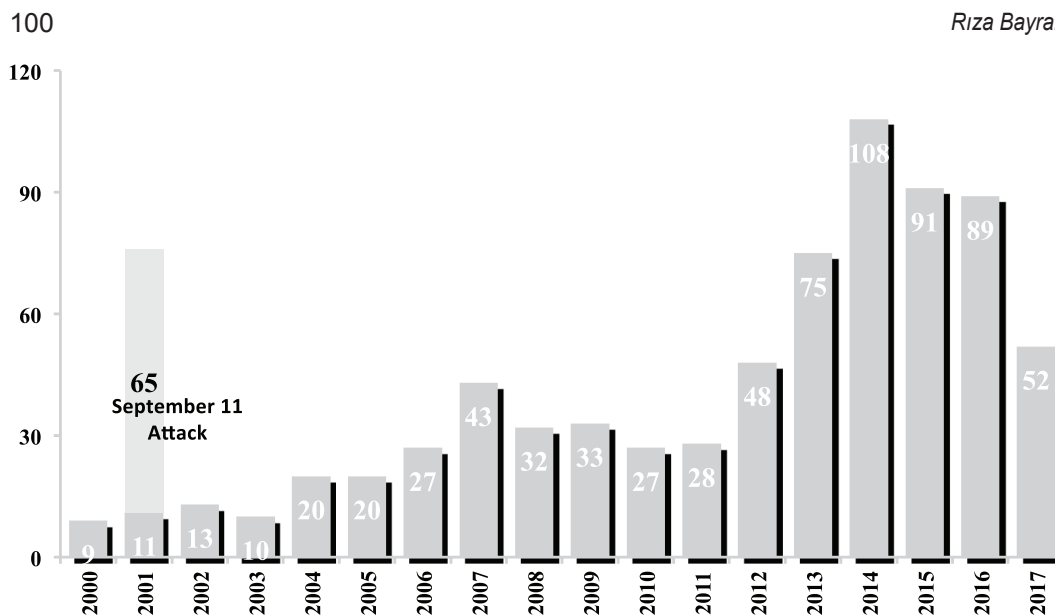


Figure 3. The Economic Impact of Terrorism⁵⁶

Source: Institute for Economics and Peace (2019), p.29.

As seen in Figure 3, there is an increasing trend throughout from 2000 to 2014. But, this trend seems to turn to a decrease from 2014.

According to Navarro and Spencer (2001), the cost of terrorist incidents was much less than natural disasters⁵⁷. The largest terrorist incident that humankind has faced so far was the unprecedented attack of 9/11. The damage to structure and equipment was about \$16.2 billion. The costs related to work disruptions, partial work stoppage, lay-offs, wages of private-sector employees were \$3.3 billion. Clean-up costs were 10 billion. Considering 3000 people killed in 9/11, the value of human lives lost is about \$20 billion⁵⁸. In sum; the total cost of 9/11 was about \$48.7 billion. Given that US GDP was almost \$10 trillion in 2001, this direct 9/11 losses was about 0.5% of the annual output⁵⁹.

In terms of short-term cost, deaths account for 72% of the global economic impact of terrorism, while indirect GDP losses are 25%, property destruction is 2% and injuries only 1% of it. Moreover, it must be emphasized that the economic

⁵⁶ The values were calculated as constant 2017 US\$, billions.

⁵⁷ Navarro and, (2001).

⁵⁸ The value of human life calculated by Navarro and Spencer (2001) is about \$6.67.

⁵⁹ Enders and Sandler, (2006).

effect of terrorism is less than the other forms of violence (war, crimes etc.). As of 2017, it was approximately 0.4 % of the total global cost of violence that was about \$14.76 trillion. The global cost of violence was equal to 12.4 % of global GDP ⁶⁰.

Considering research question-1 "*Does terrorism affect the economy?*", and research question-2 "*What are the effects on the economy?*", these arguments make clear that terrorism creates short-term burdens on the economy.

2. Indirect Effects of Terrorism

When the process of the studies conducted on the economic effects of terrorism is examined, it is seen that there were two waves from the First World War to date. The first wave was mainly defined the area of focus in the studies that aimed to establish the economic consequences of war and peace. The economic effects of terrorism seem to have been given less importance in these studies⁶¹. Especially after the 1960s, it can be seen that terrorism began to be studied mainly as part of political science, sociology, and other related disciplines rather than economics. The first study on the terrorism is that of Landes (1978)⁶² which tried to predict the deterrent effects of US anti-terrorism policies against aircraft hijackings. Moreover, comprehensive studies seem to have been produced since the September 11, 2001 attacks. These studies constitute the second wave of focus on the effects of terrorism on the economy⁶³. In that context, some important studies⁶⁴ are included in this article to establish the effects of terrorism on the economy.

2.1. The Effects of Terrorism on National Income and Growth

Due to its detrimental effects on political and social life, the general expectation about the relationship between terrorism and growth is that terrorism has adverse effects on the growth of the countries. Within that scope, different studies in the literature were analysed .

⁶⁰ Institute for Economics and Peace. "Measuring the Impact of Terrorism". *Global Terrorism Index-GTI* (2018), p.29-30,

⁶¹ Blomberg et al., (2004).

⁶² Landes., (1978).

⁶³ Sandler, (2014).

⁶⁴ The studies that tried to estimate the effects of terrorism in a different way, i.e. different estimation techniques and variables, have been included.

The causality analysis of terrorism and growth was studied by Ak et al. (2017). They used Toda ve Yamamoto's (1995) Causality Test to estimate the relationship with Turkey's data covering the period of 1970-2014. According to the results of the causality test, it was observed that there is one-way causality from growth to terrorism: the results demonstrate that terrorist activities are affected by economic growth⁶⁵. This result is consistent with the other studies^{66,67,68} referenced in literature review. This result is reasonable because it means that a healthy economic condition leads to the a level of terrorist acts. This results are consistent with the findings of Burgoon (2006) (See Figure 1). Also, it can be put forward that economic success cause reduced political violence by means of enhancing the opportunity cost of terrorist acts⁶⁹.

The fiscal effects of armed conflict and terrorism were examined by Gupta et al. (2004) on low- and middle-income countries using dynamic panel data analysis. Armed conflict was observed to be in accordance with lower growth and higher inflation. They argued that this was because of the adverse effect of terrorism on growth by means of changing the composition of government spending⁷⁰.

The effects of terrorism and internal-external conflicts on income per capita growth was investigated by Gaibullov and Sandler (2008a) with panel data analysis on 42 Asian countries for the 1970-2004 period. The authors stated that each additional terrorist act – calculated for per one million people - reduced per capita GDP growth rate, suggesting that international terrorist acts had a significant retardant effect on the growth process in the short-run for developing countries rather than developed ones. This result is consistent with that of Gaibullov and Sandler (2008b)⁷¹. The developed countries managed to sustain their situation without any harm. Moreover, transnational terrorism seems to restrain income per capita growth especially by triggering government security expenditures, which finally cause resources to be diverted from more productive private and public investments. Additionally, both internal and external conflicts seem to lead to smaller investment shares and larger government spending shares, dominating the crowding-out of investment. One

⁶⁵ Ak et al., (2017).

⁶⁶ Shahbaz et al., (2013).

⁶⁷ Meierrieks and Gries, (2013).

⁶⁸ Ismail and Amjad, (2014).

⁶⁹ Gries et al., (2011).

⁷⁰ Gupta, (2004).

⁷¹ Gaibullov and Sandler, (2008a).

important point is that internal conflicts, compared to transnational terrorist events or external conflicts cause greater negative growth effect⁷².

The asymmetric relationship between terrorism and economic activities in Turkey was analyzed by Araz-Takaya et al. (2009) using the 1987- 2004 data and utilizing the non-linear estimation techniques. According to the results of the study, the interaction between terrorism and the economy differs in the enlargement and contraction phases of the national economy. It has been found that terrorism negatively affects economic activities in both linear and nonlinear estimations. Especially according to nonlinear estimations, terrorism adversely affects the economy in the expansion period. Additionally, real income has a negative effect on terrorism during the expansion and contraction periods⁷³.

The effects of terrorism on economic growth was studied by Blomberg, Broussard, and Hess (2011) by using panel data analysis with data from the 1968-2004 period in 46 Sub-Saharan African countries. According to the results of the study, terrorist attacks in Sub-Saharan Africa are relatively low compared to the rest of the world. However, the impact of terrorist attacks on economic growth has been found to be greater. This result is consistent with that of Blomberg et al. (2011)⁷⁴. More specifically, economic growth in oil-dependent sub-Saharan countries appears to be more susceptible to terrorism and economically less resilient to terrorist attacks⁷⁵.

The original determinants of domestic and international terrorism were examined by Kis-Katos et al. (2011) with panel data covering the period 1970 to 2007. They observed that "terrorism increases in line with GDP per capita, a higher polity score measuring a more open and competitive political system and experiences of domestic conflict, anarchy and regime transitions". These findings are not in line with the fact that terrorism is created from economic deprivation or that autocratic regimes produce more terrorists. They argued that weak or failing states mean nests for the incubation of terrorism⁷⁶.

The socio-economic causes of terrorism and political violence were investigated by Caruso and Schneider (2011) in 12 countries in Western Europe. They found that

⁷² Ibid..

⁷³ Araz-Takay et al., (2009).

⁷⁴ Blomberg et al., (2011).

⁷⁵ Ibid, (2011).

⁷⁶ Kis-Katos et al., (2011).

as the current economic situation gets larger, individuals prefer to involve a terrorist activity lower than before. But future economic growth expectation also appears to be in association with an increase in terrorist attacks. Moreover, their findings indicated that terrorist brutality was positively associated with real GDP per capita⁷⁷.

The relationship between economic performance and terrorism was analyzed by Meierrieks and Gries (2012) with panel causality analysis using data from 1970-2007 for 18 Latin American countries. GDP growth rate per capita was used as the indicator of economic growth and the number of victims of terrorism per one hundred thousand and the number of acts of terrorism per one hundred thousand as indicators of terrorism. The authors state that terrorist organizations in Latin America have an ideological structure and are sensitive to socio-economic changes. Econometric results reveal that there is no causal effect between economic growth and terrorism in the period under consideration. The authors of the study concluded that terrorist activities are not intense enough to undermine economic performance or that they have the countries often have the resilience to neutralize the negative economic effects of terrorist attacks⁷⁸.

Having taken into account whether the structural break in the international system and the end of the Cold War led to a change in the dynamics of causality between terrorism and economic growth, Meierrieks and Gries (2013) examined the 160 countries with the help of panel data analysis for the period of 1970-2007. The findings showed that the causality between terrorism and growth is not homogeneous in terms of time and space (country/region). When the causality relationship between terrorism and growth is examined in time, they found that while economic growth had an impact on terrorism during the Cold War, conversely, terrorism affected economic growth in the post-Cold War period. According to the authors, the reversal of the causality could be explained by the reshaping of ideological tendencies and the geographical distribution of terrorism after the Cold War⁷⁹.

Whether international openness restricts negative the effects of terrorism on economic growth was investigated by Younas (2015). The researcher used data covering the 120 developing countries for the period of 1976-2008. They preferred to use dynamic panel data analysis. His estimation results are as follows: (1) Terrorism causes some damages to the economy. According to estimations,

⁷⁷ Caruso and Schneider, (2011).

⁷⁸ Meierrieks and Gries, (2012).

⁷⁹ Meierrieks and, (2013).

terrorism harm economic growth. (2) Globalization and terrorism correlate positively and statistically with each other, which means openness can manage to alter the adverse effects of terrorism on growth. (3) International trade and additionally changing ideas and Technologies can mitigate the adverse impact of terrorism. (4) Transnational and domestic terrorist acts negatively affect the economy, while the effect of the former (transnational) is greater than the latter ones⁸⁰.

Çinar (2017) analyzed the effects of terrorism on economic growth. He conducted a panel study with the FE and RE models in 115 countries. The data covered the period from 2000 to 2015. He revealed that terrorist incidents affect economic growth negatively. This finding is supported by that of Gaibulloev and Sandler (2011)⁸¹. But, this adverse effect in low-income countries is about three times larger than that in high-income countries⁸².

The association between terrorism, national income, and self-reported life satisfaction was studied by Vorisna et al. (2017) using panel data analysis from 117 countries from 2006 to 2011. As per their results, while there is not any association between terrorism and real GDP per worker, terrorism adversely affects life satisfaction. The results revealed that the economic costs of terrorism are potentially much lower than the social costs⁸³.

Another study on the effect of terrorism on economic growth was employed by Akaria et al. (2019). They used data for the period of 1972–2014 with dynamic panel data estimates in Pakistan. Their results revealed that the net effect of terrorism on economic growth is negative in the results for Nigeria⁸⁴, Pakistan⁸⁵, and Turkey^{86,87,88}. According to research results, a one percent increase in terrorism brings about a 0.002 percent decrease in economic growth⁸⁹.

As a result, moving from the results of the studies, although its effect varies according to the sample, it can be seen that terrorism has a negative effect on growth/national income.

⁸⁰ Younas, (2015).

⁸¹ Gaibulloev and Sandler, (2011).

⁸² Çinar, (2017).

⁸³ Vorsina et al., (2017).

⁸⁴ Chuku et al., (2019).

⁸⁵ Mehmood, (2014)

⁸⁶ Öcal and Yildirim, (2010).

⁸⁷ Bakirtaş et al., (2018)

⁸⁸ Bilgel and Karahasan, (2019).

⁸⁹ Zakaria et al., (2019).

2.2. The Effects of Terrorism on Foreign Direct Investments (FDI)

Given that Foreign Direct Investment (FDI) is one of the primary triggers of economic development, it can be asserted that its inflow has strong effects on the economy. Thus, it is important for countries to investigate the detrimental effects of terrorism on the FDI. To that end, some prominent and selected studies were reviewed in order to clarify the effects of terrorism on FDI.

The economic impact of transnational terrorism as non-business-related and business-related terrorism on FDI was analyzed by Power and Choi (2012)⁹⁰. They employed three different kinds of statistical techniques using data covering the period from 1980 to 2008 in 123 developing countries. Their results revealed that, while transnational terrorism harming multinational businesses leads to a decrease in foreign direct investment, transnational terrorism harming non-business-related targets is statistically irrelevant⁹¹.

Shahbaz et al. (2013) investigated the effects of terrorism on foreign direct investment with the data covering the period of 2000-2011 in Pakistan. The dependent variable of the study is net direct capital inflow and the independent variable is terrorism. They used the ordinary least-squares (OLS) analysis to estimate the model and found that terrorism had a significant negative impact on the direct inflow of foreign capital. Moreover, terrorism causes foreign investors to lose their confidence in the country and thus decrease their direct foreign capital inflows. Moreover, the increase in the number of terrorist acts in a year leads to decreasing the foreign direct investments in the following year⁹².

The effects of terrorism on FDI was studied by Bandyopadhyay et al. (2014). They aimed to study the effect of domestic and transnational terrorism on FDI by the first dynamic panel analysis for developing countries. Their data covered 78 countries with the period of 1984–2008. The additional purpose of their model was to analyze how foreign aid flows may affect the relationships between terrorism and FDI. They found that both domestic and transnational terrorism has a quite big negative effect on FDI/GDP in the country where the attack came about. They also observed that while bilateral aid decreases the negative effect of transnational terrorism on FDI, multilateral aid mainly restricts the negative effect of domestic terrorism on FDI⁹³.

⁹⁰ Powers and Choi, (2012).

⁹¹ Powers and Choi, (2012).

⁹² Shahbaz et al., (2013).

⁹³ Bandyopadhyay et al., (2014).

