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# Analysis of trends, patterns and impact of global terrorism (1997 - 2017)



**(YOU)<sup>us</sup>**

**A study by:**

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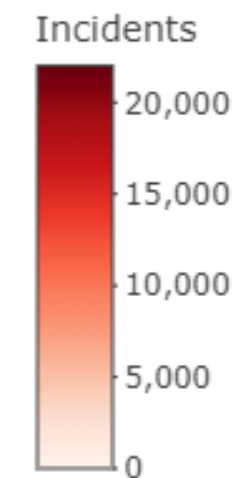
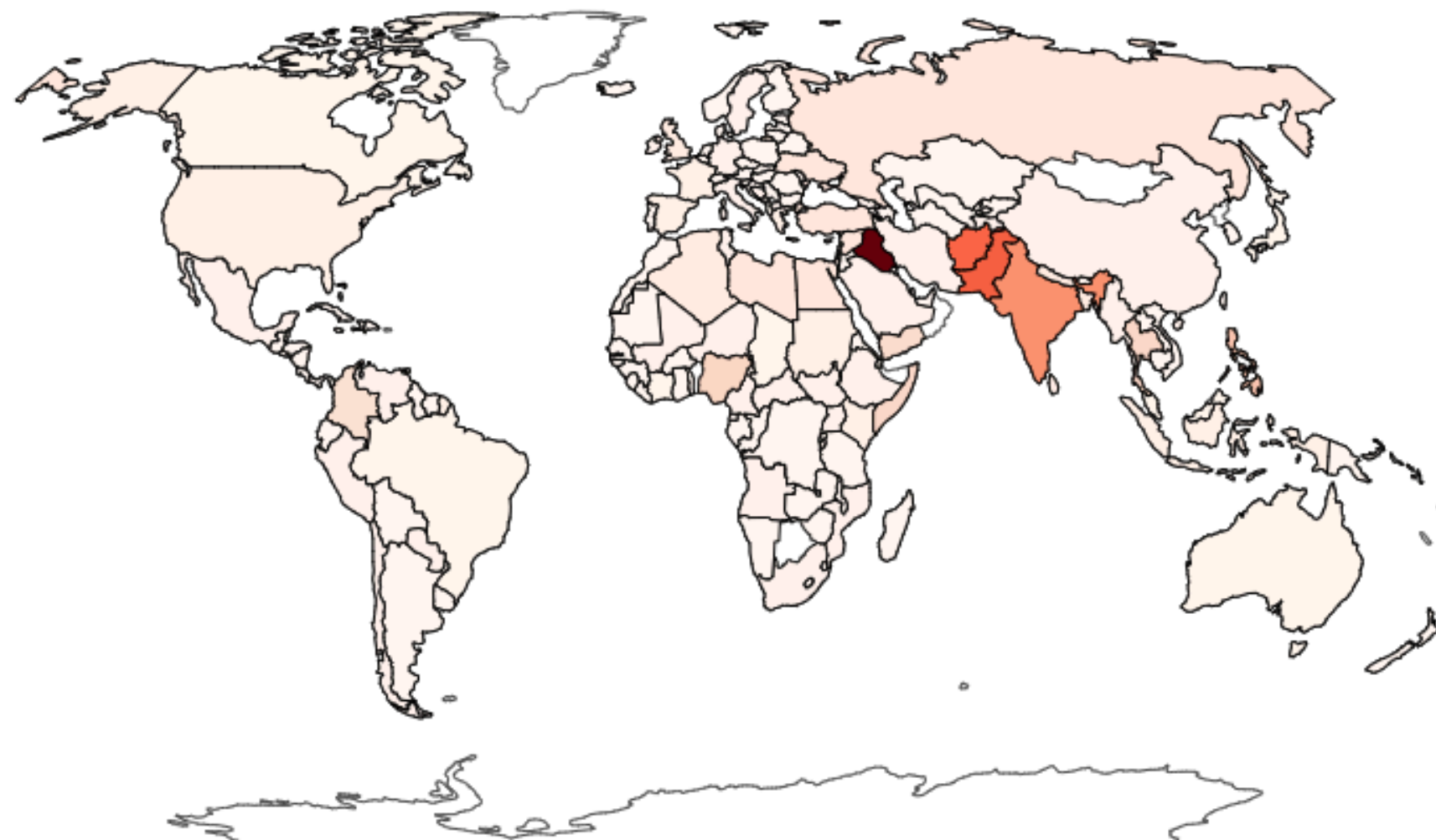
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# Introduction

Terrorist Incidents by Country (1997-2017)



Global Terrorism Database records for 1997-2017 terrorist events across the world.



Discuss various visualizations on attack types, target types, casualties, etc.



