



An Analysis of Terrorist Attacks on Soft and Hard Targets in the Period 2000-2019

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ABSTRACT

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With the aim of characterising the evolution of the phenomenon of terrorist attacks in the 20 years since 9/11, this paper conducts a broad analysis of terrorist events from 2000 to 2019, based on information made available by the Global Terrorism Database (GTD). The first part of the document illustrates the evolution of terrorist attacks worldwide, while the second part focuses on the type of targets favoured by terrorists. As a key result of the analysis, it will be shown that in recent years many attacks have been directed against simple public and private buildings, targeting and killing individuals, typically civilians. These types of targets have been referred to in the literature as *soft targets*, as opposed to the term *hard targets* or hardened structures, government, military, police and intelligence buildings and sites. In the work, specific definitions of *soft target* and *hard target* related to GTD information fields are proposed and evaluated over the period 2000-2019. Furthermore, detailed items of the terrorist targets, such as houses, schools, universities, restaurants, theatres etc., were considered and analysed. The evidence obtained provides an up-to-date view of terrorists' recent approaches to selecting targets and conducting attacks. The understanding of the evolution of these approaches can allow for better organisation of future prevention and protection of potential soft and hard targets.

1. INTRODUCTION

The event that in the last decades marked a real fracture in the global comprehension of terrorism is, without any doubt, the attack to the World Trade Center and the Pentagon orchestrated by religiously-inspired al Qaeda on September 11, 2001, which is popularly referred to as 9/11 attack. As pointed out by many academics, this event, as well as its impact and consequences, opened a new era in the terrorist threat [1]. Regarding what happened for example in Europe and in general in the Western Countries, it should be noted that while the motivations behind terrorist activities have remained very varied – ranging from political to ideological and religious – the targets chosen by terrorists and the way in which attacks have been conducted have changed substantially if compared with the characteristics of the pre-9/11 ones.

It is essential to point out that terrorist activities are no longer focused mainly on institutional sites or high-value targets. However, there has been a steady increase in the number of attacks against *easy-to-hit targets* [2]. Whereas before 9/11 terrorist actions were logistically complex and often aimed at hostage-taking or mass casualties at high-value sites, this phenomenon has evolved into a more dynamic one.

The new trend in terrorist attacks following 9/11 has been characterized by a strong focus on logistically easy-to-hit sites, but the lethality of attacks has remained high [3].

The terrorist actions registered in the last decades experienced a further transformation in both the modus operandi and the nature of the attackers [4, 5]. Regarding the first one, it is fundamental to mention that terrorists are increasingly employing less sophisticated weapons – such as dual-use objects/items and techniques – for carrying out attacks than the ones used in the past. Considering the attackers' nature, the last decade has seen an increase in the number of single individuals that carried out terrorist attacks, while in the past they were almost exclusively orchestrated by centralized terrorist organisations [6].

Therefore, by analysing the attacks that occurred in the last decades, it should be possible to notice a consistent increase in the number of events that occurred at easy-to-hit targets compared to the past. Such a type of targets appears at a first glance to represent the preferred target especially for attacks conducted with explosives. This is the case, for example, for the Madrid (2004), London (2005), and Brussels (2016) terrorist events. Always observing Europe, subway and train stations seem to be highly appealing for single individuals who

conduct terrorist attacks with melee weapons, including dual-use objects such as kitchen knives, hammers, baseball bats, and others. Many such cases recorded in Europe over the past five years clearly show this trend, as evidenced by the EU Terrorism Situation & Trend Report (TE-SAT) from 2015 to 2019 [7].

Starting from these simple facts, an attempt is made in this paper to establish the overall characteristics of these new types of attacks. To achieve this purpose, this work focuses the attention on the most important database of terrorist events, denoted in the following by the acronym GTD (Global Terrorism Database) [8, 9]. All the statistical analyses herein provided have been processed in the respect of terms of use of GTD, National Consortium for the Study of Terrorism and Responses to Terrorism (START), (2021), Global Terrorism Database TM, University of Maryland [9].

The breadth and richness of specific data of this international database are briefly described below and a detailed analysis of the GTD is provided, showing basic statistical computations and graphical representations of obtained results for the last 20 years today available, i.e. the period 2000-2019. In particular, the evolution of the terrorist attacks worldwide, the economic areas of the world in which the attacks have been conducted, and the type of targets preferred by the terrorists are analysed in depth and it will be demonstrated that a greater number of attacks were, in the last years, oriented against simple public and private buildings, facilities and areas to target and kill individuals, typically civilians. In the literature [10-14] these *easy-to-hit* targets have been in recent years indicated as *soft targets* (STs) in opposition to the term *hard targets* (HTs) or hardened structures related to government, military, police and intelligence buildings and sites which, in general, would require for terrorist attacks a better planning, larger support and funds, and where the chances of success could be lower.

For the European Commission [12] the soft targets represent '*vulnerable material or human assets which in principle should not be specifically protected*' against terrorist and other types of malicious extremist attacks. Such targets are often selected by terrorists in their effort to maximize casualties, inflict fear to the population and attain media coverage. In two publications of Hesterman [10, 11] the following type of structures are proposed to be considered STs: schools, churches, sports and recreational venues, malls, transportation hubs, and hospitals.