Akıncı et al. (2015) examined the effects of terrorism on foreign direct investments (FDI) and portfolio investments in 85 developing and less-developed countries, 67 of which were developing and 18 were less developed. They used unbalanced panel data analysis with the data covering 2005-2011. They also investigated whether the negative effects of terrorism on direct and indirect investments could be compensated by foreign aid received. The findings of the study revealed that terrorism negatively affects direct and indirect foreign investments. This result is consistent with other studies in the literature (Abadie and Gardeazabal, 2005⁹⁴). Additionally, foreign aid flows were observed to alleviate the negative effects of terrorism on foreign investments⁹⁵.

The impact of terrorism on FDI on EU and EEA Countries was studied by Bezic et al. (2016). They used a system-GMM estimator for dynamic panel data models. The data covered 29 countries for the period from 2000 to 2013. The findings showed that terrorism and terrorist attacks affect negatively the inflow of FDI in countries of the European Union (EU) and the European Economic Area (EEA). This result is consistent with the finding of the study on the Central African Republic⁹⁶ and supported by the study of Saeed et al. (2018)⁹⁷. Moreover, the findings also pointed out that terrorism affects adversely the inflow of FDI. These consequences originate from increased security costs, which are a burden on the economy. This burden can also lead to some increases in the prices of products and impede the competitive potential of the countries⁹⁸.

The long-run interplay between terrorism and FDI in Pakistan was examined by Ali et al. (2017) with the annual time series data for the period 1980-2015. Johansen co-integration approach was employed to estimate the long-run relationship between the aforementioned variables. Results revealed that there is a significant negative relationship between FDI and fatalities and injuries, but this is not true for events in terms of long-run relationships with FDI. In sum, it can be asserted that terrorist activities significantly affect the flow of FDI⁹⁹.

Radic (2018) investigated whether terrorism can play a vital role as an important determinant that affects the foreign investors' decisions in tourism. For that purpose, he examined 50 countries for the period 2000 to 2016 using a system-

⁹⁴ Abadie and Gardeazabal, (2005).

⁹⁵ Akıncı et al., (2015).

⁹⁶ Kossele and Shan, (2018).

⁹⁷ Saeed et al., (2018).

⁹⁸ Bezić et al., (2016).

⁹⁹ Ali et al., (2017).

GMM estimator for dynamic panel data models. The research findings pointed out that terrorism does not have an adverse effect on the FDI inflow in tourism¹⁰⁰.

The effect of foreign aid on terrorism–FDI nexus was examined by Efobi et al. (2018). The sample used 78 developing countries with data from 1984 to 2008. The findings are: (1) There is a negative effect of terrorism on FDI (Saeed, 2018¹⁰¹) in countries with high-level corruption control. (2) Bilateral aids can cause the adverse effect of terrorism on FDI to decrease. (3) Multilateral aid also is useful in decreasing the negative effect of other forms of terrorism that can be classified neither as domestic or transnational¹⁰².

Taking into account the findings from the literature included in this study, it may be asserted that terrorism adversely affects FDI.

2.3. The Effects of Terrorism on Foreign Trade

The general belief about the effects of terrorism on foreign trade is that the countries affected by terrorism tend to trade with each other, compared to unaffected ones. As asserted by Gerber (2018), owing to terrorism, globalization and also trade may not stop, but it can become more expensive and slower than ever before due to the increasing need for insurance and confidence, rigid border controls and some strict immigration policies¹⁰³. For that reason, some selected studies in the literature were reviewed in order to reach a conclusion about this issue.

The effect of terrorism and warfare on international trade were analyzed by Nitsch and Schumacher (2004). Their data included 200 countries for 1960 to 1993 period. They used an augmented gravity model covering several measures of terrorism and large-scale violence. They observed that terrorist incidences decrease the volume of trade. When the number of terrorist incidents double, this cause to a decrease in bilateral trade by about 4%¹⁰⁴.

Blomberg and Hess (2006) studied the effect of violence, compared to other trade barriers, on trade flows. They employed a panel data set covering 177 countries with the period 1968-1999. They noted that the presence of terrorism was equivalent to a 30% tariff on trade¹⁰⁵.

¹⁰⁰ Radic, (2018).

¹⁰¹ Saeed et al., (2018).

¹⁰² Efobi et al., (2018).

¹⁰³ Gerber, (2018).

¹⁰⁴ Nitsch and Schumacher, (2004).

¹⁰⁵ Blomberg and Hess, (2006).

De Sousa et al. (2010) preferred to use a structural gravity model using data between 1993–2006 to investigate how terror attacks against the USA affected US imports from neighbours. They asserted that “the closer a country is to a source of terrorism, the higher the negative spillovers on its trade”. Their aim was to make a broader concept of the (geographical and cultural) neighborhood to evaluate cross-border spillover effects created by terrorism on international trade. They conclude that there is a direct effect of terrorism on bilateral trade. They established that indirect negative effects of terror from third countries may have created some adverse effects on US bilateral imports. They revealed that countries far from terror could increase trading more¹⁰⁶.

To what extent terror discourages international trade was examined by Egger and Gassebner (2014). Their data included 30 individual OECD member countries and 181 partner countries. Their monthly data was between January 1970 and December 2008. They used the structural gravity model approach that takes general equilibrium effects into account. The results showed that there is not a strong negative effect of terrorism on trade in the short-term. But, terrorism has negative effects on bilateral and multilateral trade in the medium term¹⁰⁷.

By using a factor supply approach, Bandyopadhyay and Sandler (2014) used two good, two-factor, small open economy model to investigate if terrorism reduces trade or not. Their model considered some critical factors, i.e. the effect of terrorism on the intensive factor of the export or import sector. The authors concluded that the counterterrorism measures in response to a greater terrorist threat may alleviate the impact of terrorism on trade. If terrorism decreases the intensive factor in the import industry, then exports can generally be improved while leading improvements in trade. The result leads to shifting the resources and increasing the output of exportable goods¹⁰⁸.

Moving on from the conventional view that terrorism poses risks and decreases international trade, Bandyopadhyay and Sandler (2014) employed a factor supply approach to make clear this hypothesis is not necessarily correct. They employed initially a two-good, two-factor, small open economy model. Thereafter, they used models with several goods and factors and tried to identify conditions under which trade increases or decreases with the reaction of terrorism. Additionally, they

¹⁰⁶ Sousa et al., (2010).

¹⁰⁷ Egger and Gassebner, (2014).

¹⁰⁸ Bandyopadhyay and Sandler, (2014).

provide an analysis related to optimal counterterrorism effects on trade. They finally concluded that if nations employ counterterrorism in response to the terrorist threat they may extenuate the effects of terrorism on trade¹⁰⁹.

The extent to which terror deters international trade was analyzed by Egger and Gassebner (2015). They used monthly data from 1970 to 2008 for 30 individual OECD member countries and 181 partner countries. The structural gravity model approach was employed as an estimation method. They concluded that international terrorism has an adverse effect on bilateral and multilateral trade only in the medium term. Moreover, the short-term impact of international terror on trade seems to be very small¹¹⁰.

Whether terrorism affects the foreign trade of the Middle East and North African countries was examined by Sezgin and Sezgin (2018). In order to measure this effect, Egypt, Iran, Israel, Saudi Arabia, Yemen and Jordan from the Middle East and North Africa (MENA) countries between 1970 and 2016 were evaluated. First of all, the terrorist activities of these countries have been briefly reviewed and the effects of terrorism on foreign trade analyzed using elasticity. According to this, foreign trade in Egypt, Israel, Saudi Arabia, and Jordan is not sensitive to terrorism. In Yemen, foreign trade has been sensitive to terrorism in recent years but in general, foreign trade is not sensitive to terrorism¹¹¹.

Sezgin (2019) investigated whether terrorism has effects on Turkey's foreign trade or not by using data of the period 1970-2016. The author used the concept of elasticity as an estimation method. The findings revealed that Turkey's foreign trade is not sensitive to terrorism, which means terrorist activities has not had any effect on Turkey's foreign trade¹¹². This result is consistent with other studies in the literature (Sezgin and Sezgin, 2018¹¹³; Egger and Gassebner, 2015¹¹⁴).

Considering the literature included in that study, it can be seen that the effect of terrorism on trade is ambiguous. It is highly recommended that these findings obtained from studies be reviewed and extended again in different samples with different kinds of estimation methods.

¹⁰⁹ Bandyopadhyay and Sandler, (2014).

¹¹⁰ Egger and Gassebner, (2015).

¹¹¹ Sezgin and Sezgin, (2018).

¹¹² Sezgin, (2019).

¹¹³ Sezgin, (2018).

¹¹⁴ Egger, and Gassebner, (2014).

2.4. The Effects of Terrorism on Consumption, Savings, and Investment

Keynesian Theory of Demand for Money¹¹⁵ acknowledges that it is essential to be careful about the vagueness of the future. The precautionary motive behind holding money can be explained by the desire of the people to be ready for unforeseen contingencies. Also, it can be asserted that poor economic performance can be partially clarified by politically motivated violence or terrorism since people generally tend to decrease their consumption while they increase their demand for money for the precautionary reasons in the case of negatively conceived situations.

To investigate if the magnitude of political instability has an effect on macroeconomic performance, Fielding (2003) employed an aggregate private sector consumption function. The data covered the period since the start of the Intifada (1988-99) in Israel. The results of the study showed that consumption is sensitive to political violence in the country in line with the economic conditions considered by prevailing interest and inflation rates and the level of private sector income. According to findings it can be stated that as political instability and violence increase, savings and higher current consumption might lower in accordance. Political instability seems to have a significant effect on aggregate consumption and savings¹¹⁶. These results are supported by the findings of other studies (Hess, 2003)¹¹⁷.

Eckstein and Tsiddon (2004) tested the impact of terror on the Israeli economy with the VAR method. They used the quarterly data for the period 1950-2003. According to their estimates, terror has a large effect on the economy. Persistent terror reduced annual consumption per capita by about 5% in 2004. According to them, if Israel had not suffered from terror throughout the last three years, the estimated output per capita might have been 10% higher than it is today¹¹⁸.

The macroeconomic consequences of international terrorism and interactions with alternative forms of collective violence were analyzed by Blomberg et al. (2004). A cross-sectional and panel growth regression analysis and a structural VAR model was performed in the study. Their data consisted of annual observations on 177 countries from 1968 to 2000. The results revealed that terrorism can cause economic activities to be redirect away from investment spending toward government spending¹¹⁹.

¹¹⁵ Keynes, (1935).

¹¹⁶ Fielding, (2003).

¹¹⁷ Hess, (2003).

¹¹⁸ Eckstein and Tsiddon, (2004).

¹¹⁹ Blomberg et al., (2004).

The cost of terrorist attacks on the growth was investigated by Llussá and Tavares (2011). They included 1427 registered terrorist incidents in 187 countries. Their data set covered the years between 1970 and 2007. The dependent variables were the rates of growth of output, private consumption, investment, and public consumption. As per the results of the study, both private consumption and investment were observed to be significantly and negatively affected by terrorist attacks. The effects of terrorism on private consumption is consistent with the findings of Christelis (2010¹²⁰). But, terrorism indicators had little negative effect on output growth or public consumption growth ¹²¹.

The short- and long-term causal effects of terror on the Gross Domestic Product (GDP), private consumption and private investment was examined by Shah et al. (2016) in Pakistan. The ARDL techniques were used as an estimation method. Their data covered the time period of 1991-2012. They found that terrorism in the long run negatively affects GDP and private investment, but positively influences private consumption. Moreover, terrorism in the short term appeared to negatively affect GDP and private investment and to increase private consumption. Considering the results of the article as a whole, terrorism seems to lead the economy down, to deter private investment and to disrupt the form of private consumption¹²². This result is supported by the findings of Sandler and Gaibulloev (2008)¹²³.

Evaluating all the studies on the effects of terrorism on consumption, savings, and investment, terrorism seems to affect these variables to a different degree in different samples.

2.5. The Effects of Terrorism on Public Expenditure and Budget

The general belief is that terrorism may disrupt the economy in different ways. Firstly, terrorism may lead to high public spending by increased defense expenditure. As asserted by Shieh et al. (2002)¹²⁴, this may cause a crowding-out effect. Because increasing government expenditure can decrease the resources available for public investment. Secondly, it may distort tax revenues. Additionally,

¹²⁰ Christelis and Dimitris, (2010).

¹²¹ Llussá and Tavares, (2011).

¹²² Shah et al., (2016).

¹²³ Sandler and Gaibulloev, (2008).

¹²⁴ Shieh et al., (2002).

as asserted by Yang et al. (2012)¹²⁵ anti-terrorism expenditure significantly has a negative effect on growth. Considering all these effects together, it can be put forward that terrorism leads to inefficient resource allocation.

To determine the fiscal effects of armed conflict, and terrorism on the economy, Gupta et al. (2004) examined 22 terror incidents in the period of 1985-1999. They concluded that armed conflicts are associated with decreasing growth and higher inflation, and they seem to have negative effects on tax revenues and investment. Additionally, armed conflicts yield higher defense spending. But, while this causes lower spending on education and health, this situation leads to macroeconomic stability. The results revealed that conflict and terrorism have a significant negative effect on growth while changing the composition of government spending. One more effect is that armed conflicts negatively affect growth, independent of its effect on government spending¹²⁶.

Bloomberg et al. (2004) investigated the macroeconomic consequences of international terrorism. They employed an unbalanced panel data set including 177 countries with the data 1968-2000. They conducted cross-sectional and panel growth regression analysis and a structural VAR model. They concluded that terrorism has a negative effect on growth, smaller than that of either external wars or internal conflict. Moreover, terrorism causes economic activities to be redirected away from investment to government spending¹²⁷.

The effects of national and international terrorist acts on the economy were studied by Gaibuloev and Sandler (2008) using the data of the 1971-2004 period for 18 Western European countries. They employed a two-way random-effects estimation of the growth model as an estimation method. According to research results, both transnational and domestic terrorism negatively affects income per capita growth in Western Europe during 1971–2004. In line with this result, they found that terrorism adversely affects growth-enhancing investment and causes government spending to increase. Finally, they noted that proactive countermeasures to exterminate the terrorist threat may lead to less crowding-out in the long-run¹²⁸.

Yang et al. (2011) analyzed the relationship between economic growth and military expenditure employing a threshold regression with data covering the

¹²⁵ Yang et al., (2012).

¹²⁶ Gupta et al., (2004).

¹²⁷ Blomberg et al., (2004).

¹²⁸ Sandler and, (2008).

period 1992–2003 for 92 countries. They concluded that (1) military expenditure had a significantly negative effect on the growth of 23 countries whose incomes are less than or equal to \$475.93; (2) when the level of threat increases, the economic growth of countries is expected to decrease; (3) military expenditure in a high level of threat increases growth; (3) there is no nexus between military spending and the growth of the countries whose income exceed \$475.93¹²⁹.

How the frequency and severity of terrorism affect government revenue and expenditure was investigated by Çevik and Ricco (2015). They used data covering the period 1970–2013 in 153 countries. According to the findings, terrorism seems to adversely affect tax revenue performance, after controlling the economic and institutional factors. Moreover, they observed that terrorism increases military spending. This result is consistent with other studies (Gaibullov and Sandler (2008a)¹³⁰; Özçelik and Önder, 2013¹³¹) in the literature. They additionally reveal that this impact might be greater when the frequency and fatality of terrorist attacks increases. Moreover, public finances in developing and low-income countries seem to be more sensitive to terrorism compared than those of developed ones¹³².

The effect of terrorism on public expenditure was examined by Işık et al. (2016) using the data including the period 2002–2014 for the 30 member countries of the Organization of Islamic Cooperation. According to results, terrorism seems to have a positive effect on public spending except military spending in some countries (Afghanistan, Bahrain, Bangladesh, Qatar, Egypt, Pakistan, Uganda), but this effect is negative in others (Azerbaijan, Algeria, Indonesia, Jordan)¹³³.

As a result, evaluating all these findings, it can be assessed that terrorism has an adverse effect on the budget by changing the priorities and the composition of government spending.