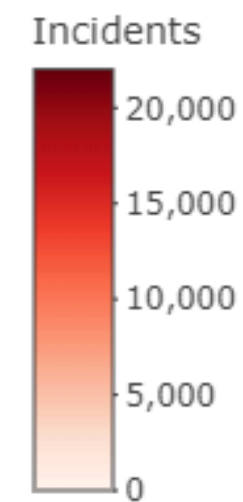
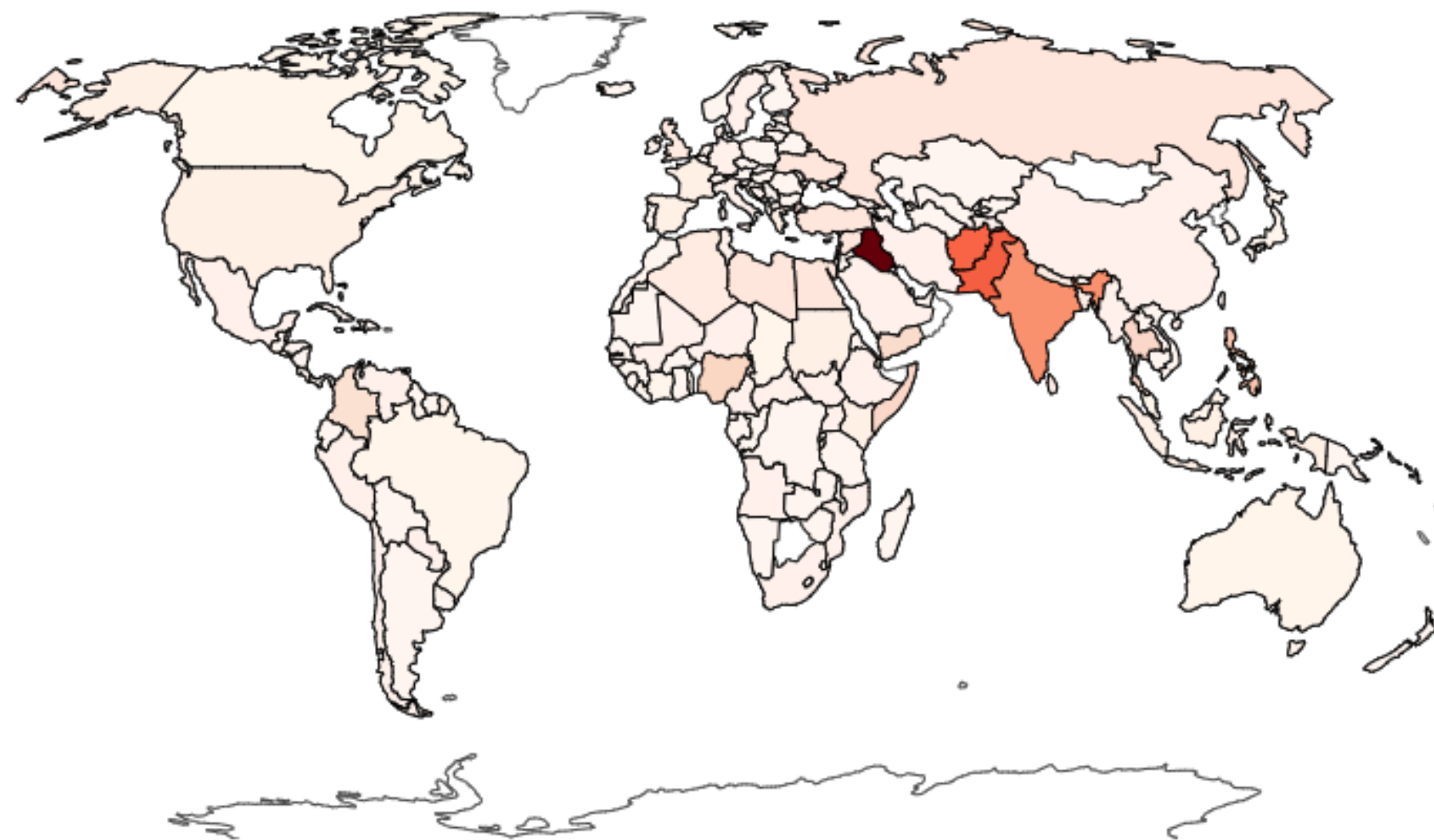
Explore the trends and patterns to understand how terrorism has evolved



Research Qs: Where? When? Who? How severe?

# Overview

Terrorist Incidents by Country (1997-2017)