A more institutional list of soft target types has been suggested by the European Commission Joint Researcher Centre (JRC) [12] - in consideration of the terrorist attacks in Paris, Brussels and Barcelona in 2015, 2016 and 2017, respectively - as: '*areas with high people concentration, metro and train stations, airports, means of mass transportation, stadiums, concert venues, shopping malls, pedestrian areas, etc.*', and the USA Department of Homeland Security (DHS) proposed in 2018 [14] a first Security Plan Overview for STs and crowded places.

The paper is organized in four main sections, the first one is intended to provide the background and the purposes behind the work. The second section focuses on materials and methods and is dedicated to the description of the general characteristics of the GTD database, and the specific analyses carried out on it. The third part is intended to provide, through tables and graphs, a picture of the results of the analyses introduced in the second section. The fourth and final section reports the conclusions drawn from the evidences of the

analyses.

2. MATERIALS AND METHODS

2.1 General description of GTD

The GTD is an open-source database that includes information on terrorist events that took place from 1970 to the present day. The database is updated annually, and at the date of this work, the last release updated to 2019 is available.

Compared with some other event databases [8], the GTD includes a worldwide systematic collection of international terrorist incidents that have occurred during this lapse of time. Until now, fifty years of data devoted to describing and characterizing terrorist attacks have been collected.

Below are reported the main characteristics of the latest GTD release available:

- data on more than 200,000 terrorist attacks;
- data on more than 95,000 bombings, 20,000 assassinations, and 15,000 kidnappings and hostage events;
- data on at least 45 variables for each case. More recent incidents include information on more than 120 variables;
- more than 4,000,000 news articles and 25,000 news sources were reviewed to collect incident data from 1998 to 2019.

For each incident collected within the GTD, at least information on the date and location, a short description of the event, the weapon(s) used, the nature of the target(s), the number of casualties, and - when identifiable - the perpetrator(s) is available.

The statistical information contained in the GTD is based on reports from a variety of open media sources. The National Consortium START (manager of GTD) declares that information is not added to the GTD unless and until it has been established that the sources are credible.

The GTD is available free of charge via an online interface to increase understanding of terrorist violence so that it can be more rapidly studied and defeated.

Together with the database, the START consortium provides a codebook [15], which is organized into two broad parts.

The first part describes the origins of the GTD and the key decisions made during the development of the GTD. In particular, the codebook describes the GTD's definition of terrorism, inclusion criteria and other definitional filtering mechanisms, and the current data collection methodology.

The second part of the codebook outlines the variables that constitute the GTD and defines the possible values of the variables. These variables include the GTD ID, incident date, incident location, incident information, attack information, target/victim information, perpetrator information and statistics, claims of responsibility, weapon information, casualties and fatalities information, consequences, kidnapping/hostage taking information, and other additional information.

As a general policy, the GTD does not include events that are only documented by distinctly biased or unreliable sources, plots or conspiracies that are not enacted or at least attempted. For an event to be included in the GTD, the attackers must be "out the door," en route to execute the attack. Therefore, planning, reconnaissance, and acquiring supplies do not meet this threshold.

As anticipated, essential in the analysis carried out by the

GTD teams is the definition of terrorism and the inclusion criteria.

The GTD defines a terrorist attack as [15] “The threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation”.

Practically, this means that for an incident to be considered for inclusion in the GTD, it must present all three of the following characteristics:

- The incident must be intentional – the result of a conscious calculation on the part of a perpetrator.
- The incident must entail some level of violence or immediate threat of violence - including violence against people as well as property.
- The perpetrators of the incidents must be sub-national actors. The GTD does not include acts of state terrorism.

In addition, at least two of the following three criteria must be considered for an incident to be included in the GTD:

- Criterion 1: The act must be aimed at accomplishing a political, economic, religious, or social goal. In terms of economic goals, the search for profit alone does not satisfy this criterion. It must rather involve the pursuit of a more profound, systemic economic change,
- Criterion 2: There must be evidence of an intention to coerce, intimidate, or convey some other message to a broader audience (or audiences) than the immediate victims. The act, taken as a whole, is considered for inclusion in the GTD regardless of every involved individual’s awareness of the intention behind the act. This criterion is met if any of the planners or decision-makers behind the attack intended to coerce, intimidate or publicize their message.
- Criterion 3: The action must be outside the context of legitimate warfare activities. That is, the act does not fall within the parameters permitted by international humanitarian law, as it targets non-combatants.

The abovementioned inclusion criteria are evaluated for each case to determine whether the incident should be added to the GTD: more details on additional filtering mechanisms, plots, conspiracies, unsuccessful attacks, and single incident determination, can be found on the last version 2021 of the codebook [15].

2.2 Statistical analysis starting from global terrorism database events

To perform a more analytical study on all the events reported in the GTD (more than 200,000 terroristic events), the full GTD Database has been used as reference. The period from 2000 to 2019 was chosen as the reference period for analysing the evolution of the terrorist attacks.