2.6. The Effects of Terrorism on the Stock Exchange

The effects of terrorism on the financial sector seems to be argued in terms of security aspects. As denoted by Karolyi (2006), negative future expectations on the part of investors are directly reflected in stock prices. If an investor was aware of the probability of a terrorist attack, he/she would try to escape from this market

¹²⁹ Yang et al., (2011).

¹³⁰ Gaibullov and Sandler, (2008a).

¹³¹ Özçelik and Önder, (2016).

¹³² Çevik and, (2015).

¹³³ Işık et al., (2016).

and substitute their investments with other more established and secure financial assets¹³⁴. The motive behind this substitution can be explained by investor confidence.

Eldor and Melnick (2004) examined the reaction of stock and foreign exchange markets to terror. They employed time series analysis using the data covering 639 terror attacks between 1990 and 2003. It was observed that suicide attacks have a permanent effect on both the stock market and the foreign exchange market. In spite of these incidences, financial markets continue to function effectively without being desensitized¹³⁵.

The effects of terrorism on the financial markets were investigated by Arin et al. (2008). They used a time-series framework for a multi-country sample consisting of six countries (Indonesia, Israel, Spain, Thailand, Turkey, and the UK) with daily data over the period 1/1/2002–31/12/2006. According to their results, terror index volatility has an effect on stock market returns. This result is consistent with other studies in the literature (Fernandez, 2008). Moreover, they concluded that there appears to be evidence of statistically significant causality effects between terrorist incidences and stock market returns¹³⁶.

To determine the effect of terrorist attacks on the Australian Stock Exchange, Ramiah et al. (2010) conducted a study. Their estimation method was parametric and non-parametric tests with daily stock returns indexes and returns. They found that there were significant short term negative abnormal returns around September 11, the Madrid and London bombings. This result was later verified again with the study of Christofis et al. (2013)¹³⁷. Additionally, they reported a weak positive effect to the Bali bombing and no response to the Mumbai attack in the Australian market¹³⁸.

Berrebi and Klor (2010) analyzed the impact of terrorism on 125 Israeli companies in the defense industry in the period 1994–97. The results revealed that terrorism positively affects the stock-market valuation of defense companies and security or anti-terrorism products or clients, whereas it negatively affects that of other companies significantly. This positive effect is 7% on defense-related companies, while the negative impact is 5% on non-defense-related companies¹³⁹.

¹³⁴ Karolyi, (2006).

¹³⁵ Eldor and Melnick, (2004).

¹³⁶ Arin et al., (2008).

¹³⁷ Christofis et al., (2013).

¹³⁸ Ramiah et al., (2010).

¹³⁹ Berrebi and Klor, (2010).

Kollias et al. (2011) tried to study the determinants of financial markets. They have investigated three research question as follows: “whether markets’ reactions to terrorism have changed through time; whether market size and maturity determine reactions, and whether reactions depend upon either the type of targets or the perpetrators of the attack”. They used a total of thirty-six terrorist incidents over the twenty-five years. They found that the effects seem to be temporary in financial markets. As for the size and maturity, both of them and additionally specific terrorist incidents appear to be possible determinants of financial market reactions.¹⁴⁰

The effect of terrorism on stock, bond and commodity markets was examined by Chesney et al. (2011). They used daily data covering 11 years from January 2004 to September 2005 in 25 countries. They employed an event-study approach, a non-parametric methodology, and a filtered GARCH-EVT approach as an estimation method. Furthermore, they tried to investigate the effect of terrorist attacks on financial markets with that of other extreme events. According to results, the effects of terrorist acts on financial markets vary from country to country. The Swiss Stock Exchange has mostly been affected by terror acts, while the American Stock Exchange was the least affected one. When the sectoral effects of terrorist incidents are analyzed, the airline industry and insurance sector were extremely sensitive to terrorism, whereas the banking industry was the least sensitive¹⁴¹.

Eryugur and Omay (2014) tried to analyze the potential non-linear effects of terrorist activities on stock revenues. They employed a smooth transition regression (STR) model. As per findings, if the intensity of terrorist activities crosses a certain threshold level, terrorism will have a statistically significant negative effect on the stock index. This result is consistent with other studies in the literature (Maillet and Michel, 2005¹⁴²; Glaser and Weber, 2005¹⁴³; Zussman et al. 2008¹⁴⁴; Kavetsos and Szymanski, 2008¹⁴⁵; Drakos, 2010¹⁴⁶; Ramiah, 2012¹⁴⁷; Aslam and Kang, 2013¹⁴⁸). But below that point, this negative effect of terrorism continues, being statistically insignificant¹⁴⁹.

¹⁴⁰ Kollias et al., (2011).

¹⁴¹ Chesney et al., (2011).

¹⁴² Maillet and Michel, (2005).

¹⁴³ MGlaser and Weber, (2005).

¹⁴⁴ Zussman et al., (2008).

¹⁴⁵ Kavetsos and Szymanski, (2008).

¹⁴⁶ Drakos, (2010).

¹⁴⁷ Ramiah, (2012).

¹⁴⁸ Aslam and Kang, (2013).

¹⁴⁹ Eryugur and Omay, (2014).

The impact of prolonged terrorist activities on stock prices was studied by Arif and Suleman (2017). They used monthly time series data from January 2002 to December 2011. They conducted Johansen and Juselius' co-integration test and revealed that there is a long-run relationship between terrorism and stock price. Research results showed that stock prices fluctuate differently because of both the intensity and severity of the terrorist events. This result is consistent with other studies (Nikkinen and Vahamaa, 2010¹⁵⁰; Kollias et al., 2013¹⁵¹; Essaddam and Mnasri, 2015¹⁵²). Distinct industries are affected differently by terrorism. While some industries encounter a decrease in price, the others have an increase. In that situation, the financial, tobacco and health-care underwent a rise in prices; conversely, oil, gas, auto parts, industrial and telecoms markets experienced a fall in prices¹⁵³.

Algan et al. (2017) investigated the impacts of terrorism on the financial market. They tested the causality between terrorism and the returns and volatilities of 16 sectors. They used in that study daily data from the 4th of January 1988 to 24th of May 2016. They conducted a non-parametric causality test developed by Balcilar et al. (2016)¹⁵⁴. They determined no causality from terrorist activities to stock market returns. However, there seems to be a significant causality from terrorist activities to the volatility of tourism, food and basic materials sectors¹⁵⁵.

To examine the effects of terrorism on stock returns, Özmerdivanlı (2017) studied 19 countries' stock markets in the period 2004-2015. He used panel causality analysis as an estimation method. The independent variable of the study was the global terrorism index, and the dependent variable was shareholder returns. As a result, the findings revealed that terrorism is the reason for stock returns in the USA, Sri Lanka, India, China, and Greece, even though there appears no causal relationship between terrorism and stocks in the other ones¹⁵⁶.

Whether public attention to Islamic religious-based terrorism affects the performance of Islamic and conventional indices was analyzed by Ouadghiri and Peillex (2018). They preferred to use difference-in-difference analysis on returns of US Islamic and conventional indices between 2004 and 2017 by means of Google

¹⁵⁰ Nikkinen and Vahamaa, (2010).

¹⁵¹ Kollias et al., (2013).

¹⁵² Essaddam and Mnasri, (2015).

¹⁵³ Arif and Suleman, (2017).

¹⁵⁴ Balcilar et al., (2016).

¹⁵⁵ Algan et al., (2017).

¹⁵⁶ Özmerdivanlı, (2017).

Search Volume. They concluded that US public attention to Islamic religious-based terrorism has an adverse effect on US Islamic indices¹⁵⁷.

Park and Newaz (2018) investigated if terrorist attacks harm financial markets. They employed a meta-analytic estimation method and analyzed the studies with data covering the period from 1996 to 2015 in 36 countries. They included 10,576 individual attacks and 141,665 non-attack days across 72 stock and foreign exchange markets. According to the research findings, unlike previous research results, terrorist attacks do not affect financial markets (Peleg et al., 2011¹⁵⁸; Hassan and Hashmi, 2015¹⁵⁹; Konwicki, 2018¹⁶⁰) except foreign exchange markets. In the aggregated data, there are not statistically smaller returns and variances on neither attack days nor the following days that are different from non-attack days. There seem to be negative effects only in individual markets¹⁶¹.

The long-term stock market volatility and the influence of domestic and international terrorist attacks were examined by Corbet et al. (2018¹⁶²). Their dataset included the period between 1 January 1995 and 31 December 2015 for the seven selected European stock indices. They employed various GARCH models. They revealed that terrorist incidences significantly influence domestic stock market volatility with some exceptions. This result is consistent with other studies in the literature (Barros et al., 2009¹⁶³; Barros and Gil-Alana, 2009¹⁶⁴; Broun et al., 2009¹⁶⁵; Broun and Derwall, 2010¹⁶⁶; Drakos, 2011¹⁶⁷; Suleman, 2012¹⁶⁸; Alam, 2013¹⁶⁹; Aksoy, 2014¹⁷⁰; Wisniewski, 2016¹⁷¹; Mnasri and Nechi, 2016¹⁷²; Javaid and Kousar, 2018¹⁷³).

¹⁵⁷ Ouadghiri and Peillex, (2018).

¹⁵⁸ Peleg et al., (2011).

¹⁵⁹ Hassan and Saeed, (2015).

¹⁶⁰ Konwicki, (2018).

¹⁶¹ Park and Newaz, (2018).

¹⁶² Corbet et al., (2018).

¹⁶³ Barros et al., (2009).

¹⁶⁴ Ibid, (2009).

¹⁶⁵ Chulia et al., (2009).

¹⁶⁶ Broun and Derwall, (2010).

¹⁶⁷ Drakos, (2011).

¹⁶⁸ Suleman, (2012).

¹⁶⁹ Alam, (2013).

¹⁷⁰ Aksoy, (2014).

¹⁷¹ Wisniewski, (2016).

¹⁷² Mnasri and Nechi, (2016).

¹⁷³ Javaid and Kousar, (2018).

To determine the effect of political instability and terrorism on the Tunisian financial market, Kobbi and Abdelhedi (2018) conducted a study. They used the ARCH and GARCH models with the data covering the period between 2005 and 2015. According to their estimation results, formal and informal political instability has a significantly adverse effect on market index returns. The results showed that assassinations appear to have the highest impact on the market index price. Similarly, terrorist attacks seem to negatively affect market returns¹⁷⁴. This result is also supported by the findings of Shahzad et al. (2017)¹⁷⁵.

Papakyriakou et al. (2019) investigated the effect of terror incidences on the stock market in G7 countries. They employed event-study methodology while using data covering the period 1998–2017 in 66 countries. They observed the significant decline of the stock markets not only on the event day but also on the following trading day. It seems that the market keeps declining more gradually up to 10 trading days in the aftermath of the events¹⁷⁶. This finding is to some extent also supported by the findings of Moussa and Talbi (2019)¹⁷⁷.

Taking into account all the findings of the studies mentioned above, there seems to be a contradiction between a meta-analytic study conducted by Park and Newaz (2018) and the other individual studies included in this study. Also, considering the huge volume of the previous studies that asserted the adverse effect of terrorism on the financial market compared to that of Park and Newaz (2018), it can be seen that terrorist acts appear to have a negative effect on financial markets. As for the meta-analysis, as asserted by Park and Newaz (2018), these findings in the aggregated data may result from the estimation biases or technical limitations of the study. Moreover, it is clear in the study of Park and Newaz (2018) that terrorism has an adverse effect on individual financial markets.

2.7. The Effects of Terrorism on Tourism Sector

The relationship between tourism and terrorism is based on Richter's (1983)¹⁷⁸ pioneering work. Terrorism may severely hamper economic activity while leading to a decline in foreign exchange revenues which is accepted a scarce resource in

¹⁷⁴ Kobbi and Abdelhedi, (2018).

¹⁷⁵ Shahzad et al., (2017).

¹⁷⁶ Papakyriakou et al., (2019).

¹⁷⁷ Moussa and Talbi, (2019).

¹⁷⁸ Richter, (1983).

most countries. Above all, terrorism can have an impact on the tourists' decision to change the travel time and route, and finally, to substitute safer areas compared to those at risk.

The regional effects of terrorism on tourism were analyzed by Drakos and Kutan (2003). They employed data for three Mediterranean countries - Greece, Israel and Turkey - during the period January 1991 to December. According to their results: (1) Terrorism is seen to reduce tourist arrivals. This finding is consistent with that of Yaya (2009)¹⁷⁹. (2) The intensity of casualties and geographic location of terrorist acts have significant own and cross-country effects on the tourism market; (3) Terrorism has a contagious effect in the region.

The impact of terrorism on tourism in Pakistan was examined by Raza and Jawaid (2013). They employed the annual time-series data covering the period of 1980 to 2010. They used Johansen and Juselius and ARDL bound testing as an estimator method. According to the results of the co-integration analysis, it has been found that terrorism has a negative effect on tourism both in the short and long term. This finding is consistent with that of Fletcher and Morakabati (2008¹⁸⁰). On the other hand, Toda and Yamamoto's causality analysis revealed one-way causality from terrorism to tourism¹⁸¹.

The effect of terrorism on tourism demand in a regional framework was studied by Bassil (2014). He tried to analyze the individual effects of domestic and transnational terrorism on tourism demand employing an unrelated regression model (SUR) with data over the period 1995–2007. He concluded that the kind of terrorist incidents and their intensity plays a role in the tourism demand. Moreover, there is a significant spillover effect between countries¹⁸².

The impact of terrorism on tourism expenditure, tourism revenue and the number of tourists was analyzed by Akinci and Yilmaz (2015). They used co-integration and panel data analysis with data covering the period of 2002-2011 for a total of 143 countries-of which 45 are developed, 73 are developing and 25 are underdeveloped. Model estimation results showed that international terrorism has a strong adverse effect on tourism in all country groups. This is consistent with other studies (Korstanje and Clayton, 2012¹⁸³). Additionally, it can be observed that the

¹⁷⁹ Yaya, (2009).

¹⁸⁰ Fletcher and Morakabati, (2008).

¹⁸¹ Raza and Jawaid, (2013).

¹⁸² Bassil, (2014).

¹⁸³ Korstanje and Clayton, (2012).

level of tourism in developed countries is less affected by international terrorism than other country groups. The negative impacts of terrorism were more overwhelming in underdeveloped countries. In other words, the terrorist activities create a heavy burden on tourism expenditures, the number of tourists and tourism revenues especially in developing and underdeveloped countries. Additionally, they observed that social peace has a strong positive effect on tourism in developed countries¹⁸⁴.

Ahlfeldt, et al. (2015) tested the relationship between tourism and terrorism in 172 countries for the period of 1993-2005. The aim of this study was to understand the effects of the September 11 attacks on tourism. According to the results of the study, the number of tourists traveling from various cities in Germany to the Southeast Asian regions was negatively affected by September 11 and terrorism in the region. However, the authors stressed that natural disasters in these regions should also be taken into consideration. Moreover, the results of the study indicated that the SARS countries (India, Thailand, Maldives, and Myanmar) were affected briefly in the September 11 attacks. In the observation term, a highly significant substitution effect was observed in the year following 9/11, due to tourists preferring the trips in closer proximity compared to long-distance tourism. In the study, it was concluded that regional terror incidents also effected tourism. Islamic countries and non-Muslim countries were affected by the September 11 attacks at different rates. In 2002-2003, the increase in the number of tourists in Islamic countries was 16.9 percentage points, while in the non-Muslim Middle Eastern countries it was 22.4 percentage points¹⁸⁵.