**277K**  
Total Fatalities

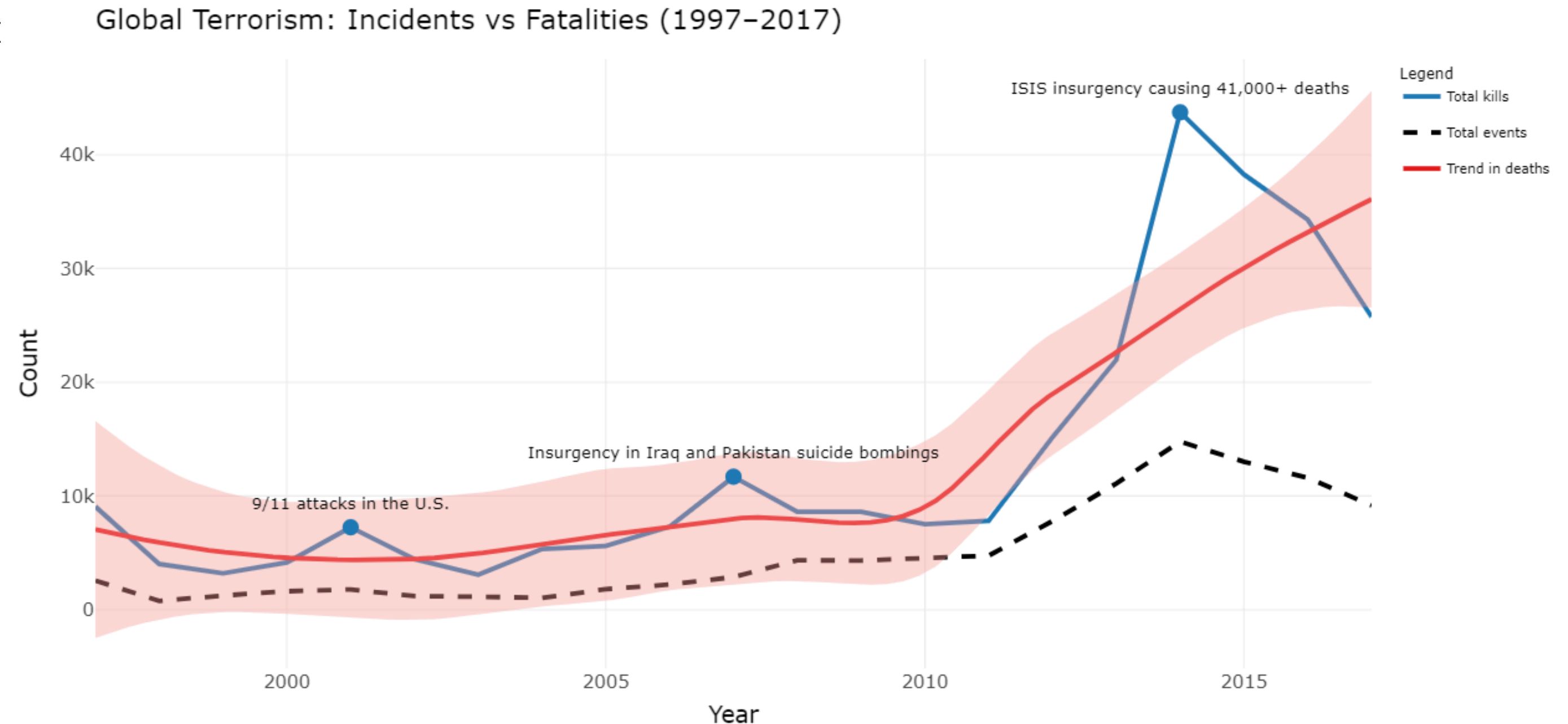
**103.89K**  
Total Incidents

**392K**  
Total Wounded

**669K**  
Total Casualties

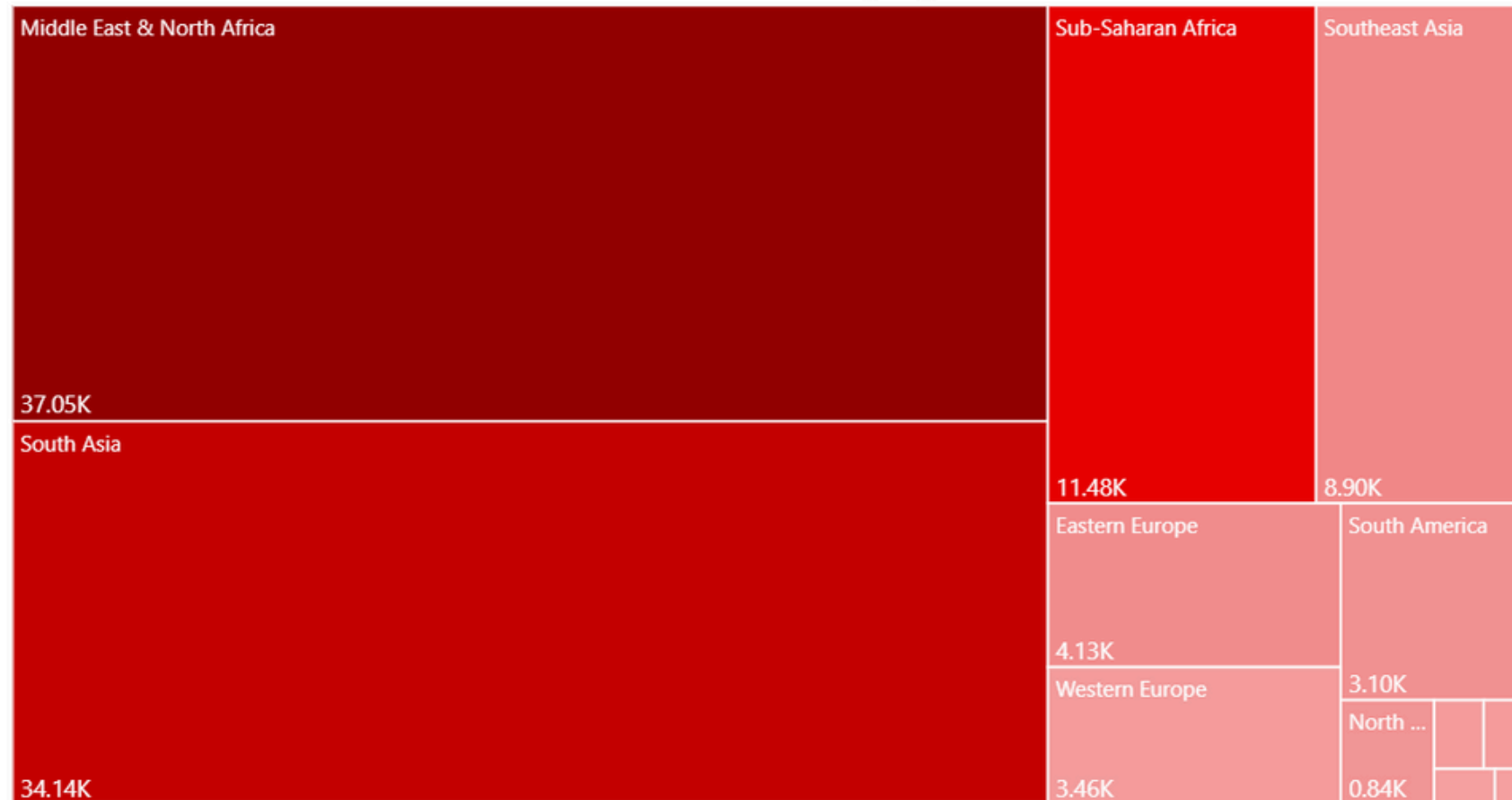
# Trend in terrorism in these 20 years...