Taking advantage of the complete database structure, which is organized in nine detailed information sections, statistical data processing was carried out.

2.2.1 GTD analysis of terrorist attack geographical distribution

A first interesting analysis focused on the economic areas of the world in which the attacks have been conducted.

Considering different wide-areas of the world, denoted below as regions, the GTD fields allow to characterize statistically the number of terrorist events for both Countries and geographical region.

A division in 12 regions [15] is proposed as follow:

- North America;

- Central America & the Caribbean;
- South America;
- East Asia;
- Southeast Asia;
- South Asia;
- Central Asia;
- Western Europe;
- Eastern Europe;
- The Middle East & North Africa;
- Sub-Saharan Africa;
- Australasia & Oceania.

The detailed association between regions and national states is described in the study [15]. Note that the geopolitical boundaries of many countries have changed over the last 50 years covered by the GDT data. In different cases, countries that represented the location of terrorist attacks no longer exist today. This situation includes, for example, West Germany, the USSR, and Yugoslavia. In these cases, the country name for the year the event occurred is recorded.

2.2.2 GTD analysis for preferred targets

A second interesting analysis applied to GTD was focused on the type of target - government sites, public commercial sites, public cultural areas and buildings. Considering the definition of the two categories of soft and hard targets as presented above, in the introduction of this section, it is of fundamental interest to understand the trend in the years of these two categories of complementary targets.

Adopting the definitions proposed and detailed in GTD codebook [15], we introduce 22 sub-categories of target listed in the following Table 3. For each sub-category, we apply the abovementioned definitions of soft target and hard target - applied to individuals, organizations, facilities, buildings, and sites - and we assign, after a careful evaluation of the sub-category definitions [15], the specific sub-category only to either the ST or the HT category. If a sub-category cannot be assigned to either the ST or HT category, their assignment is reported as Not Applicable (NA), as shown in Table 3. Under these target classifications, a study of the most significant trends has been carried out and reported in the section of the work devoted to outcomes description.

3. RESULTS

3.1 Results of GTD analysis for geographical regions

A first result for the statistical data processing is shown in Table 1 and Figure 1 where the number of terrorist events per region, over the period 2000-2019, is reported and graphically represented.

Table 1 and Figure 1 show that:

- in the last 20 years the number of terrorist events recorded by GTD is 131,350;
- roughly 36% of the terrorist attacks in the last 20 years are concentrated in the Middle East & North Africa;
- South Asia gathers more than 33% of the terrorist events of the last 20 years;
- more than 82% of the international terrorist attacks in the last 20 years are concentrated in only three regions: the Middle East & North Africa, South Asia and Sub-Saharan Africa;
- the two European regions generally, are attacked almost nine times more often by terrorists than the North America region, when considered together.

In particular, to properly compare the terrorist situation in the North America (Canada, Mexico, United States) region respectively with the Western Europe (Andorra, Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Gibraltar, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, Vatican City) and Eastern Europe (Albania, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Czechoslovakia, Estonia, Hungary, Kosovo, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Serbia-Montenegro, Slovak Republic, Slovenia, Ukraine) regions, we can observe that in the last 20 years only 0.68% of the worldwide events took place in North America, and 3.15% and 2.74% in Eastern Europe and Western Europe, respectively.

Table 1. Terrorist events per region in the period 2000-2019

Region	Terrorist Events in 20 Years (2000-2019)	%
The Middle East & North Africa	47,018	35.80%
South Asia	43,541	33.15%
Sub-Saharan Africa	17,236	13.12%
Southeast Asia	11,156	8.49%
Eastern Europe	4,135	3.15%
Western Europe	3,597	2.74%
South America	3,102	2.36%
North America	888	0.68%
Central Asia	239	0.18%
East Asia	221	0.17%
Central America & Caribbean	119	0.09%
Australasia & Oceania	98	0.07%
Total events	131,350	100%

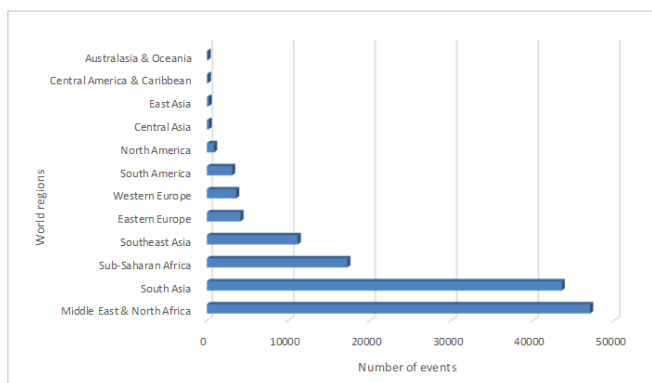


Figure 1. Distribution of terrorist events in the world per region, period 2000-2019

The total number of events per year is shown graphically in Figure 2.

Figure 2 highlights the significant growth of annual number of events in the years 2012-2017, corresponding to the effects of the Middle East crisis, Syrian war, international intervention against the ISIS (Islamic State of Iraq and Syria), and the Crimea crisis between Russia and Ukraine. The maximum number of terrorist attacks per year (A/Y) is recorded in 2014 with 16,959 events.