The relationship between terrorism and tourism was investigated by Özcan and Özmen (2016). They employed data belonging to 26 countries in the European Union and 13 Middle East and North Africa (MENA) countries. The data period was the years between 2002 and 2013. They used panel unit root and panel co-integration estimators to determine the relationship. According to research results, they found that terrorism affects the number of tourists as expected. This finding is consistent with that of other studies (Saha and Yap, 2013¹⁸⁶; Buigut, 2015¹⁸⁷; Khan and Rasheed, 2016¹⁸⁸). The conclusion of the study is that Islamic countries in the Middle East and North Africa region were affected by terrorist acts more than 26

¹⁸⁴ Akinci and Yilmaz, (2015).

¹⁸⁵ Gabriel et al., (2015).

¹⁸⁶ Saha and Yap, (2013).

¹⁸⁷ Buigut, (2018).

¹⁸⁸ Khan and Rasheed, (2016).

countries in the European Union. The results additionally implied causality between terrorist activities and the number of tourist arrivals is low to the point of being statistically insignificant, while the causation linkage is negative and statistically significant in MENA countries¹⁸⁹.

The spatial spillover effects of transnational terrorist attacks on international tourism were analyzed by Neumayer and Plümpner (2016). Given the limited prevention capability of Islamic countries against terrorism, with the expectations of substituting the destination from Western countries to Islamic ones, they tested: in case terrorist acts which take place in Islamic countries target the tourists from Western Countries “(1) Whether tourism from the victims’ countries to Islamic destination countries will decline; (2) Whether tourism from Western countries to the related Islamic country declines if the terrorism takes place in the other Islamic countries; (3) Whether tourism from Western countries to other Islamic destination countries also will decline”. They employed Poisson maximum likelihood estimation with data covering the period 1995-2013. The results showed that (1) Tourism will decline in Islamic countries in which terrorist incidents occur if the tourist from the Western country experiences fatal terrorist acts; (2) There is the contagious effect, which means that tourism will decline if fatal terrorist acts take place in the other countries; (3) Tourism from Western countries to Islamic countries will decline if terrorist acts take place in Islamic countries regardless of specific source and countries involved in the incidences¹⁹⁰.

Liu and Pratt (2017) investigated the impact of terrorism on international tourism demand. Panel data models and ARDL models were employed to determine the long-term and short-term effect of terrorism with the period of 1995-2012. They concluded that there is not a negative effect of terrorism on tourism demand in the long-term and the short-term effect is quite limited. Moreover, the tourism demand elasticities of terrorism seemed to range between -0.018 and -0.064, which means terrorism has a minimal effect on tourism demand. In sum, international tourism demand appears to be resilient to terrorism¹⁹¹.

The threat of terrorism on tourist choice behavior was examined by Walter et al. (2019). They used a discrete choice experiment (DCE). 424 US-based respondents were included in the research. A Random Parameter Logit (RPL)

¹⁸⁹ Özcan and Özmen, (2016).

¹⁹⁰ Neumayer and Plümpner, (2016).

¹⁹¹ Liu and Pratt, (2017).

model was employed for the purpose of understanding how tourists' preference structures change with the increasing intensification of terrorism. They concluded with a result that some variables such as cancellation policy, tourist's travel choices about accommodation, price and independent versus group travel appear to diverge significantly in line with the increasing threat of terrorism¹⁹².

Çelik and Karaçuka (2019) studied the effects of terrorist attacks on domestic and foreign tourism demand in Turkey. The empirical analysis included the time period between 2001-2015 and all 26 NUTS-II regions in Turkey. They employed Spatial Panel Model Analysis. The results pointed out that the degree of severity of the terrorism, rather than the frequency degree of terrorism, have distortion effects on tourism preferences. This finding is the opposite of Çelik and Karaçuka (2017)¹⁹³. Over and above this, they found that the distorting effects of terrorism seem to be more significant for domestic tourists than foreign tourists. The income level and exchange rates, employed as a control variable, were observed to be more significant determinants for foreign demand rather than domestic demand¹⁹⁴.

The effect of terrorist incidences and political violence on the tourist arrivals and overnight stays in Tunisia was investigated by Lanouar and Goaid (2019)¹⁹⁵. They conducted a time series analysis with monthly data from January 2000 to September 2016. They revealed that (1) terrorist incidents have a stronger effect on tourism compared to political violence; (2) Considering the duration of incidents, it is seen the effects of terrorism are more long-lasting (1 year and 2 months) than that of political incidents (8 months); (3) When comparing internal shocks with external ones, internal shocks seem to have a stronger effect than external incidences.

Evaluating all findings of the studies covered altogether, it can be seen that terrorism has an adverse effect on tourism variables. In that scope, terrorist acts appear to (1) negatively affect tourism demand; (2) have distortion effects on destination preferences; (3) have a substitutability effect; (4) produce a heavy burden on tourism expenditure and (5) have spillover effects between countries. These effects appear to vary in the short and long term, in terms of the level of development in the region where the terrorism takes place.

¹⁹² Walters et al., (2019).

¹⁹³ Çelik ve Karaçuka, (2017).

¹⁹⁴ Çelik and Karaçuka, (2019).

¹⁹⁵ Lanouar and Goaid, (2019).

Conclusions and Recommendations

Given the high cost of terrorism to countries, this study aimed to examine the effects of terrorism on economic variables. In that context, firstly the definitional problem of terrorism, its development over time and its main root causes were discussed. Thereafter, the direct short-term and indirect long-term costs of terrorism were investigated. For that purpose, studies in the related literature were reviewed in order to reach a conclusion in terms of research questions: (1) *Does terrorism affect the economy?* (2) *What are the effects on the economy?* (3) *Is there any causality effect between terrorist incidences and economic variables?* In that scope, 159 articles and 15 books/book chapters examined with content analysis.

In the short-term, it was observed that terrorism creates a cost proportionate to the terrorist incident in the countries in which terrorism take place. Additionally, there is an increasing trend of terror incidents from 2000 to 2014. But, this trend seems to decrease from 2014.

Considering the short-term cost, it was seen that deaths account for 72% of the global economic impact of terrorism, while indirect GDP losses are 25%, property destruction is 2% and injuries only 1%. The most important point is that the economic impact of terrorism is less than the other types of violence such as war and crime. As of 2017, terrorism is about 0.4 % of the total global cost of violence which has an estimated value of \$14.76 trillion¹⁹⁶.

As for the indirect effects of terrorism, it can be asserted that terrorism has not only different kinds of indirect effects on economic variables but also these effects seem to arise in the middle to long-term. Moving from the studies, the indirect effects of terrorism can be indicated as follows:

- It is observed that terrorist incidents negatively affect growth/national income.
- Terrorism seems to have a significant negative impact on the direct inflow of foreign capital while causing foreign investors to lose their confidence and to decrease their direct foreign capital inflows.
- It is seen that the effect of terrorism on trade is ambiguous.
- It can be deduced that terrorism can cause private investment to discourage and distorts the pattern of private consumption and saving to some extent in different samples.

¹⁹⁶ Institute for Economics and Peace. "Measuring the Impact of Terrorism". *Global Terrorism Index-GTI* 29-30, (2018).

- Terrorism appears to trigger government security expenditures while creating an additional burden upon the budget, and finally, it hinders resources from more productive private and public investments.
- Considering the huge volume of the studies, it can be asserted that terrorism has a negative effect on the stock index. This negative effect seems to vary in terms of the short and long-term, and the samples, i.e. countries in which terrorism takes place.
- Terrorism is seen to have an adverse effect on the tourism sector. Terrorism has a negative effect on tourism demand, and additionally distortion effects on destination preferences, a heavy burden on tourism expenditures and spillover effects amongst countries.
- As for causality analysis between terrorism and economic variables; Arin et al. (2008) observed that there is a significantly strong causality effect between terrorist incidents and stock market returns¹⁹⁷. Raza and Jawaid (2013) revealed one-way causality from terrorism to tourism¹⁹⁸. Meierrieks and Gries (2013) found different causalities between terrorism and growth. While economic growth had an impact on terrorism during the Cold War; conversely, in the post-Cold War period, terrorism affected economic growth¹⁹⁹. Ak et al. (2017) showed that there is one-way causality from growth to terrorism²⁰⁰. According to the findings of Algan et al. (2019), there is no causality from terrorist activities to stock market returns, but there is a significant causality from terrorist activities upon the volatility of tourism, food and basic materials sectors²⁰¹. Özmerdivanlı (2017) found a causality from terrorism to stock returns in the USA, Sri Lanka, India, China, and Greece²⁰². Raza and Javaid (2013) observed a unidirectional causality from terrorism to tourism²⁰³.

Evaluating all findings, it can be said that terrorism has not only short-term direct effects but long-term indirect effects on selected economic variables. Additionally, there is a causality between terrorism and some economic variables.

¹⁹⁷ Arin et al., (2008).

¹⁹⁸ Raza and Jawaid, (2013).

¹⁹⁹ Meierrieks and Gries, (2013).

²⁰⁰ Ak et al., (2017).

²⁰¹ Algan et al., (2017).

²⁰² Özmerdivanlı, (2017).

²⁰³ Raza and Jawaid, (2013).

Considering these findings, policy-makers are recommended to develop long-term and consistent solutions in order to alleviate these burdens.

Above all, it is clear that there needs to be a common definition of terrorism. Then, all countries should handle this issue, without any political ambitions and intentions and jointly while giving the issue a high priority and sensitivity in order to solve the problem of terrorism.

Assuming that terrorism has spillover effects²⁰⁴, neighboring nations should monitor and coordinate counter-terrorism activities beforehand. Therefore, it is highly recommended that neighboring countries especially develop a multinational group to coordinate their efforts in order to alleviate and eliminate terrorist acts.

As to causality from economic success to terrorism, it is more important to support the policies that focus on the economic growth and development, since economic success is helpful in scaling down terror risks by increasing the opportunity cost of terrorist acts. Additionally, some policies that are intended to increase the efficiency of markets should be pursued since, by doing so, markets and institutions can build resilience against terrorist attacks²⁰⁵.

Globalization may eliminate the negative consequences of terrorism. In other words, it can be asserted that open economies might be less influenced by the adverse effects of terrorism²⁰⁶. It may be asserted that increasing trade among countries may be an effective tool to alleviate the negative effects of terrorism, especially in developing countries.

Considering the fact that growth, in terms of both physical and human capital stocks, has a negative effect on terrorism²⁰⁷; governments are highly recommended to allocate more resources in this area and improve the physical and human capital stock in order to curb terrorism.

Limitations and Future Implications of the Study

Firstly, in order to obtain a certain quality, this study includes only English publications, peer-reviewed articles and published books/book chapters. In that context; these findings are restricted to this study with articles and book/book chapters covered.

²⁰⁴ Gaibulloev and Sandler, (2008).

²⁰⁵ Gries, (2011).

²⁰⁶ Younas, (2015).

²⁰⁷ Tahir, (2018).

So, these findings pointed out in this study cannot be interpreted as robust, since every study has different kinds of estimation methods and data set with different periods and countries that have the unique social and economic structures. As a result, these findings may change in time with new studies and findings. Therefore, it is highly recommended that these conclusions should be reviewed as new studies are added to the body of literature.

Moreover, it is suggested that these results be examined with different kinds of data and estimation methods in different countries to reach more robust decisions. And last but not least, it is strongly suggested that these findings should be studied with the meta-analytical estimation methods to reach more robust conclusions.

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The Use of Internet by DAESH

Oktay Kirazoluğu¹

Abstract: *In the last decade, terror organizations have explicitly messed with the World through the internet as if it were specifically devised for these organizations. Daesh, once identical to a pseudo-state, has utilized the internet more than its predecessors and in more creative ways. Its media and cyber presence are still effective although it has lost its physical foothold. Today most of the Daesh platforms which were active in the past have ceased their operations. So far, some have returned to the scene as its media and cyber network rehabilitates. They utilize almost every platform in an effective way and left the unusable ones for a new functioning platform, which may seem as an infinite source of communication medium. Daesh use the Deep and the Dark Web and social media effectively by creating channels through decentralized structures or its media agencies. The channels or web sites' rapid reappearance after coordinated counterattacks to these sites proves its versatile structure. Content analysis of online Daesh magazines displays the framing of events in relation to actual incidents. Negative events are not covered in parallel with the 'framing' theory. Besides this, discourse analysis of these publications reveals that the rhetoric used in the narratives is carefully designed. The narrator has made an effort to rearrange the text by detaching it from its context by means of time, place and occasion. The rhetoric was built on seeing the entire world as an enemy by devising a black versus white cognition, in order to differentiate group*

¹ Colonel, PhD, Turkish Armed Forces, Research Assistant in Centre of Excellence Defence Against Terrorism, kirazolugu@yahoo.com

members from the rest of society. This context is concealed behind religious features and heroism. Narratives touch the hearts and minds of the group members. Although there are abundant narratives to emphasize the plot, the quality of these narratives is not satisfactory enough for an unbiased reader. Daesh's propaganda alone is not the reason for becoming a sympathizer, supporter or a zealot member. These narratives do not change the mental structure of the audience but support their arguments and reinforce them as a permanent ideology.

Keywords: *Daesh, Terrorism, Media, Internet, Social Media, Narrative*

Introduction

Daesh² has been defeated in physical terms, which is symbolized by its last remnants in Syria. Millions have suffered from the consequences of the events which took place over the last six years, the effects of which linger in different forms and with costs. The organization utilized different mediums effectively to reach its aims, among which the internet had the greatest effect on Daesh's target audiences. It aimed to spread propaganda, convince sympathizers and recruit new members for their ranks. The use of the internet by terror organizations disrespects national borders by magnifying the latent impact on victims. Nevertheless, countering a terror organization in a form of a pseudo state requires a great deal of effort, not only for the struggling nations but also for the researchers.

There is an interesting body of academic literature on the use of internet by terrorist organizations. For instance, a study made by Tinnes³, containing journal articles, books, and other resources shows the multi-faceted relationship between terrorism, the media, and the Internet. In Weimann's study⁴, no fewer than eight different ways are identified in which terrorists are using the Internet. Ogun's study⁵ is focused on the exploitation of the Internet by terrorist organizations for their

² It is the Arabic acronym 'al-Dawlah al-Islamiyah fi al-Iraq wa-al-Sham' which corresponds to 'Islamic State in Iraq and al-Sham', also named 'ISIS'.

³ Judith Tinnes, "Bibliography: Terrorism and the Media (including the Internet)", *Terrorism Research Initiative, Perspectives on Terrorism*, Vol. 13, No. 2 (April 2019), pp. 79-141.

⁴ Gabriel Weimann, "Www.terror.net: How Modern Terrorism Uses the Internet", *US Institute of Peace*, 2004, available at www.jstor.org/stable/resrep12363 (accessed 22 May 2020).

⁵ Mehmet Nesip Ogun, "Terrorist Use of Internet: Possible Suggestions to Prevent the Usage for Terrorist Purposes", *Journal of Applied Security Research*, 7:2, (2012), pp. 203-217.

activities, with the aim of identifying ways to overcome terrorist networks. Nacos⁶ also highlighted terrorism's relationship with the public, media and internet by including Daesh in her study. Beadle confirms that the Internet amplifies and facilitates dynamics of radicalization into violent extremism, accelerates catalysts for engaging in radicalizing cognitive processes, and eases access to radical discourses.⁷ Modern government supported counter-narrative efforts are generally insufficient in subduing the extremist ideology. In parallel, restriction and exclusion of the content is impractical. Thus, there is a growing need to address the background of radicalization caused by the ideological charm and it is vital to find positive alternatives to counter the extremist narratives.⁸ Controlling the narrative rather than gaining territorial control is the main aspect of Daesh's media strategy.⁹ As a messaging apparatus, positive alternative narratives and counter narratives are other important aspects. Religious, ideological, and emotional capabilities allowed Daesh to take hold in the collective perception.¹⁰ The findings and comments in these studies give preliminary determinations and a need for further clarification of Daesh's use of the internet and its narratives.