- High number of terrorist attacks and incidents.
- Notable peaks in 2001, 2007 and 2014.
- Decline in attacks post 2014.
- Overall increasing trend.



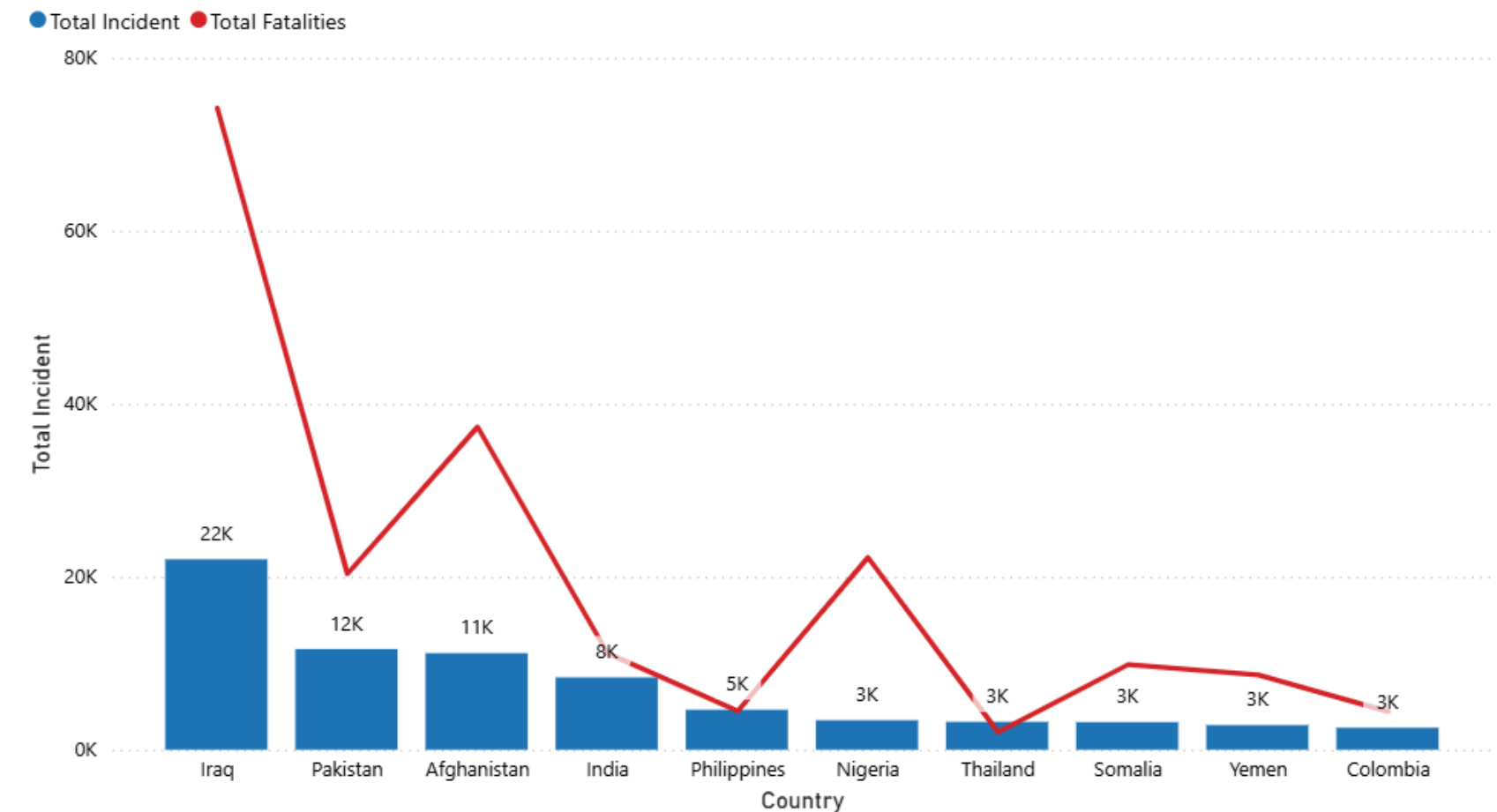
# Where is terrorism concentrated?