Figure 3 shows the results obtained for the Eastern and Western Europe regions in terms of several terrorist events per year in the period 2000-2019. The large number of terrorist events, around 1000, in Eastern Europe in 2014 is mainly due to the Crimea crisis. For Western Europe, the number of events

oscillates around 200 A/Y, with a peak of 335 terrorist events in 2015.

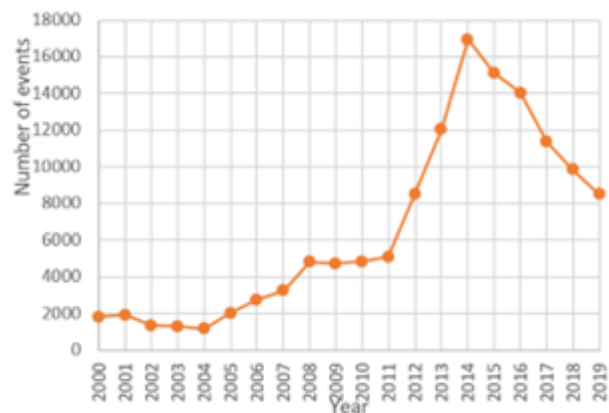


Figure 2. Number of terrorist events in the world per year, period 2000-2019

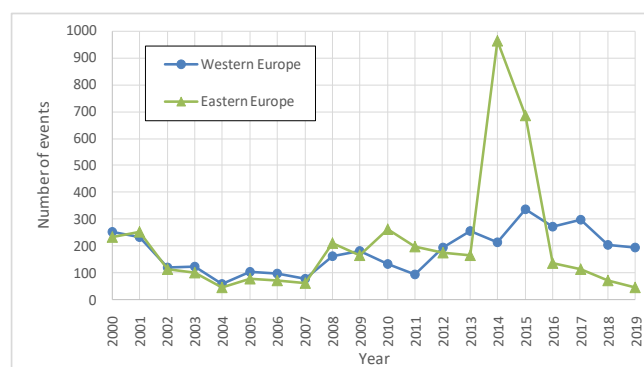


Figure 3. Comparison of the number of terrorist events in Western and Eastern Europe per year, period 2000-2019

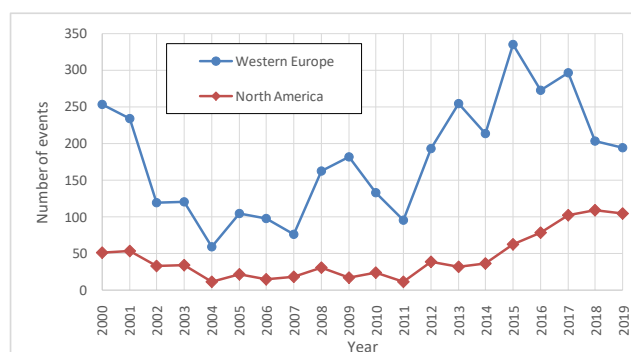


Figure 4. Comparison of the number of terrorist events in Western Europe and North America per year, period 2000-2019

In Figure 4, a comparison between the number of terrorist events in Western Europe and North America is shown for the period 2000-2019. The tendencies highlight a clear prevalence of terrorist events in Europe compared to North America, with an attack ratio for the European countries varying from 2 to 5 times the North American yearly value.

Another significant piece of information is provided by the number of fatalities and casualties recorded per year in the world in the period considered. In Table 2, columns 3 and 4, respectively, the number of fatalities and casualties per year are reported for the period 2000-2019. Column 2 reports the number of terrorist events, to facilitate data comparison.

Table 2. Number of terrorists’ events, fatalities, and casualties per year in the world, period 2000-2019

Year	Num. of Events	Num. of Fatalities	Num. of Casualties
2000	1,823	4,394	5,797
2001	1,912	7,727	28,137
2002	1,330	4,797	7,079
2003	1,278	3,317	7,384
2004	1,164	5,716	11,976
2005	2,017	6,343	12,961
2006	2,757	9,316	15,470
2007	3,247	12,825	22,531
2008	4,801	9,157	18,998
2009	4,722	9,277	19,147
2010	4,826	7,829	15,953
2011	5,076	8,246	14,662
2012	8,521	15,494	25,446
2013	12,045	22,280	37,690
2014	16,959	44,524	41,177
2015	15,133	38,993	44,204
2016	14,046	35,236	40,576
2017	11,358	26,892	25,487
2018	9,840	23,290	20,607
2019	8,495	20,329	18,714
Total	131,350	315,982	433,996

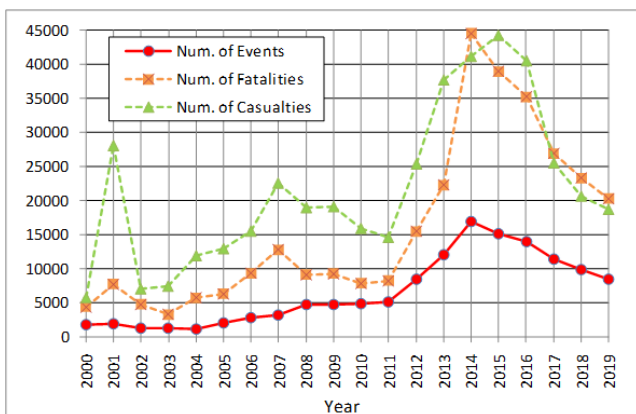


Figure 5. Graphical representation of the number of terrorist attacks (events), of fatalities and casualties per year worldwide, period 2000-2019