Until the capture of Mosul, Daesh was not covered by the mainstream media to the extent that it deserved. During its period of peak operation, it created its own media through the utilization of the internet, and it benefited from its fruitful results. As Daesh retreated substantially, it became more a virtual organization, through its online publications. It persists in using online communication tools in support of the organization's future aspirations. It is known that these channels are the products of the technological progress in the internet, devised as a result of the latest social demands. Nevertheless, Daesh progressively utilized the internet in support of its agenda. Thus, the effective use of the internet by Daesh and its narrative's lure for its followers has to be clarified in order to develop counter strategies. Actually, we cannot measure the effectiveness of its publications except through an assessment of the rise of the number of its recruits, yet the analysis of its narratives might give hints

⁶ Brigitte L. Nacos, *Terrorism and Counterterrorism*, (Routledge, 2019), pp. 329-376.

⁷ Sarah Beadle, *How does the Internet facilitate radicalization?* (War Studies Department, King's College, 2017), p. 2.

⁸ Christina Schori Liang, *Cyber Jihad: Understanding and Countering Islamic State Propaganda*, (Geneva Center for Security Policy, 2015), p. 1.

⁹ Thomas Elkjer Nissen, "Terror.com - IS's Social Media Warfare in Syria and Iraq", *Military Studies Magazine*, Royal Danish Defence College, (2014), pp. 2-8.

¹⁰ Charlie Winter, *The Virtual 'Caliphate': Understanding Islamic State's Propaganda Strategy*, (Quilliam, 2015), p. 6.

regarding their effectiveness. Therefore, the aim of this article is to examine the use of the internet by Daesh and provide an analysis of the narratives utilized in this medium. Through this analysis, it is planned to acquire structured information on the usage of the internet by terrorists, and to find out the structures in its narratives through a methodological analysis in order to then challenge them. To clarify the aim, it is intended to answer the following research questions: Through which mediums does Daesh take advantage of the internet? How is the rhetoric of the narratives structured in its publications? And, is the narration have specific narrative qualifications?

In order to find the answers to these questions, a research is required to define the problematic nature of the relationship between terrorism, the media and the internet. Then, Daesh's media and cyber network is analyzed to map out its organizations, functions, relations, and its structure through a detailed review of its websites and social media accounts. The use of the deep and dark web by Daesh is analyzed through the related literature. The presence of Daesh in social media has been explored to find hints regarding not only its effective utilization of the internet, but also its negative, ineffective side. Additionally, an overall overview of the group's electronic publications was conducted, and specific examples are described as a part of the analysis. Specifically, the rhetoric of the main narratives in 25 episodes of the *Dabiq* and *Rumiyah* electronic magazines were analyzed as a part of the discourse analysis¹¹. The aim of the rhetoric analysis is to see if the standard strategies of discourse have been applied to the narratives in the magazines which inspire the convincing processes. Although rhetoric comprises only a part of the discourse analysis, it is a sufficient systematic for the research task, which concentrates on explaining the implicit context. Finally, an assessment on the quality of the narration is made through the 'narrative paradigm'¹², which is a reliable method for a narrator to develop a devoted audience.

Terrorism, Media and the Internet

Defining these terms in relation with others requires contextual and historical perspectives. Here, 'media' is used as a general concept to limit the inter-relational problems between the disciplines of communications and terrorism. Media is a broad term including television, newspapers, magazines, etc., whereas the internet

¹¹ Teun Van Dijk, *News as Discourse*, (Lawrence Erlbaum Associates Inc., 1988), p.82-84.

¹² Walter Fisher, "Clarifying the Narrative Paradigm", *Journal of Communication Monographs*, (1989), p.55-58.

is a system of computers for sharing information or communication that is used by the media itself as a channel or platform. In the age of ‘post-truth’¹³, in which objective facts are less influential in shaping public opinion than emotions, reality can be shaped, formed or even created as a tool for devising belief systems and changing the feelings of people: it is used extensively in this way in contemporary politics and even in terrorism. Power also relates to the phenomenon of the changing nature of the truth formed by media as one of the ‘ideological state apparatus’¹⁴. But this cognition was before the beginning of the internet era which changed the rules by creating new dimensions to these tools, in forming reality and changing the nature of truth.

Terrorism uses different apparatuses in order to achieve its goals on a case by case basis. From Al-Qaeda to Daesh, the use of the internet as a tool of terrorism has progressed towards asymmetry; as the world progressed in technological terms, terror organizations have advanced even more without ethical or legal constraints. Contextual views state that terrorism is a strategy of the weak against the strong, which utilizes violence to sow fear, and finally to cause a political change.¹⁵ Terrorism relies heavily on press coverage and modern communication channels. The so-called ‘symbiosis’ between terrorists and the media is a critical theme of media-terrorism research and practice. Researchers claim there would be no terrorism if the media did not convey their messages.¹⁶ Basically, terrorist acts should be viewed as ‘violent language’ which functions as propaganda. The effect is behavior modification of the target audience by both coercive and persuasive means. In practical use, terrorism practices violence against one target to generate an effect upon others. The immediate victims of terror are merely an instrument of communication since the important issue is the message. Therefore, terrorism should be understood as a violent communication strategy.¹⁷ Mass violence turns into a political statement and the media descriptions of violence induce terror among the common public. As Nacos has stated; “when terrorists bomb somewhere, they do not simply commit violence; they execute premeditated

¹³ The word ‘post-truth’ is selected as the word of the year in 2016. See; Oxford languages, available at <https://languages.oup.com/word-of-the-year/2016/> (accessed 28 March 2020).

¹⁴ Louis Althusser, “Ideology and Ideological State Apparatuses”, *Monthly Review Press*, (1971), p.7.

¹⁵ Walter Laqueur, “Postmodern Terrorism”, *Foreign Affairs*, (September/October, 1996), p.24.

¹⁶ Paul Wilkinson, “The Media and Terrorism: A Reassessment”, *Terrorism and Political Violence*, 9(2), (1997), p.51.

¹⁷ Alex Schmid and Jenny de Graaf, *Violence as Communication*, (Sage, 1982), p.15.

terrorism that practically assures a great deal of news coverage.”¹⁸ Laqueur also backs up this assertion; “the media are the terrorist’s best friends, ... the terrorists’ act by itself is nothing, publicity is all.”¹⁹ It can be clearly understood from these statements that media is the primary link which connects terrorists to the public in an intention to exploit the natural effects of its deliberate actions.

When considered in its historical context; as terrorist weapons have changed with technological advance, the perceptions of the threat posed by terrorism have increased exponentially. Yet the philosophical background of terror tactics has not changed so much from the 1st century Jewish Zealots to today’s Daesh in terms of motives, behaviors and consequences. Terrorism still relies heavily on effective tactics to be successful in the field and it has to devise new strategies which may be seen in the historical context as a part of the technological progress. The development of the internet as a primary domain is most apparent in its abnormal use. Theft of identities or hacking web sites are examples of the misuse of the internet during late 1990s. Until the 9/11 incident, there was a stable rise in terrorist violence and, in parallel, its use and abuse of the internet by various means. Ever since the first website (info.cern.ch) was launched in 1991, over 1.6 billion websites have been opened and around 200 million are active as of 2019. The web grew by more than one third in 2013.²⁰ Currently there is a gain of two million sites and three million domains each month.²¹ The internet opened an incredible channel for not only public and private sector organizations but also for ordinary people to interact in various ways (social media, web pages, e-mail, etc.) in a simplified and effective way.

Historically, the progress of the internet has brought a parallel advance in the terrorist use of the internet for practical means including extreme violence. The use of extreme violence as a communication tool was seen in the Mexican drug cartels’ practices, even before Al-Qaeda or Daesh.²² The evolution of the internet offered a new medium for these cartels; to recruit new members, to justify the brutal imagery, or to intimidate their rivals, especially by cutting the heads off their captives,²³ which has affinity with the aims of the extremist terror groups. Al-Qaeda was the first

¹⁸ Brigitte Nacos, *Terrorism and the Media*, (Columbia University Press, 1994), p.10.

¹⁹ Laqueur, *Ibid*, p.24.

²⁰ «Netcraft and Internet Live Stats”, available at <https://www.internetlivestats.com/total-number-of-websites/> (accessed 28 March 2020).

²¹ “Netcraft, March 2020 Web Server Survey”, available at <https://news.netcraft.com/archives/category/web-server-survey/> (accessed 28 March 2020).

²² Laura Scaife, *Social Networks as the New Frontier of Terrorism*. (Routledge, 2017). p.6.

²³ “Stratfor Assessment”, available at <https://worldview.stratfor.com/article/mexico-security-memo-mitigating-threat-affiliate-groups> (accessed 28 March 2020).

major terror network to understand the potential of the internet; as the Taliban were smashing TV sets in the 1990s, Al-Qaeda were using email lists to disseminate information to orchestrate major attacks, particularly in the Nairobi and Dar es Salaam embassy bombings in 1998.²⁴ In the beginning of 2000, Al-Qaeda set up a website through an Egyptian merchant with the help of a local internet firm. Around that time, militants in Afghanistan also developed their skills by using Microsoft Front Page and other software on the web, devising graphics, assembling content, and packaging huge amounts of text, audio or video files. As conditions in Afghanistan were not optimal for technical reasons, they sought and received some help from their affiliates in China, Pakistan and later in Britain for the distribution of this material.²⁵

This may also have led to a series of actions which facilitated the occurrence of 9/11, from assistance in the procurement of material, to the planning of flights or from enabling the mapping and reconnaissance of the sites, to the recruitment of and communication within the group involved in the attack. Although Al-Qaeda had utilized the internet beforehand, the effects of this major event focused attention on the utilization of the internet for terrorist purposes, and which also paved the way for successor organizations in their use of the internet. And long before the Daesh's 'Jihadi John' had been identified as a social media 'star', in 2007, Al-Qaeda produced violent propaganda videos for smart phones. It was in 2013 that terrorists began to use Twitter, Instagram and other platforms in its operations, and YouTube emerged as the leading website for online terrorist material.²⁶

In a United Nations report on the use of the internet for terrorist purposes, the classification of the means by which the internet is utilized for terrorism has been divided into six categories: propaganda, financing, training, planning, execution, and cyberattacks. Propaganda is the most obvious category, through communications which offer ideological and practical instruction, justifications or promotion of terrorist activities. Terrorist organizations or their sympathizers produce virtual messages, magazines, as well as audio & video files and video games as propaganda materials. The reliance on traditional channels of communication, such as news services is being diminished with the internet's ability to directly distribute the content. Internet propaganda may also include content such as video footage

²⁴ Abdel Bari Atwan, *Islamic State: The Digital Caliphate*, (University of California Press, 2015), p. 2.

²⁵ Andrew Higgins, "Computer Crime Research Center", available online at <http://www.crime-research.org/news/2002/11/Mess1203.htm> (accessed 28 March 2020).

²⁶ Scaife, *Ibid.* p.36.

of violent acts of terrorism or video games developed by terrorist organizations.²⁷ Terrorist propaganda can be customized to potential or actual supporters, or to opponents, to direct victims of terrorism or the international community. Propaganda aimed at supporters may be focused on recruitment and radicalization through messages passing on details of accomplishments and inspiring dedication to an aim. For the wider international community, the goal is often to convey a desire to achieve decent political ends.²⁸ Narratives may be tailored to cultural and regional differences for the recruitment of supporters. These narratives can be adapted to the vulnerabilities of the cultural aspects of the human source since each nation, religion or culture is unique and has inner norms and values. In the last decade, Daesh as a terrorist organization has proven to be a prominent body in terms of gathering and appealing to people belonging to different nations or cultures with an effective narrative through various channels on the internet.

Media and Cyber Networks

It is important to emphasize a general overview of Daesh's official media network to see its functions, relationships and its structure. From the evolution of Al-Qaeda in Iraq to Daesh, the group had a media wing which was designed around a central media council and regional councils that coordinated the overall messaging campaign. The council was directed by a so-called Minister of Information and a Spokesman. Under the control of the Media Council, Daesh's media network included many foundations specializing in the production and dissemination of media materials. These vary from the regular announcements about military activities to recruitment videos, photos, speeches and religious verses that encouraged individuals to join the group and bolster the morale of their operatives. Media materials are distributed in cyberspace via websites, social media, file-sharing platforms, and internet radio stations. Most of the publications are distributed in Arabic, with some of them are distributed in English and others more rarely in French, Russian, Turkish or other languages. Daesh operated dozens of platforms and produced large quantities of media materials, some of which are long-standing, well recognized institutions.

²⁷ "The Use of the Internet for Terrorist Purposes", (United Nations Office on Drugs and Crime, Vienna, 2012), p.1-5, available at https://www.unodc.org/documents/frontpage/Use_of_Internet_for_Terrorist_Purposes.pdf (accessed 28 March 2020).

²⁸ Gabriel Weimann, *Terror on the Internet: The New Arena, the New Challenges*, (United States Institute of Peace Press, 2006), pp. 37-38.

The leading media centers were Al-Furqan, Al-Hayat, Amaq and Al-Mu'ta. In addition to the old institutions, there are also new ones, which appeared irregularly. Some of them are operated by the group's Central Media Office and some are operated as personal initiatives by the supporters outside the core territories. Al-Furqan Media Foundation is Daesh's long-standing media arm, which has produced media material, primarily videos, since 2006. It is used for disseminating speeches and statements by the leadership including the video of Baghdadi declaring the establishment of the Caliphate. Al-Hayat Media Foundation is a central Daesh entity that produces media materials such as *Dabiq* and *Rumiyah* electronic magazines, Daesh's principal propaganda publications. The videos produced by the foundation focused on eliciting support from communities in the West and in East Asia. Therefore, most of the Al-Hayat Foundation's products are produced not only in Arabic but also in more than eight different languages.

Amaq is Daesh's so-called official news agency. This agency publishes claims of responsibility for terrorist attacks carried out by its operatives. It ostensibly kept contact with personnel in various combat zones, thereby timely reports about the events could be produced and shared. Furthermore, the agency releases videos, information graphics and news flashes on related issues. In cases of attacks outside the Arabic speaking region, when there is a need to address a target audience which does not speak Arabic, it published translations into other languages. Muta is an affiliated but not an official agency claiming responsibility in Arabic and English languages. Amaq and Muta agency's publications are released mainly via the Telegram application.²⁹ As of January 2018, Daesh still had some media platforms to perform its duties by Akhbar al-Muslimin website, Amaq News Agency, Al-Hayat Foundation, and the weekly al-Naba online magazine. There are also local media bureaus in Syria, Iraq and abroad, which distribute materials from Akhbar al-Muslimin website and Amaq News Agency.

Most of the platforms have ceased their operations. But these platforms may return to their activities as the organization and its media network rehabilitates itself.³⁰ These foundations, agencies, and centers are constructed to fulfill the objectives of

²⁹ "ISIS's Media Network: Developments in 2018 and future courses of action", (The Meir Amit Intelligence and Information Center, 21 February 2019), available at <https://www.terrorism-info.org.il/en/isiss-media-network-developments-2018-future-courses-action/> (accessed 05 August 2019).

³⁰ "ISIS's Media Network in the Era after the Fall of the Islamic State", (The Meir Amit Intelligence and Information Center, 28 January 2018), available at https://www.terrorism-info.org.il/app/uploads/2018/01/E_264_17fv.pdf (accessed 06 April 2020).

Daesh through different channels and mediums. Besides, the media and the cyber networks cannot be separated since they cross-reference with each other in every case. A schematic outline of this network compiled from different sources that covers almost all of the platforms used by Daesh can be seen in the figure below. A search in the Deep Web shows that most of the platforms mentioned in the ‘current media’ part are still active if not all the time. For example, Amaq disappeared on the internet in April 2018, through a coordinated operation by Europol, which was nevertheless back online the next morning.³¹ Its rapid reappearance after an international coordinated action obviously verifies its versatile structure and an indication of effective contingency plans.