Incidents and Fatalities by Region

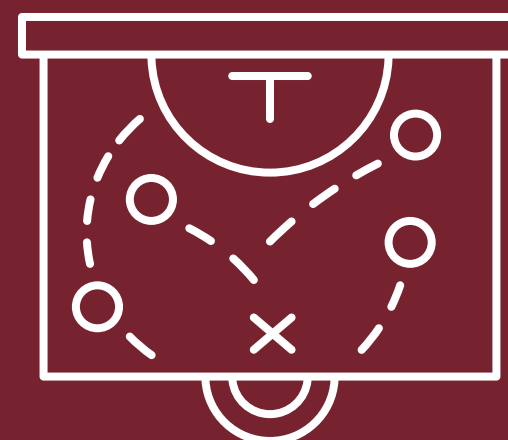


South Asia & MENA dominate global terrorism, accounting for the majority of incidents and fatalities.

Total Incidents vs Fatalities by Country



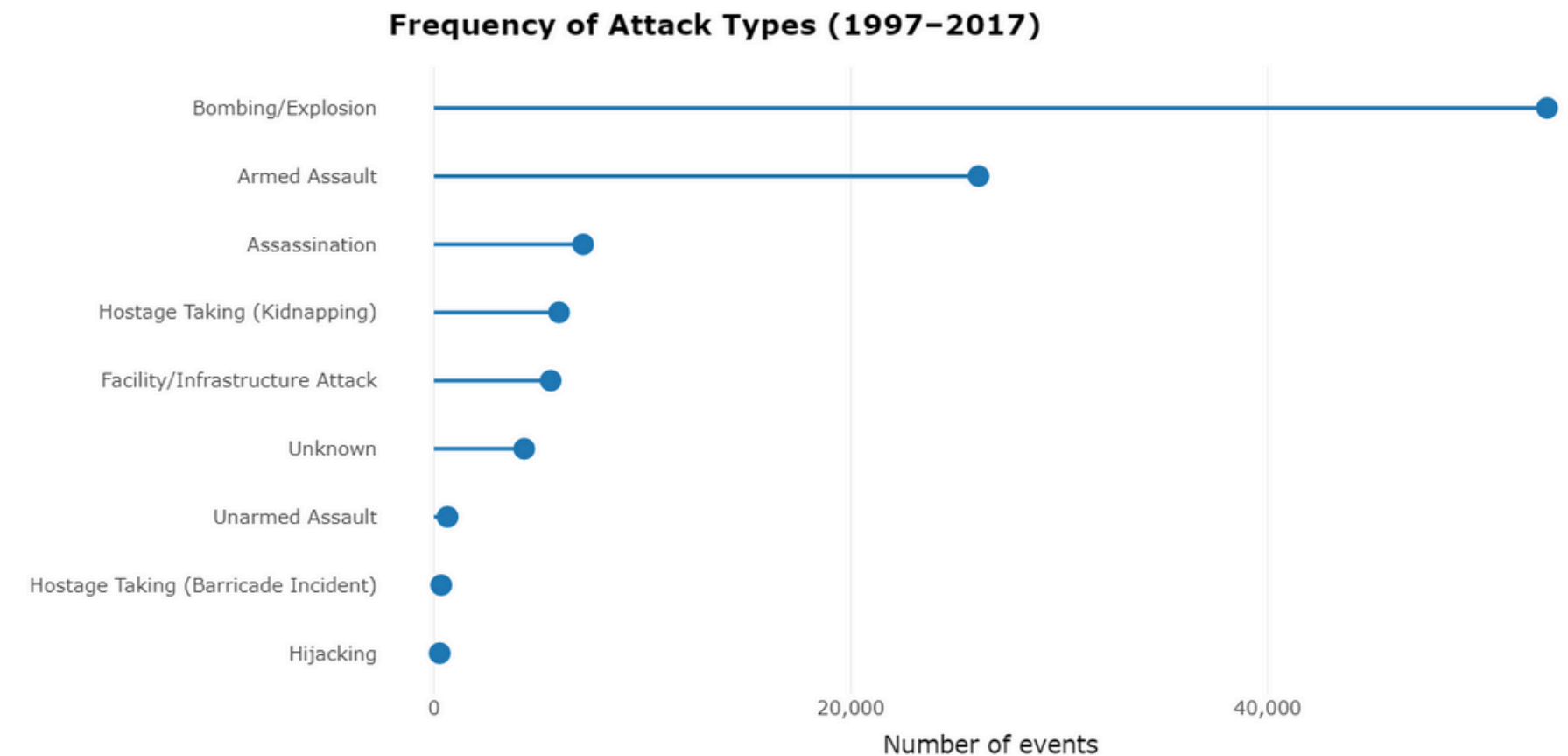
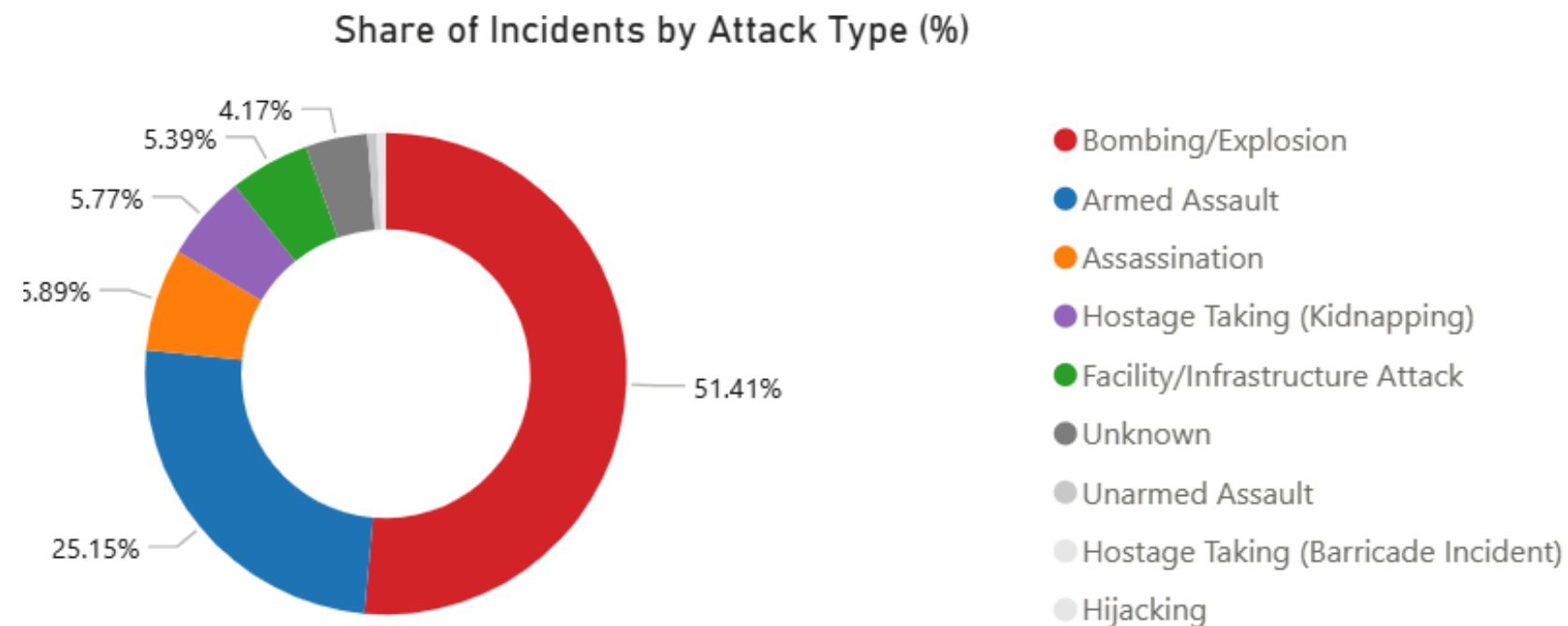
Iraq leads in fatalities and incidents, followed by Pakistan, Afghanistan and India facing higher incident volumes.