The data in Table 2 are represented graphically in Figure 5, which shows a first clear peak in 2001 for the number of casualties, in the number of 28,137 (accounting for 6.5% of cumulative casualties over the entire study period), and fatalities, in the number of 7,727 (accounting for 2.45% of cumulative fatalities over the entire study period), mainly due to the attacks on the Twin Towers on 9/11.

A second peak for the number of casualties (22,531, which is equivalent to 5.2% of cumulative casualties over the entire study period) and fatalities (12,825, which is equivalent to 4% of cumulative fatalities over the entire study period) due to terrorist events occurs in 2007. This peak is related to several crisis areas, especially in Asia (Iraq, Afghanistan, Pakistan, India, and Sri Lanka).

Between 2014 and 2015 there is a third peak for the number of casualties (44,204 in 2015, equivalent to about 10% of cumulative casualties over the entire study period) and deaths (44,542 in 2014, equivalent to 14% of cumulative fatalities over the entire study period) due to terrorist events. This peak is related to crisis areas mainly in the Middle East (Syria and Iraq), Africa (Nigeria), Ukraine, and Asia (Afghanistan,

Pakistan, India, and China).

Another important point is, as for the case of the number of events, the comparison between the number of fatalities per year (F/Y) for North America and Europe, both Eastern and Western. Figure 6 presents the results obtained for the number of fatalities due to terrorist events per year in North America, Western and Eastern Europe, in the period 2000-2019.

The total final numbers show that Eastern Europe presents many more fatalities per event than Western Europe and that, excluding the fatalities of the dramatic 9/11 event, the number of residual deaths in North America in 20 years (roughly 600) is even smaller than the Western Europe figure of 978.

Figure 6 compares the different tendency over the years, highlighting for North America the peak of fatalities in 2001 due to the September 11th attacks and for Eastern Europe the peak due to the Crimea Crisis in the Ukraine conflict.

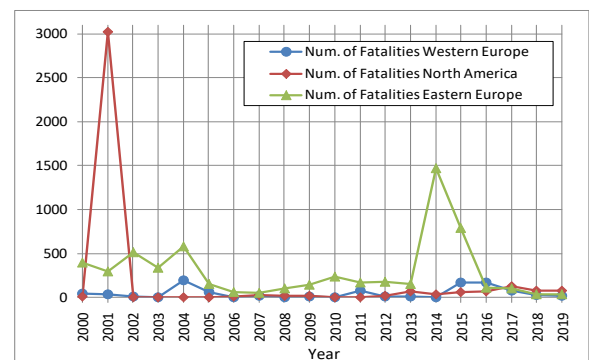


Figure 6. Graphical representation of fatalities number per year due to terrorist events in North America, Western and Eastern Europe, in the period 2000-2019

3.2 Results of GTD analysis for preferred targets

A second analysis applied to GTD was focused on the Target information. Considering the definition of the two categories soft and hard targets presented above, it is of major interest to understand the tendencies in the years of these two categories of complementary targets.

Adopting the definitions proposed in GTD codebook [15] and there detailed, we introduce 22 sub-categories of target listed in the following Table 3. For each sub-category we employ the abovementioned definitions of soft target and hard target— applied to individuals, organizations, facilities, buildings, and sites – and, after a careful evaluation of the sub-category definitions [15], each specific sub-category is assigned to either the ST or the HT category. If a sub-category cannot be assigned to either the ST or HT category, their assignment is reported as Not Applicable (NA).

Table 3, lists the 14 sub-categories related to STs, highlighted in blue, and the 4 sub-categories related to HTs, highlighted in red. It is not possible to assign a target category a priori for the four remaining sub-categories and, therefore, these sub-categories will be assigned to the ‘Not Applicable’ group for the time being.

In Table 4 a first statistical analysis for the terrorist preferred targets is proposed, describing, for each of the 22 sub-categories of target introduced in Table 3, the associated number of terrorist events recorded in GTD in the period 2000-2019, and the relative percentage of occurrence of the sub-category in the 20 years.

The analysis of these first outcomes for the period 2000-2019 shows that:

- STs (blue cases, 14 sub-categories) correspond to 63,629 terrorist events (48.44% of the total);
- HTs (red cases, 4 sub-categories) correspond to 57,516 terrorist events (43.79% of the total);
- the ‘Not Applicable’ cases (4 sub-categories) correspond to 10,250 terrorist events (7.77% of the total).