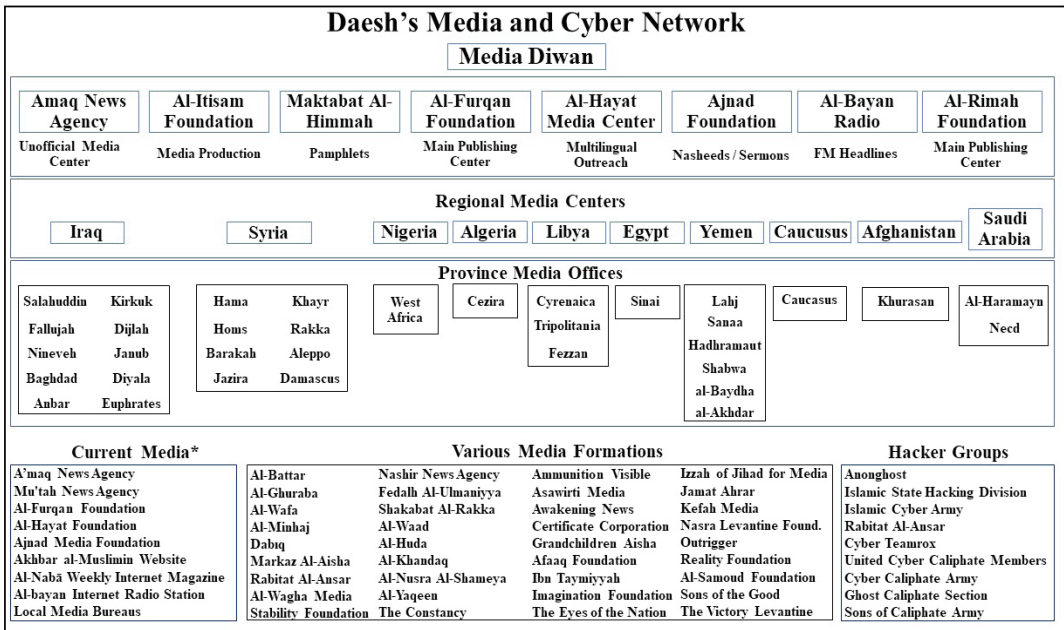


Figure 1: Daesh's Media and Cyber Network ^{32 33 34 35}

³¹ "ISIS's media mouthpiece Amaq was silenced, but not for long", (CBS News, 02 May 2018), available at <https://www.cbsnews.com/news/isis-amaq-online-propaganda-hit-cyber-takedown-bounces-back-in-just-days/> (accessed 06 April 2020).

³² Malcolm Nance and Chris Sampson, *Hacking ISIS: How to Destroy the Cyber Jihad*, (Skyhorse Publishing, 2017), p.34.

³³ Winter, *Ibid.* p.14.

³⁴ *Ibid.* (17).

³⁵ Figure covers almost all of the Daesh formations on the job in different times between 2014 and 2019. Most of them have ceased to perform as of today. Current media platforms (*) seem to work on and off recently.

Use of the Deep and Dark Web

*“Searching on the Internet today can be compared to dragging a net across the surface of the ocean. While a great deal may be caught in the net, there is still a wealth of information that is deep, and therefore, missed. The reason is simple: Most of the Web’s information is buried far down on dynamically generated sites, and standard search engines never find it.”*³⁶

The Deep and Dark Web are the parts of the internet that cannot be found by using ordinary search engines. Beneath the surface web, there is a huge amount of data, like the invisible part of the iceberg which cannot be seen. These data are not indexed but accessible only via secure browsers. The unwritten rule in this universe is quoted as “if you are not in the know, you don’t know”. The material is most likely a Deep Web material if it is not found by Google, Explorer, Safari, Mozilla, etc. Deep Web sites can only be accessed with some browsers within the limits of which the users must know how to log in with usernames and passwords. Likewise, Daesh related activities were hidden from search engines. For example, the propaganda sites were installed next to the neighboring roots (‘daesh.com/tr/tr...’ is used rather than ‘daesh.com’). Nevertheless, these measures do not prevent the search engines from searching for it in long term. Law enforcement staff use Deep Web crawlers to survey terrorist activities using a combination of Open Source and Human Intelligence.

When it comes to illicit activities there is no distinction between the Deep and Dark Web. The Dark Web is web content, deliberately encrypted and hidden from view, that can only be accessed by custom browsers. Thanks to layered encryption systems, the identities and locations of Dark Web users stay anonymous and cannot be tracked. Yet an article in Daesh’s French online magazine *Dar al-Islam*, has claimed that intelligence agencies put up traps to catch the visitors by using popular networks such as Tor, Freenet, I2P, and Riffle.³⁷ The Dark Web provides new opportunities for money transactions or anonymous currencies like Bitcoin or similar cryptocurrencies. These currencies are used for drugs and weapons purchases or for money laundering and the financing of terror attacks. Ali Shukri Amin, a fan of Daesh and suburban high school student began tweeting instructions on how to use Bitcoin to fund the extremist group in 2014. He was sentenced to

³⁶ Michael K. Bergman, “White Paper: The Deep Web: Surfacing Hidden Value”, *The Journal of Electronic Publishing*, Volume 7/ 1, 2001, available at <https://quod.lib.umich.edu/cgi/t/text/idx/jep/3336451.0007.104/--white-paper-the-deep-websurfacing-hidden-value?rgn=main;view=full-text> (accessed 06 April 2020).

³⁷ Nance, *Ibid.* pp. 12-22.

eleven years in prison, followed by a lifetime of supervised release. Court records show that Amin's Twitter account contained tweets on how to fund the group using Bitcoin and giving advice on online security and encryption.³⁸

Cryptocurrencies are critical to criminals since they enable them to hold and transfer money without a central observatory authority, thus anyone can create a Bitcoin address and begin receiving digital tokens without a name or an address. A Daesh website, *Akhbar al-Muslimin* began an initiative for donations using Bitcoin in January 2019. The site posted a link to its virtual wallet which forwards the potential donor to the website of a digital currency exchange (VirWoX) located in Vienna.³⁹ According to recent news, a US federal court sentenced a U.S. citizen to thirteen years for laundering money by using cryptocurrencies on behalf of Daesh. Shahnaz was sentenced in March 2020 for working to fund Daesh through cryptocurrency payments amounting to over 150,000 (USD). Eventually, she sent the funds via wire transfers to the 'fronts' in Pakistan, China and Turkey.⁴⁰ There are many examples of such prosecutions which confirm Daesh's efforts at seeking opportunities on gaining funds for its logistical and support needs. According to a Rand Report⁴¹ the upcoming progresses in cryptocurrency technologies are expected to have a substantial long-term effect on terrorism financing. Cryptocurrencies as a tool in the Dark Web are dynamic and innovative which might allow terrorist groups to circumvent monitoring. But most terrorist groups' technical abilities are not currently suited to money laundering, which is harder to detect when conducted by sophisticated actors.

Presence in Social Media

Individuals became not only the consumers of the net, but also a part of the network for production of content and also its medium through the redistribution of

³⁸ Yasmeen Abutaleb and Kristina Cooke, "Extremists Among Us, A teen's turn to radicalism and the U.S. safety net that failed to stop it", (Reuters, 06 June 2016), Available online at <https://www.reuters.com/investigates/special-report/usa-extremists-teen/> (accessed 10 January 2020).

³⁹ "Drive for donations using Bitcoin on an ISIS-affiliated website", (The Meir Amit Intelligence and Terrorism Information Center, 12 February 2019), available at <https://www.terrorism-info.org.il/en/drive-donations-using-bitcoin-isis-affiliated-website/> (accessed 02 April 2020).

⁴⁰ Daniel Palmer, "US Woman Gets 13 Years in Jail After Funding ISIS With Cryptocurrency", (Coindesk, 16 March 2020), Available at <https://www.coindesk.com/us-woman-gets-13-years-jail-after-funding-isis-with-cryptocurrency> (accessed 02 April 2020).

⁴¹ Cynthia Dion Schwarz, et al. *Terrorist Use of Cryptocurrencies, Technical and Organizational Barriers and Future Threats*, (RAND Corporation, 2019), p. ix.

its content. As McLuhan stated⁴², “The medium is the message, because it is the medium that shapes and controls the scale and form of human association and action.” The medium is the message simply because social media allows people to interact with each other. Social media has proven to be a valuable communication tool, since, while just 5% of adults used at least one of the platforms in 2005, today 72% of the public uses social media. Young adults use it at high levels of frequency, while usage of social media by older adults has also increased. YouTube and Facebook are the most-widely used platforms, while Twitter, Pinterest, Instagram and LinkedIn have relatively smaller shares.⁴³ According to Weimann, terrorists have good reasons to use social media: it allows them to circumvent the mainstream media, it is free and easy to use and most importantly, they can reach the target audience without waiting for them to come to them.⁴⁴ Daesh has utilized social media more than other terror organizations in a prominent way for disseminating its propaganda, recruiting new members, fund raising, training members, and for planning purposes. In particular, the theme “Don’t hear about us, hear from us”⁴⁵ was frequently used by its media operatives. This motto demonstrates Daesh’s conception of communication by its technicians and narrators.

Nevertheless, as the organization lost its strength, there was a considerable decrease in the volume of official media products, and an increase in the amount of media products distributed by the organization’s supporters around the world which may not be fully considered to be ‘official’ media products.⁴⁶ Daesh have a significant existence not only on main social media platforms such as Facebook, YouTube, Twitter, Tumblr but also on end to end encrypted messaging applications like Telegram, WhatsApp, Viber, Skype, Signal, Wickr, Surespot, Threema, Zello, and Silent Circle. There were many cases of Facebook being used for either radicalization or recruitment purposes. Law enforcement agents now conceal themselves in order to find out and forestall illicit acts. In the case of Alexander Ciccolo, who operated under the name ‘Ali Al Amriki’, he pleaded guilty in connection

⁴² Marshall McLuhan and W.Terrence Gordon, *Understanding media: The extensions of man*, (Gingko Press, 2015), p. 9.

⁴³ “Social Media Fact Sheet”, (Pew Research Center, 12 June 2019). available at <https://www.pewresearch.org/internet/fact-sheet/social-media/> (accessed 02 April 2020).

⁴⁴ Gabriel Weimann, *New Terrorism and New Media*. (Commons Lab of the Woodrow Wilson International Center for Scholars, 2014). available online at https://www.wilsoncenter.org/sites/default/files/media/documents/publication/STIP_140501_new_terrorism_F.pdf (accessed 02 April 2020).

⁴⁵ Michael Weiss and Hassan Hassan, *ISIS, Inside the Army of Terror*, (Regan Arts, 2015), p.170.

⁴⁶ *Ibid*, (15).

to a plot to engage in terrorist activity stimulated by Daesh. He used profiles on Facebook to express his desire to kill and to die as a martyr.⁴⁷ Social media is a crucial component of Daesh's recruitment process, as occurred in the case of 'Sophie', where she was recruited by people thousands of miles away through Skype and Viber.⁴⁸ Women have been actively involved in these plans as 4,761 (13%) of 41,490 foreign citizens from eighty countries became affiliated with Daesh in Iraq and Syria between 2013 and 2018. Women not only played the 'jihadi bride' role but were also active in recruiting other women, disseminating propaganda and fundraising for the group through social media.⁴⁹

Although the specifications and capacities of these platforms are important, the dexterity of the users are equally imperative, especially in attracting its online followers. On Twitter, supporters had developed ways to transfer their network of followers from one account to the next. The most popular method is to add a number to their username (e.g. @truth1, @truth2,...) until they are shut down, as the followers know it will reappear. This method is also used on Telegram for maintaining its followers. But this predictability creates an opportunity for those attempting to combat Daesh's narratives. If they know which channel or account will be followed, it can be created before Daesh by replacing the content with their own.⁵⁰ To devise a functional content is not as easy as it may seem: therefore there is an inclination to recycle old content and distribute it via Telegram, a tactic which has been utilized over the last five years. There were valid reasons for Daesh members to use the Telegram application, since it offers privacy, with secret chat channels which cannot be accessed easily, and which keep the content in cloud within limits. Telegram channels are as effective as a stand-alone website, hence becoming the leading application for the propagation of Daesh's announcements. The owners of Telegram assert that it actively bans Daesh content by following the member reports. An average of seventy channels were terminated each day, and lately in November 2019, more than two thousand bots and channels have been terminated.⁵¹

⁴⁷ Nance, *Ibid.* p.53.

⁴⁸ David Patrikarakos, *War in 140 Characters: How Social Media is Reshaping Conflict in the Twenty First Century*, (Basic Books, 2017), p. 227.

⁴⁹ Joana Cook and Gina Vale, *From Daesh to 'Diaspora': Tracing the Women and Minors of Islamic State*, (ICSR, King's College, 2018), p. 3.

⁵⁰ Andrew Byers and Tara Mooney, "Winning the Cyberwar Against ISIS: Why the West Should Rethink Its Strategy." *Foreign Affairs*. (05 May 2017), available at <https://www.foreignaffairs.com/articles/middle-east/2017-05-05/winning-cyberwar-against-isis> (accessed 06 April 2020).

⁵¹ Telegram, "Isis Watch", available online at <https://t.me/ISISwatch/2> (accessed 06 April 2020).

Europol recently launched a campaign which ‘cluttered’ Daesh’s presence on Telegram. In a short period, more than 250 channels of Nashir News Agency, and most other major groups were terminated. Despite Europol’s latest effort at destabilizing the network, it did not seem to bring about the group’s end. Followers have kept on using Telegram and do not give the impression of rushing to the other platforms. As the group members are known to have tested some of the platforms previously, including rocket.chat, Baaz, TikTok, and Threema, a movement to TamTam may be the next probable course of action.⁵² Daesh issued a claim of responsibility for the London Bridge attack by Nashir News Agency channel on TamTam (launched in 2017, which runs through the social networking platform Odnoklassniki, owned by the Russian company mail.ru) in December 2019. A week after the announcement, TamTam started taking down almost a hundred channels, as its license agreement stipulates a ban on the promotion of violence, extremism and terrorism. Nevertheless, supporters created so many new channels that it was hard to keep up.⁵³ That said, Daesh’s techgroup warned its supporters about using TamTam which risks their IP addresses by leaking them to Russian authorities.⁵⁴

These platforms and sample incidents are crucial in demonstrating the spectrum for lessons learned. But determining the incentives in the radicalization process of social media recruiters is equally important. According to Winter; social media volunteers have no official position and receive no reward for their activism other than gratification within the group’s echo chamber. They generate custom-made material for a variety of audiences. They not only seek to attract new followers and threaten their enemies, but also work to polarize the public internationally, sustain the organization’s global significance and present other volunteers with material to convince potential recruits to become active members. Significantly, social media platforms are not the reason for radicalization or recruitment, just as radical mosques were never the actual reason. People are not radicalized by propaganda, nor are they recruited by it. There must always be an external human influencer to

⁵² Charlie Winter, and Amarnath Amarasingam, “The decimation of Isis on Telegram is big, but it has consequences”, (Wired, 02.12.2019), available at <https://www.wired.co.uk/article/isis-telegram-security> (accessed 06.04.2020).

⁵³ Josie Ensor, “Isil finds new online home after Telegram messaging service purge”, (The Telegraph, 3 December 2019), available at <https://www.telegraph.co.uk/news/2019/12/03/isil-finds-new-online-home-telegram-messaging-service-purge/> (accessed 07 April 2020).