# Tactics of Terrorism



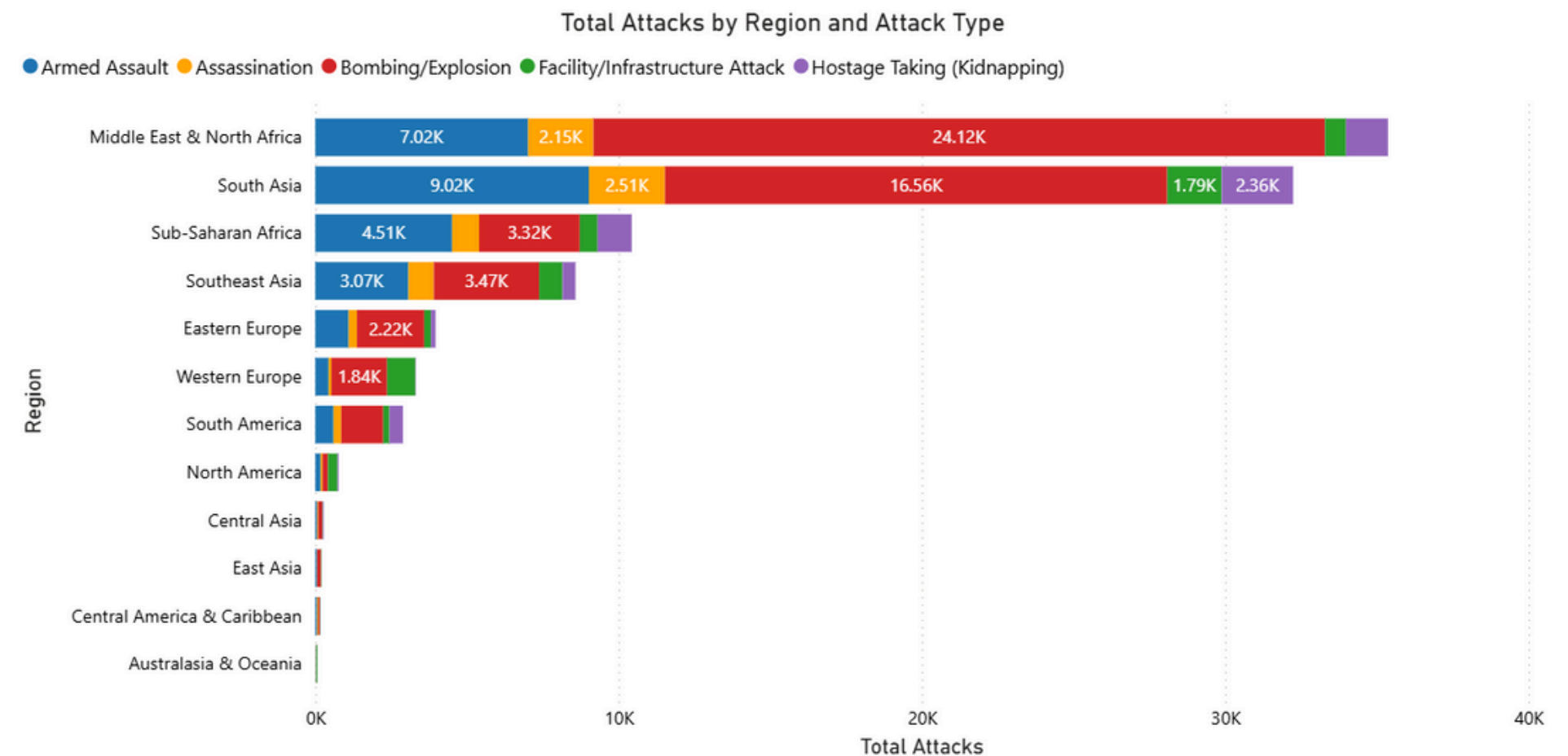
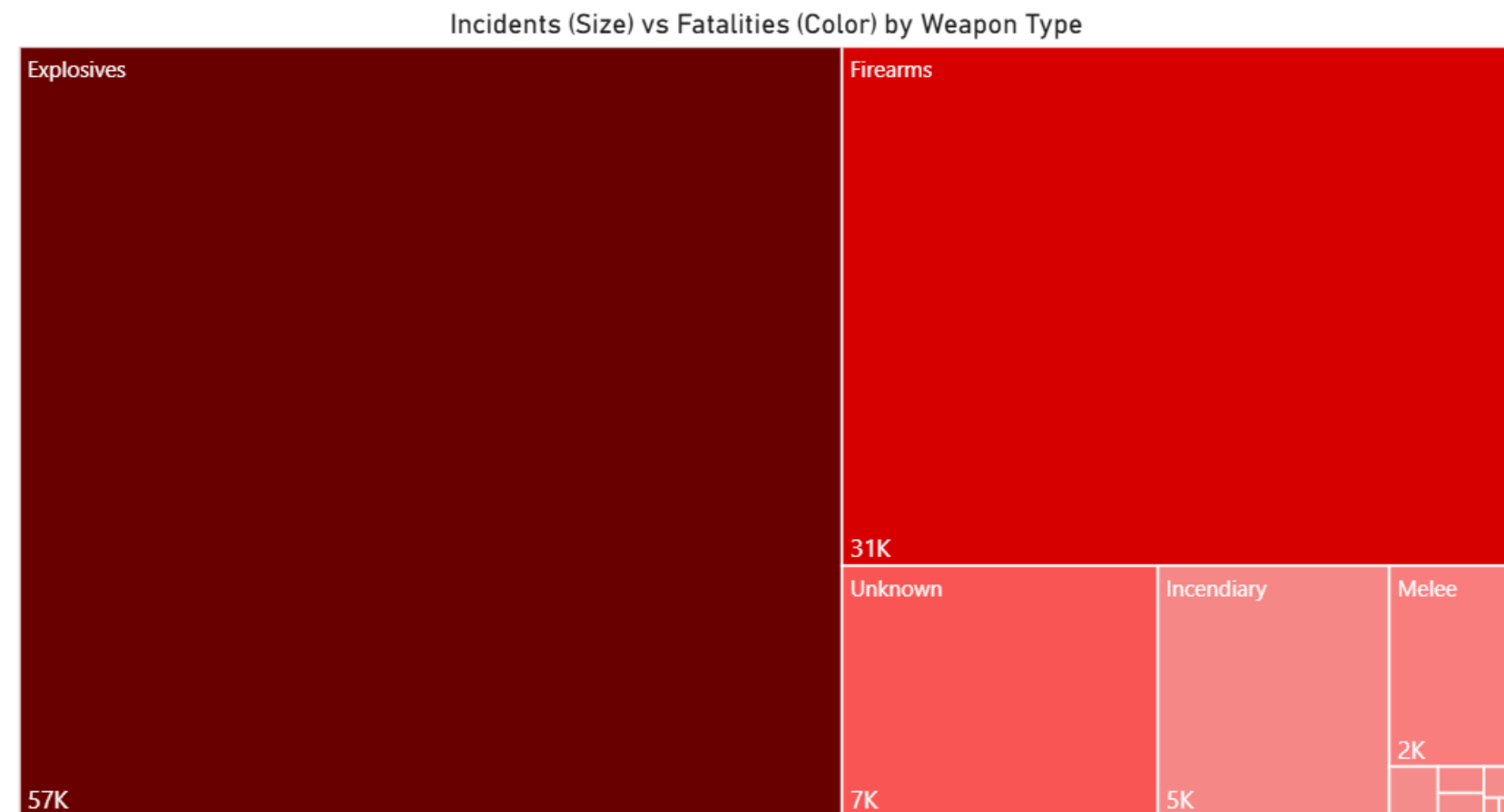
# What are the most frequent attack forms?