Table 3. 2000-2019 Assignment of sub-categories of target to the soft and hard targets categories

Sub-category of Target	Soft Target	Hard Target	Not Appl.
Private Citizens & Property	█		
Military		█	
Police		█	
Government (General)		█	
Business	█		
Religious	█		
Figures/Institutions	█		
Transportation	█		
Educational Institution	█		
Terrorists/Non-State Militia			█ NA
Utilities	█		
Journalists & Media	█		
Government (Diplomatic)		█	
Violent Political Party			█ NA
NGO	█		
Telecommunication	█		
Airports & Aircraft*	█		
Tourists	█		
Food or Water Supply	█		
Maritime	█		
Abortion Related	█		
Other			█ NA
Unknown			█ NA

*Airport & Aircraft have been inserted in soft target category even if the security controls have been significantly improved after 11/9 attack. This is because controls are mainly focused on access to the boarding area, while general access to the airport is commonly free for passengers.

Table 4. Target sub-categories rank in terms of number of terrorist events, period 2000-2019

Type of target/victim (period 2000-2019)	Number of Events	%
Private Citizens & Property	36,594	27.86%
Military	22,529	17.15%
Police	19,430	14.79%
Government (General)	14,106	10.74%
Business	10,097	7.69%
Unknown	5,976	4.55%
Religious Figures/Institutions	3,563	2.71%
Transportation	3,423	2.61%
Educational Institution	3,285	2.50%
Terrorists/Non-State Militia	2,753	2.10%
Utilities	2,531	1.93%
Journalists & Media	1,673	1.27%
Government (Diplomatic)	1,451	1.10%
Violent Political Party	1,329	1.01%
NGO	766	0.58%
Telecommunication	707	0.54%
Airports & Aircraft	407	0.31%
Tourists	194	0.15%
Food or Water Supply	178	0.14%
Maritime	177	0.13%
Other	147	0.11%
Abortion Related	34	0.03%
Total	131,350	100%

These first results, shown graphically in Figure 7, highlight the prevalence of terrorist events against the soft target category over the hard target category in the last 20 years, confirming, as first cumulative evidence, the opportunity to delve into greater depth on this issue introduced in recent technical literature (e.g., [10-14, 16, 17]).

To gain a clearer insight of the trend over time of these two complementary target categories, a further analysis of the annual worldwide events related to the two categories has been carried out and is reported in Table 5 and in Figure 8, where the results obtained are shown.

Figure 8 confirms that, in the period considered, the number of terrorist events against both STs and HTs grew considerably, with a cumulative prevalence of events against STs.

In the following Table 6 and Figure 9, the attention is focused on worldwide terrorist events oriented solely against STs, and the number of F/Y in such a case is evaluated.

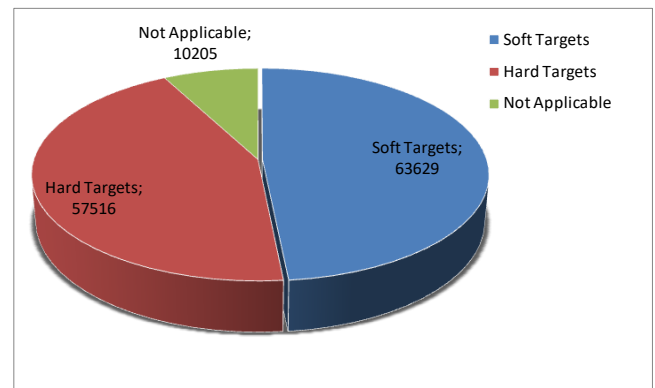


Figure 7. Graphical representation of the worldwide percentage among STs, HTs, and Not Applicable cases, period 2000-2019

Table 5. Graphical representation of the worldwide percentage among STs, HTs, and Not Applicable cases, period 2000-2019

Year	Num. of Hard Target A/Y	Num. of Soft Target A/Y
2000	701	1,092
2001	669	1,214
2002	499	802
2003	596	646
2004	554	576
2005	1,033	945
2006	1,119	1,579
2007	1,452	1,717
2008	1,548	2,986
2009	1,391	3,140
2010	1,740	2,885
2011	1,990	2,832
2012	4,456	3,466
2013	6,116	4,994
2014	8,110	7,396
2015	6,442	7,112
2016	5,543	6,974
2017	5,058	4,948
2018	4,623	4,380
2019	3,876	3,945
Total	57,516	63,629

This evidence confirms the relevance of the number of fatalities, i.e., more than 152,931 in twenty years (48.4% of total deaths in the period) and with an impressive peak of

21,589 deaths in 2014, for the soft target case.