⁵⁴ “Pro-ISIS Tech-Group Warns ISIS Supporters Against Using TamTam Messaging App”, (MEMRI, 16 December 2019), available at <https://www.memri.org/cjlab/pro-isis-tech-group-warns-isis-supporters-against-using-tamtam-messaging-app>, (accessed 07 April 2020).

trigger the radicalization process. This could be a friend, a family member or a stranger. Whatever the case, exposure to Daesh's propaganda alone is not the reason that someone becomes a supporter. What propaganda does is to catalyze the individual's radicalization and distillate their already-held sympathies.⁵⁵

Electronic Publications

Whatever the channel, there should always be a narrative which is placed in the related medium for an effective ultimate communication. If we look into the publications of Daesh, it can be seen that most of them are electronic narratives disseminated through various internet channels. These publications are produced periodically in a magazine format. Following are some of the important ones, which are defined by its language, print life, target audience and main themes.⁵⁶

'*Daral-Islam*' (Home of Islam), French-language online magazine, circulated between December 2014-July 2016 and released ten editions in total. It covered the attacks in France during the publishing period and criticized the facts which did not fit in terms of Daesh's ideological stance.

'*Konstantiniyye*' (Istanbul) was a prominent online magazine printed in Turkish which was circulated between June 2015 and July 2016. It featured anti-nationalist messages and targeted the Turkish authorities and PKK terror organization as enemies.

'*Istok*' (Source) was a Russian-language online magazine circulated between May 2015 and July 2016. It specifically covered Russian bombing campaigns over Syria as a validation for its brutal actions. This magazine was also released by Al-Hayat Media Center.

'*Dabiq*', Daesh's main propaganda magazine, was a polished propaganda periodical published in fifteen issues between July 2014 and July 2016. The name of the magazine comes from a place in Northern Syria that is supposed to be the scene for 'The Final Battle', according to the myths around Armageddon. The magazine was versatile, glossy, attractive and printed in numerous languages. It stressed on manhaj (truth-seeking), jihad (holy

⁵⁵ Winter, *Ibid.* p. 7.

⁵⁶ During the publishing period of these magazines, it was feasible to access the magazines from different web sites or social media platforms. Access to the electronic magazines is prohibited by legal restrictions on internet except via Dark Web.

war), tawhid (unity), jamaah (community), hijrah (migration), imamah (head of governance), ummah (Muslim community), khalifah (governance), as the main narrative themes. It covered current events, providing articles with photographic evidence and emphasized triumphs on the way to the romantic image of the renewal of a historical empire. It also tried to create an image of a new caliphate constructed around a holy war.⁵⁷

'*Rumiyah*' (Rome) was another magazine worthy of mention. It was published electronically in ten issues as a shorter version of *Dabiq* between September 2016 and June 2017. The magazine had shorter articles but the same pattern and structure. It had narratives as guidelines to members on devising simple terror attacks without the support of other group members. It focused on the same political and theological standpoint as *Dabiq*, which justifies the use of brutality by asserting religious reasoning.

Konstantiniyye and *Rumiyah* magazine's titles refer to Istanbul and Rome, which Daesh wished to conquer, both as a political goal and as a symbolic one. *Dar al-Islam*, *Konstantiniyye*, *Istok* and *Dabiq* magazines had ceased production when *Rumiyah* began to be disseminated. Although there was no clear, direct relation in ending the publication, and *Rumiyah* might not be a direct heir, the number and the quantity of electronic magazines had decreased by 2016. Other recent online weekly magazines are *Al-Anfal* (the spoils of war) and *Al-Naba* (the announcement) which were published after *Rumiyah* had ceased dissemination. *Al-Naba*, which is still an active publication, includes narratives in Arabic and occasionally in English on provoking terrorist attacks, technical guidance on devising attacks, and interviews with members. These magazines are being disseminated through the Deep Web by file-sharing websites and social networks. As considerable damage was done to Daesh's media network, the electronic magazines' format and content became simpler compared to the previous ones.

Analysis of *Dabiq* and *Rumiyah* magazines displays the nature of their content in relation to real incidents mentioned in the mainstream media. According to the study, main events were put in order regarding their importance and coverage by the mainstream newspapers, which occurred during the dissemination period of the magazine. References related to the terror activities of Daesh were downloaded

⁵⁷ "Dabiq", Clarion Project, available at: <https://clarionproject.org/islamic-state-isis-isil-propaganda-magazine-dabiq> (accessed 28 October 2018).

from the 'Global Terrorism Database'⁵⁸ which coincided with the covered topics in the magazine. When the events covered in the mainstream newspapers and the coverage of these events in the magazines are compared, among the 81 events referenced, the 59 covered in these magazines were mostly deal in the favor of Daesh. When the contents of the remaining 22 events are analyzed, negative events about Daesh are not dealt with, which is in line with the 'framing theory'⁵⁹. Daesh did not cover the achievements of the so-called enemy, which is also an aspect of 'propaganda theory'⁶⁰ by understating or vaguely describing negative issues and only emphasizing the positive aspects. In the magazines, there is no coverage of the adverse aspects regarding the group, which shows that the facts are nullified by not covering these events. According to Hewstone⁶¹, a pattern of attributions serves the function of enhancing the positive aspects of the member's group and makes the other group look weaker and ineffective. Thus, isolated group members can be fed the illusion of success in a pseudo environment. But, if the group members have access to other news mediums, how can they be deceived? The mental structures of the terrorists may help to account for their conditioning.

Since the publishing date of these magazines coincides with the expansion period of Daesh, the events and incidents accumulated during that time range from bombings, assaults and suicide attacks to beheadings. The number of suicidal attacks, especially the lone wolf attacks, increased through 2017. A rising trend of lone wolf attacks during this time were mainly covered in a heroic and epic style. At the same time, the accomplishments of coalition forces have been excluded from the coverage of the magazines.⁶² Although these magazines target different nations and cultures, the main themes resemble each other in specific issues. Inviting its audience to join the group, giving advice and instructions to harm the so-called enemy in every possible way, propagating negative messages about the current leaders of the target

⁵⁸ "Global Terrorism Database", Start, National Consortium for the Study of Terrorism and Responses to Terrorism, available at: <https://www.start.umd.edu/gtd/> (accessed 1 July 2019).

⁵⁹ People try to understand the world around them through their major framework. See; Erving Goffman, *Frame Analysis: An Essay on the Organization of Experience*, (Harper and Row, 1974).

⁶⁰ Propaganda theory explains how the negative aspects are ousted. See; Edward Herman, and Noam Chomsky, *Manufacturing Consent: The Political Economy of the Mass Media*, (The Bodley Head, 1988).

⁶¹ Miles Hewstone, *Casual Attribution: From Cognitive Processes to Cognitive Beliefs*, (Oxford, 1989). p. 203.

⁶² Oktay Kirazoluğu, "Religiously Motivated Terror Discourse in Media: Daesh Case" (Unpublished Doctoral Thesis, Girne American University Graduate School of Social and Applied Sciences, Girne, 2020), p.113.

audience, bragging of their accomplishments in the field, promulgating a message of self-sufficiency in a pseudo state and projecting an utopian reality for members, are the analogous themes of these electronic publications.

Narratives in Online Publications⁶³

In this section, it is aimed to analyze the rhetoric of the main narratives in *Dabiq* and *Rumiyah* through 'discourse analysis methodology'⁶⁴. Discourse has standard strategies to inspire convincing processes which may emphasize the real nature of events, build a relational parameter for facts, or provide information on emotional dimensions.^{65 66} These strategies have been applied in almost all of the narratives in the magazines with some exceptions. Although rhetoric comprises only a part of the discourse, it generally explains the implicit context. Firstly, the events have been clearly identified in the speeches made by the spokesman or the leader; nevertheless, the nature of the event is concealed behind religious references and heroism. The facts are not visible to the biased readers. But, it touches the hearts and minds of the reader on an emotional level which exploits his or her insufficient religious knowledge. The context and background of the speeches relies on the group member's past experiences and knowledge of humiliation during the invasion of Iraq. Nonetheless, glorification of Islamic history may be a mental preparation for the members to be given open or covert tasks, which is an easier way of composing the texture in a story format. There is a clear challenge against the enemy's technical and military superiority. The nature of the events is concealed behind the religious verses which were also dependent on different historical incidents. The social and cultural nature of events and their cognition is different through time and place, but the narrator persistently gives related information to the audience to make a connection with the historical event by citing the verses of the holy book, hadiths and other credible sources. This might seem a strong bond at a first glance unless a close study is made. But the rhetoric shows clear signs regarding the narrator's efforts to rearrange the text by detaching it from its context by means of time, place and occasion.

⁶³ Kirazoluğu, Ibid, pp.198-202.

⁶⁴ Dijk, Ibid. pp.84-85.

⁶⁵ Gaye Tuchman, "Objectivity as Strategic Ritual: An Examination of Newsmen's Notions of Objectivity", *American Journal of Sociology*, 77, (1972), pp. 660-670.

⁶⁶ Dijk, Ibid. p.84-85.

Daesh's propaganda is composed of unifying narrative themes; brutality, mercy, victimhood, war, belonging and utopianism. Whereas brutality is the most prominent of the narratives, utopianism is by far the most important narrative for its propagandists.⁶⁷ Therefore, there are different texts regarding the justification of the so-called struggle. There may be different target audiences for a message e.g. the group members, western media, its population or its governments. The group members are prejudiced and mentally prepared to believe the information presented if they are aligned with the general pattern of common mental structures. On the other side, if the mainstream media covers Daesh's events as news, it will be a propaganda tool for the targeted audience in any case.

There is considerable recruitment of second or third generation immigrant Islamic youth into Daesh from western countries. The narrator generally utilized the plot in an active context that these individuals are neglected, excluded and marginalized from the society they were in. It uses effective and enticing language to deliver messages for the supporters. The messages are provided in an ordered narrative which has an introduction, then main and concluding parts for a clear validation. The rationalizations rely on the self-sacrifices of the group members based on heavenly support as an ingredient of the discourse. Group members were seen as sanctified society members who merited the grace of God and were superior to non-group members. This perception is utilized in the preparation of the elaborate messages.

Daesh uses the magazine effectively as a tool to give direct orders to its members. These directions are especially prominent in *Rumiyah* magazine in a reserved part for this purpose, which outlines terror tactics. Yet, the narrator does not give detailed instructions for the members, but instead gives initiatives for them to interpret and launch the action. The members of the organization are instrumentalized and inculcated into becoming a weapon. The distinctive feature of the violent actions is the attribution of violence to divinity, which is linked with sublime values. In this sense, there is no material obstacle that restricts fundamentalist movements, with its fuel-free power, which can escalate the violence to its potential. Besides other factors, the religious legitimacy of suicidal terror actions is established within this framework of the jihadi concepts narrated in the magazine. In fact, the ultimate discourse of salvation facilitates it by playing a role in rationalizing the action for the member. Thus, Daesh makes use of religion-based discourse as a means of promoting violence for its own purposes in the

⁶⁷ Winter, *Ibid.* p. 6.

narratives. Supportive arguments and rhetoric are used in the narratives as an aspect of tempting its members to sacrifice themselves.

Even though Daesh challenges the enemy in religious aspects, it is a politically motivated group, for it uses every opportunity to convey the discourse of terror. It is known that a great deal of the Kurdish population in the region is Muslim which gives the group a chance to recruit and make use of them as a human resource. Daesh addresses Kurds attentively so as not to confront them in a nationalistic approach which may undermine religious themes. So, the discursual approach towards the specific groups is meticulously designed in each context. Another aspect of Daesh's rhetoric is its usage of emotional dimensions according to the various regions and cultures. The preliminary aspects in specific articles start with the glorification of related places and goes on with related hadiths, written for these places. With this adoration, the narrator intends to establish an emotional bond with the regional reader. Historical quotations support the narration, strengthen bonds of the regional belonging, and increase the veneration to the leadership.

The concluding parts of the articles include the core narrative and the tasks for the group members which are reiterated by the narrator to make them memorable. Simplifying the complexities of thinking and saving people from its burden is an effective narrative style. For Daesh, there is no thought other than the mental construction of their sole ideology, and in order to comprehend it, they build models to help the group members make sense of it. Since the cognition of knowledge defies an easy explanation, most people are likely to surrender themselves to the closest social, cultural or religion-based source of knowledge. Sharing the same historical background works as a cornerstone for a group of people with an intention of living together in the future. It is also an administrative apparatus to use the vision of a commonly shared history. The aim of these narratives is to build the joint capacity to accomplish public service and pursue a shared vision for the community. The magazines give brief historical information on the area and events for the selected topic which aims to present related argumentation. Since Daesh envisages a borderless world in accordance with its aim, the glorious victories of the ancient Islamic empires are the sole examples for the narrator. Although the circumstances and situation are different from what is asserted in the historical context, it serves the narrator's plan. Agreements made during World War I between the colonial powers have been specifically highlighted to emphasize the artificial borders which have to be eliminated with uninterrupted determination. Additionally, Daesh places

the main targets as Rome or Istanbul in *Rumiyah* and *Konstantiniyye* magazines, which are cited with the hadiths as a strong referential to create a delusional reality for the group's members.

The context of portraying the entire world as an enemy is an effective rhetoric in itself, thus rational ties in the mental construction of Daesh's rhetoric appeals to potential group members from different countries, which may then in help recruiting them. Radicalization is a complex system that cannot be reduced to just individual factors. Conflicts, social networks, community, ideology or individual weaknesses may help in its development. The radicalization process of the group members starts by preparation of their mental structures with the assistance of these publications. Thus the adoption of the group's ideology will make it easier for further actions to be promoted and accepted. The context on differentiating group members from the rest of the world, without leaving any grey zone, can be clearly identified in the articles.

The effectiveness of the narrative increases if there is a strong correlation between the assertions and the given information. For example, there is background information about the approaches on making truces, especially with countries which have not adopted an Islamic administration. Religious judicial rules hinder the making of a truce with the so-called 'non-believers'. Thus, there is a correlation between the background info and the assertion. Nevertheless, the justifications of the assertions do not rely on the quality of evidence but the quantities. Although the general composition of the population in the region is Muslim, it has been deeply divided between the sects of the religion which hinder the common sharing and cultural unity of the population. This plot is abused by the narrator by pointing out a solution to the problem. By showing a single and effective solution to the problem, the narrator strengthens the bonds between the set of information and the assertion of 'unification under the rule of Daesh'.

Daesh's main objective is to establish a state inspired by a historical (prophetic) precedent. The historical context of the events are the main supportive device of this discourse, which is assisted or linked to recent events to convince the audience for their intended purpose. Thus, narratives are well designed to be effective on the group members in an effort to utilize the sectarian fragility of the region for the purposes of its ideological objective. Daesh's efforts on propagating materials in the virtual world have the utmost importance in achieving its regional and global aims. The rhetoric in these publications shows us a great deal of evidence regarding

its aims. The quality of the narratives should be more prominent than the quantities. But the rhetoric of the narratives rely on the quantities of the information sets rather than their qualities.

Liability on the Narrative Paradigm⁶⁸

It is important for a narrator to pay attention to 'the narrative rules' in order to develop a devoted audience. The aim of this section is to assess the quality of the narration used in these publications with the help of the narrative paradigm. The narrative paradigm works on two principles; coherence and fidelity.⁶⁹ Coherence is the degree of sense making of a narrative, which can be evaluated by three factors: the structures of the narrative; the resemblance between stories; and the credibility of characters. The structure of the narratives in the magazines have an induction methodology which categorically combines the information. Messages to group members and the so-called enemy is formed separately so as to be understood clearly, and then merged into the storyline. There is a connection between the themes and stories in the narratives which are mainly attributed to historical religious events. Recent events are reinforced by the supporting arguments of historical events. The main characters of the storyline are the group members of Daesh or the so-called enemy. Themes are supported by the ideal members of the group which reinforce the credibility of the specific event. The narrator especially relates the characters with historical counterparts in the themes which gives them extra credibility. The narrator deploys a counter argument if the enemy is the main character in the narrative. Most of the storylines have a resemblance with each other in historical context.