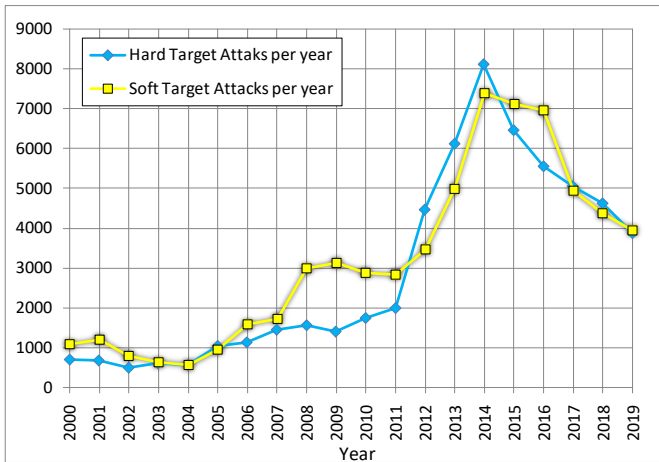


Figure 8. Graphical representation of the worldwide number of terrorist events attack for the two categories STs and HTs, period 2000-2019

Table 6. Trend over time of the annual worldwide number of fatalities for the soft target attacks, period 2000-2019

Year	Num. of Soft Target A/Y	Num. of Soft Target F/Y
2000	1,092	2,682
2001	1,214	6,029
2002	802	3,194
2003	646	1,865
2004	576	2,869
2005	945	3,388
2006	1,579	6,375
2007	1,717	7,748
2008	2,986	5,337
2009	3,140	6,217
2010	2,885	4,618
2011	2,832	4,266
2012	3,466	5,524
2013	4,994	9,862
2014	7,396	21,589
2015	7,112	17,631
2016	6,974	16,914
2017	4,948	10,796
2018	4,380	8,677
2019	3,945	7,332
Total	63,629	152,913

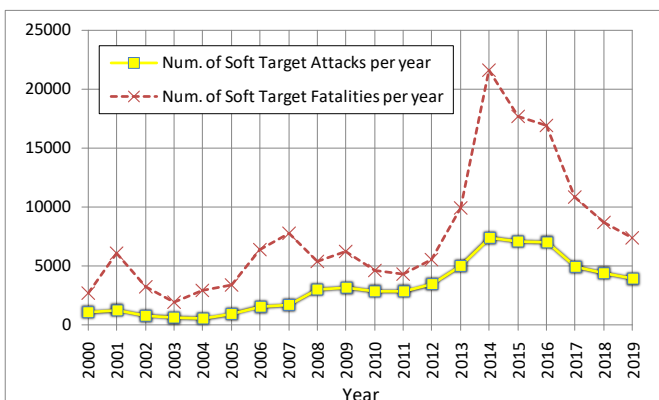


Figure 9. Graphical representation of the number of annual worldwide fatalities and terrorist events (attacks) for STs, period 2000-2019

Table 7. Soft target sub-categories analysis in terms of worldwide number of A/Y and of F/Y, period 2000-2019

Soft Target sub-categories (period 2000-2019)	Num. of Attacks	% Over total Soft Target Attacks	Num. of Fatalities 3
Private Citizens & Property	36,594	57.51%	108,481
Business	10,097	15.87%	17,243
Religious			
Figures/Institutions	3,563	5.60%	11,687
Transportation	3,423	5.38%	7,070
Educational Institution	3,285	5.16%	3,088
Utilities	2,531	3.98%	1,150
Journalists & Media	1,673	2.63%	990
NGO	766	1.20%	757
Telecommunication	707	1.11%	91
Airports & Aircraft	407	0.64%	1,215
Tourists	194	0.30%	470
Maritime	177	0.28%	473
Food or Water Supply	178	0.28%	194
Abortion Related	34	0.05%	4
Total	63,629	100%	152,913

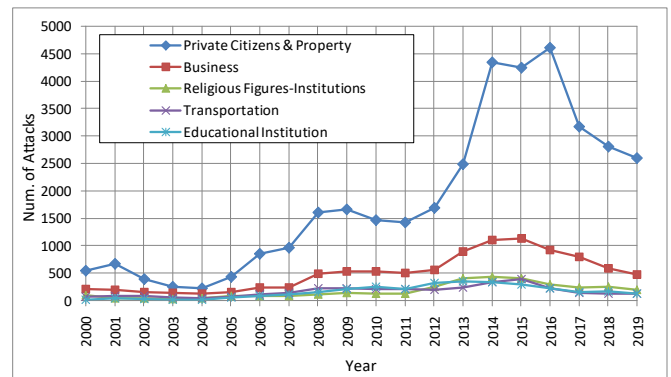


Figure 10. Graphical representation of the annual worldwide number of terrorist events attacks for the first five sub-categories in the STs ranking, for the period 2000-2019

To further investigate this soft target issue, the 14 sub-categories selected in Table 3 for the set of STs are evaluated individually in terms of number of annual terrorist events and number of annual fatalities in the 20 years considered. The results obtained for the number of worldwide attacks are ranked decreasingly and reported in Table 7. Furthermore, the attention is focused on the first five sub-categories of the ranking (which represent 89.52% of the occurrences) providing in Figure 10 a visual representation of the annual trends of the five sub-categories over the period 2000-2019.

Figure 10 confirms, for the first 5 sub-categories of the ranking, the significant increasing drift of the attacks, with a particular emphasis on the first two sub-categories, Private Citizens & Property and Business, that represents more than 73% of the attacks to STs over the period of 20 years.

To conclude this part of the analysis on STs, a further study has been carried out, once again at a worldwide level, on 12 selected target items (i.e., very specific targets) of the three abovementioned sub-categories Private Citizens & Property, Business, and Educational Institution. These 12 target items, belonging to soft target sub-categories, were selected considering the most blatant terrorist attacks in Western Countries, only as an example, to demonstrate the maximum level of detail achievable in the statistical analysis of possible

specific targets. The attention has been focused on the target items related to STs specified in Table 8.

Table 8. Selected target items of the three sub-categories Private Citizens & Property, Business and Educational Institution for a specific worldwide study

Target Items (Sorted Alphabetically)	Sub-category of Soft Targets
Bank/Commerce	Business
Construction	Business
Entertain./Cultural/Stadium/Casino	Business
House/Apartment/Residence	Private Citizens & Property
Marketplace/Plaza/Square	Private Citizens & Property
Medical/Pharmaceutical (Hospital)	Business
Memorial/Cemetery/Monument	Private Citizens & Property
Museum/Cultural Centre/Cultural House	Private Citizens & Property
Public Area (garden, parking lot, garage, beach, public building, camp)	Private Citizens & Property
Restaurant/Bar/Café	Business
Retail/Grocery/Bakery	Business
School/University/Educ. Building	Educational Institution

Table 9. Target items ranking ordered by the total worldwide number of terrorist events for each item, period 2000-2019

Target Item Ranking (Period 2000-2019)	Num. of Attacks
House/Apartment/Residence	2,620
Marketplace/Plaza/Square	2,391
School/University/Educational Building	2,336
Retail/Grocery/Bakery	2,325
Construction	1,181
Restaurant/Bar/Café	1,158
Bank/Chamber of Commerce	675
Medical/Pharmaceutical	657
Public Area (garden, parking lot, garage, beach, public building, camp)	409
Entertainment/Cultural/Stadium/Casino	381
Memorial/Cemetery/Monument	123
Museum/Cultural Centre/Cultural House	73
Total	14,329

The complete results for these 12 target items are reported and ordered by the total number of worldwide terrorist events in the 20 years considered in Table 9.

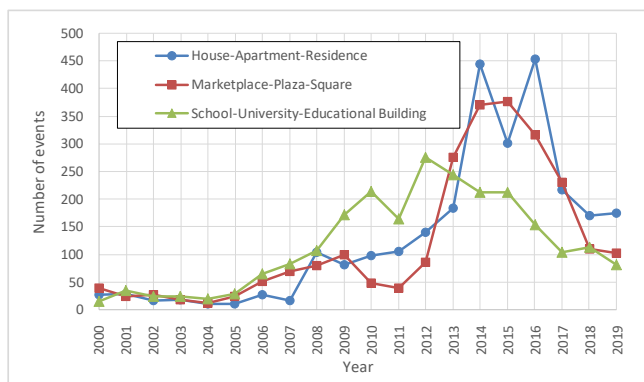


Figure 11. Graphical representation of the annual worldwide number of terrorist events for the first three target items of the analysed ranking, period 2000-2019

Finally, focusing the attention on the first three target items in Table 9, a visual representation of the annual worldwide tendency of the number of terrorist events is shown, for each item, in Figure 11.

This last Figure 11 clearly shows the very significant, up to a 10-fold, increment in the number of attacks for these three specific target items in the last 20 years, with some noticeable peaks in the decade 2010-2019, compared to the ordinary values of the decade 2000-2009.

4. CONCLUSIONS

With the aim to characterize the phenomenon of terrorist events, especially regarding its evolution over the last decades, a wide statistical analysis on 20 years of terrorist events, specifically from 2000 to 2019, was carried out starting from the information made available by the Global Terrorism Database.

The evolution of the terrorist worldwide events and the economic areas of the world in which the attacks were conducted in the period of interest were illustrated in the first part of the work, while, in the second part the focus was placed on the type of targets preferred by the terrorists.

As a major result of the analysis, it was demonstrated that a greater number of events in the last two decades have been oriented against simple public and private buildings, facilities, and areas. Such kind of simple targets were denoted as soft targets in opposition to the term hard targets, related to government, military, police, and intelligence buildings and sites. In the work, a specific definition of soft target and hard target was proposed based on the GTD fields of information and a statistical comparison between the two types of targets was described in depth. The evidence obtained in the analysis highlight the significant increase of terrorist attacks against soft targets in the last decade, in particular for the four target items indicated as House/Apartment/Residence, Marketplace/Plaza/Square, School/University/Educational Building, and Retail/Grocery/Bakery.

The obtained outcomes provide a relevant updated vision of the recent international terrorist approaches in selecting targets and conducting attacks: the results presented can be useful for terrorist risk analysis studies, providing elements to define present and future terrorist threats in contemporary society. These studies and analyses are themselves the starting point for the definition of prevention and protection measures against terrorist threats. Measures that obviously have to change profoundly depending on whether the prevailing threat is oriented towards soft targets or hard targets. Prevention and protection measures will obviously change profoundly depending on whether the prevailing threat is soft target or hard target oriented [16-20].

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NOMENCLATURE

A/Y	Attacks per Year
DHS	USA Department of Homeland Security
F/Y	Fatalities per Year
GTD	Global Terrorism Database
HTs	Hard Targets
JRC	European Commission Joint Researcher Centre
NA	Not Applicable
STs	Soft Targets