Fidelity defines the credibility of the story narrated and designed on the persuasion of the listener. The importance of the stories is established in the introductory parts of the articles. Some of the events described are credible, but most of them are not sensible, since the basis of the events are fictitious. The believers are defined according to the subjective facts of Daesh. The facts are distorted while defining the 'others' as enemies and describing the events ideologically. The reasoning patterns relate to the religious themes in the narration. Nomination criteria for the group members and rewarding them for their sacrifices does not relate to facts, but to the references. The arguments used in the stories gives effective message to the group

⁶⁸ Kirazoluğu, *Ibid.* pp.202-203.

⁶⁹ Fisher, *Ibid.* pp.55-58.

members. Yet, it may not affect other audiences in the same way. Since the mental structures of the audience do not have the same patterns, the effects of these narratives may not be the same. Therefore, Daesh have different storylines to overcome the problem of appealing to different audiences. These narratives may not change the mental structure of the audience but support their arguments and reinforce them as a permanent ideology.⁷⁰ Nevertheless, it can be assumed as a general inference from these assertions that the narratives of the both magazines mainly comply with the principles of the narrative paradigm.

Conclusion

Daesh may have lost its foothold physically but the historical context confirms that it has improved its communications capabilities through building new skills based on its predecessor's experiences as a learning organization. Today most of the Daesh platforms which were active in the past may have ceased operation. But some have returned as the group's media and cyber network rehabilitates. Daesh had sound reasons to use social media, since it allowed them to act like the mainstream media and to reach the audience remotely. Daesh effectively uses internet platforms which is an indefinite source of communication medium for them. Its rapid reappearance, after the prohibition, proves its adaptability on the internet. The main foothold on the internet is Daesh's electronic publications, that were mainly distributed online. As the network sustained considerable damage, magazine formats and content became simpler. But Daesh constantly seeks new opportunities to gain assets for its longer-term needs, which have been closely monitored: the group is probably in a continuous effort to circumvent the monitoring.

The content analysis of the two main magazines displays the deliberate framing of incidents. The losses of Daesh are not dealt with in the magazines, in line with framing theory. Consequently, the positive content is emphasized, and reinforced. Negative issues are understated or vaguely described. Although the magazines target different nations and cultures, similar themes are covered. Inviting the audience to join the group, giving instructions to harm the so-called enemy, propagating negative messages about the current leaders of the target audience, bragging of the accomplishments in the field, promulgating the message of self-

⁷⁰ Cultivation Theory suggests repeated exposure to media over time influences perceptions of social reality. See; George Gerbner and Larry Gross, "Living with Television: The Violence Profile", *The Journal of Communication*, (1976), pp.99-173.

sufficiency as a pseudo state and projecting a utopic reality for the members are the analogous themes of these electronic publications. Theoretically, it is hard to prevent the dissemination of propagative materials on the internet. If preventive measures can be implemented, it cannot be entirely blocked but can technically be impeded as seen in the operations of Europol.

The rhetoric of the narrative in these magazines is carefully designed. The nature of events is mainly concealed behind religious items and heroism. The determination of achieving the intended purposes (prophetic state) has been iterated in the narratives in a historical and epic context. Facts are not visible for the biased readers. Narrations touch the hearts and minds of biased readers at an emotional dimension. The context and background of the narratives was exploited by the group member's cognition and past experiences of humiliation. Rhetoric shows clear signs of the narrator's efforts to rearrange the text by detaching it from its context by means of time, place and occasion. The narrator actively utilizes the argument that members of the group are neglected, excluded and marginalized from society. Daesh also uses the magazines very effectively as tools to give direct orders to the group members. The narrator does not detail instructions for the members but gives initiatives for them to interpret and then launch attacks. Thus, members of the organization are instrumentalized and inculcated into becoming a weapon.

Daesh makes use of religion-based discourse as a means of promoting violence for its own purposes in the narratives. Supportive arguments and rhetoric are used in the narratives as an aspect of encouraging the members to sacrifice themselves. The narrators use rhetoric effectively to develop an emotional bond with the regional reader by means of localized/cultural references. In addition, the narratives are well designed to be effective in utilizing sectarian fragility. Group members were portrayed as sanctified members of society who merit the grace of God and are seen as superior to non-group members. This is an elitist line of thought that builds barriers between in-out group periphery. The main rhetoric was built on the context of demonizing the entire world by devising black versus white cognition, without grey zones, in order to differentiate group members from the rest of the world. Whereas there are more than enough narratives to emphasize these themes, the quality of these narratives is not strong enough for an unbiased reader. Daesh's propaganda alone is not the reason for becoming a sympathizer, supporter or a zealous member. If the propaganda catalyzes individual's radicalization or distills their sympathies, the accompanying causes need to be revealed and neutralized. Additionally, the

narratives of the magazines comply with the principles of the narrative paradigm with some exceptions, which support the findings of the discourse analysis. Daesh have different storylines in the narratives for appealing to different audiences. These narratives may not change the mental structure of the audience but support their arguments and reinforce them as a permanent ideology.

The inconsistencies of Daesh's narratives can be exploited with the real counterarguments which are based on the facts. The gray-propaganda utilized by Daesh has an important feature of presenting falsehood with the facts. If the truth behind the falsehood is revealed with strong references, Daesh most probably will lose its credibility among its members. Governments should handle with this problem closely in order to undermine the narratives of Daesh and support the mutual themes of the opposing actors. Rather than propagandist approach, scientific or religious themes which rely on the facts should be developed depending on the discursal and narrative principles. The counterarguments should be disseminated in a timely manner to lessen the effects of Daesh's narrative via internet or social media accounts. Countries combating terrorism cannot form a competent discourse pool against these organizations, therefore, the supremacy of discourse remains in terrorist organizations. In this regard, the search for international co-operation through a joint counter-discourse center or a network, will facilitate the use of discourse in the fight against terrorism.

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Articles sent to the *Defence Against Terrorism Review* must not be published elsewhere or must not have been sent to another publication in order to be published. Once the articles are submitted to DATR, the authors must acknowledge that they cannot submit their articles to other publications unless the total rejection of concerned articles by the Editor or the Endorsement Committee (EC).

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4. The name of the author must be placed in the first footnote, with his/her title, place of duty and e-mail address. Footnotes for other explanations must be provided both in the text and down the page in numbers.

5. The type character must be Arial, "11 type size", line spacing "1,5 nk", footnotes in "9 type size" and with "single" line spacing.

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4. Use italic font for foreign phrases and names of court cases.

5. For dates, use – date month year format (10 March 2011) – not numbers (10/03/11). In footnotes, dates of the sources may follow the format used in the source.

6. There should be only one space between the period at the end of a sentence and the beginning of the next sentence.

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Citations shall be given down the pages in numbers in Defence Against Terrorism Review and references shall not be presented in the text (e.g. Waltz, 2009: 101.).

Full identity of the resources cited shall be given; any resource not actually cite shall not be presented in the bibliography.

Format for footnote citations;

1. For Books

a. Books with Single Author:

Name and surname of the author, *name of work* (“volume no” if applicable, translator if any, publisher and date of publication), page number(s). For example;

Joseph Needham, *Science and Civilization in China*, (Vol. 5, Cambridge Univ. Pres, 1954), p.7.

Joseph Needham, *Science in Traditional China* (Harvard Univ. Pres, 1981), p. 37.

b. Books with Two or Three Authors:

Name and surname of the first author, name and surname of the second author, name and surname of the third author, *name of work* (“volume no” if applicable, translator if any, publisher and date of publication), page number(s). For instance;

Joseph S. Nye Jr. and David A. Welch, *Understanding Global Conflict and Cooperation*, (Pearson Publication, 2011), p. 280.

c. Books with More Than Three Authors:

Name and surname of the first author et. al., *name of work* (“volume no” if applicable, translator if any, publisher and date of publication), page number(s). For example;

Luis Benton et. al., *Informal Economy*, (The John Hopkins University Press, 1989), pp. 47-59.

d. Books with Name of Author or Editor Non-Specified:

Redefining Security (Praeger Publication, 1998), p. 81.

2. For Articles

Name and surname of the author (for all authors if two or three, if more than three authors just for the first author and et. al.), “name of the article” (translator if any), *name of*

periodical in which it is published, volume number (issue) (publication year), pages in journal, cited page number.

a. Articles with One Author:

Barry Buzan, "New Patterns of Global Security in the Twenty-First Century," *International Affairs* 67(3) (1991), pp. 431-451, p. 442.

b. Articles in Compilation Books:

Barry Buzan, "Is International Security Possible?," in *New Thinking About Strategy and International Security* (Ken Both and Don Kaufman, eds, Harper Collins, 1991), pp. 31-55, p. 42.

c. Articles from Daily Newspapers:

Yossi Melman, "Computer Virus in Iran Actually Targeted Larger Nuclear Facility", *Haaretz* (22 September 2011), p. 7.

"Tehran's nuclear ambitions", *The Washington Post* (26 September 2009), p. 5.

3. For Theses

No italics shall be used for the titles of non-published theses. Name and surname of the author, "title of the thesis" (whether it has been published and academic degree of the thesis, institution and institute of the thesis, date of the thesis), page number. For instance; Atasay Özdemir, "Approaches of the Effective Actors of the International System to Iran's Nuclear Programme" (Unpublished Doctoral Thesis, War College Strategic Researchs Institute, Istanbul, 2013), p. 22.

4. For Reports

a. Report with Author Specified

Tariq Khaitous, "Arab Reactions to a Nuclear Armed Iran" (Washington Institute for Near East Policy, Policy Focus 94, June 2009), p. 14.

b. Report with Author Non-Specified

Albania Country Report (TKKA Publishing, 1995), p. 7.

c. Report prepared by an Institution, Firm or Institute

American Petroleum Institute, "Drilling and Production Practice Proceedings of the Spring Meeting" (Shell Development Company, 1956), p. 42.

d. For Internet Resources

If any of the above resources are available on the Internet, follow the citation above with "available at" with the full http address and the date accessed in parentheses.

e. Web Pages

"The World Factbook-Turkey," Central Intelligence Agency, available at <https://www.cia.gov/library/publications/the-world-factbook/geos/tr.htm> (accessed 25 February 2013).

"Dimona: Negev Nuclear Research Center," *Global Security*, available at <http://www.globalsecurity.org/wmd/world/israel/dimona.htm> (accessed 11 January 2010).

"Russia's National Security Strategy to 2020" (12 May 2009), *Rustrans*, available at <http://rustrans.wikidot.com/russia-s-national-security-strategy-to-2020> (accessed 02 May 2011).

5. Subsequent citations of the same source:

a. If the citation is to the footnote directly before, use "Ibid" – if the page or paragraph changes, you can add the new information, as in "Ibid, p. 48" or "Ibid, para. 68".

b. If the source is earlier than the previous one, use the author's last name (if there is one), followed by the name of the article, followed by the new page or paragraph number. For example;

Buzan, "Is International Security Possible?", p. 48.

D. PRINCIPLES TO ABIDE BY IN USING OF DOCUMENTS, TABLES, FIGURES AND GRAPHICS

1. Attachments (documents), shall be presented at the end of the text and down below shall be a brief information as to the content of the document and proper citation in line with the relevant criteria.

2. Other attachments (Table, Figure, and Graphics) shall be presented as Additional Table: 1, Additional Graphic: 3 and Additional Figure: 7. If indicators other than the text are too many in number; attachments shall be presented after the References.

a. References to these attachments in the text shall absolutely be made as Additional Table: 1, Additional Graphic: 3 or Additional Figure: 7.

b. If citation has been made for table, figure, graphic or picture, the source shall absolutely be indicated.

3. The names of the tables within the text shall be written on the top of the table and these tables shall be cited in the footnote according the publication type from which it was cited.

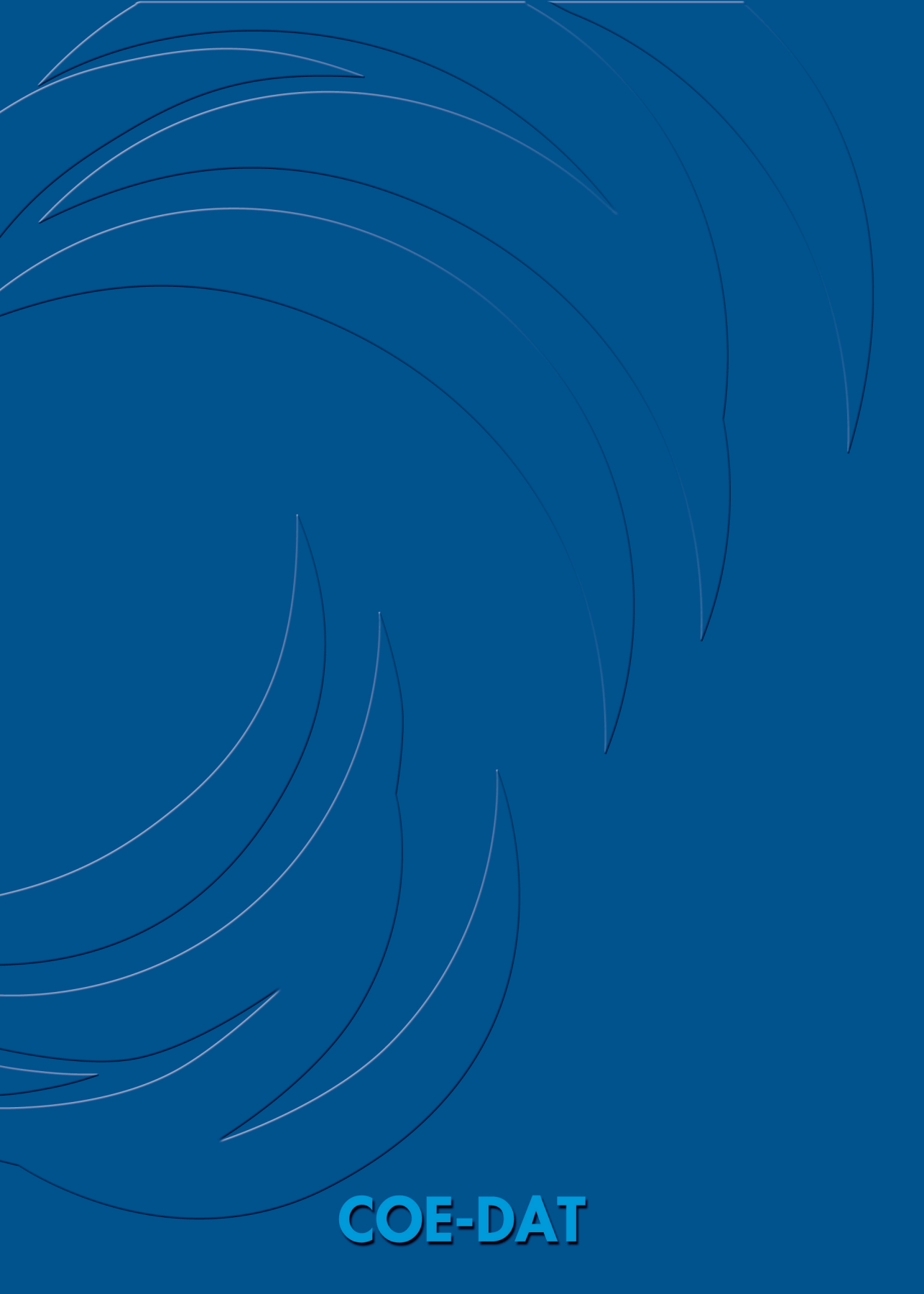
4. The names of the figures, graphics and maps within the text shall be written at the bottom of the figures, graphics and maps and these figures, graphics and maps shall be cited in the footnote according the publication type from which it was cited.

E. PRINCIPLES TO ABIDE BY IN BIBLIOGRAPHY

1. Just like giving citations but this time surname of the author shall be at the beginning.

2. Resources shall be sorted alphabetically from A to Z.

3. Page numbers shall not be indicated.



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