- Bombings/Explosions dominate global terrorism, accounting for 51% of all incidents.
- Armed Assaults (25%) are the second most common, showing widespread ground-based violence.

- Less frequent methods include assassinations, hostage-taking, and hijackings, each below 7%.
- Attack diversity highlights different operational strategies by groups depending on region and resources.

# Which Attack Methods are Deadliest?



- Explosives remain the weapon of choice due to availability and scalability, highlighting the urgent need for improved bomb detection in conflict zones.
- Firearms are the second deadliest, particularly in South Asia and Sub-Saharan Africa.

- Middle East & North Africa shows the highest concentration of explosive-related attacks (24K+ incidents).
- Regional differences reveal how conflict zones shape attack methods (e.g., more armed assaults in Africa vs. bombings in Asia).

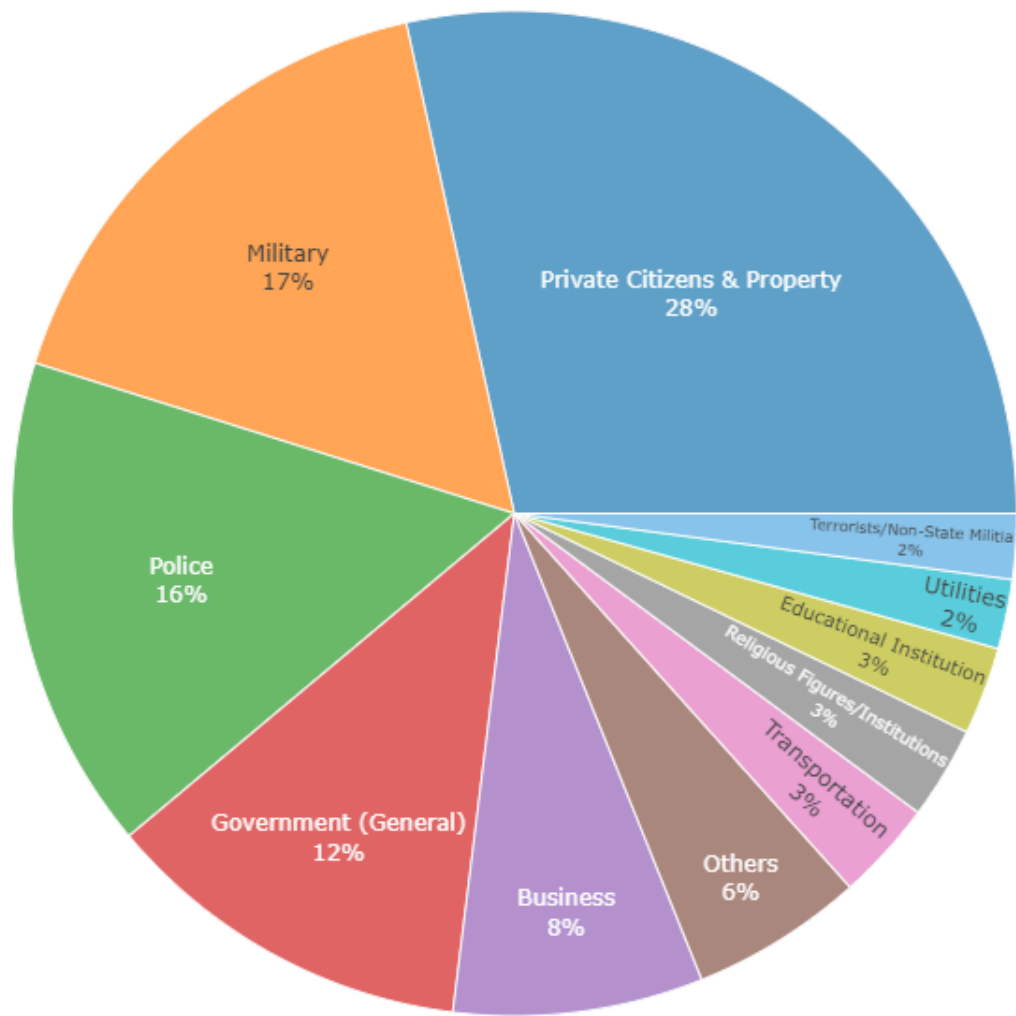




# Targets of Terrorism

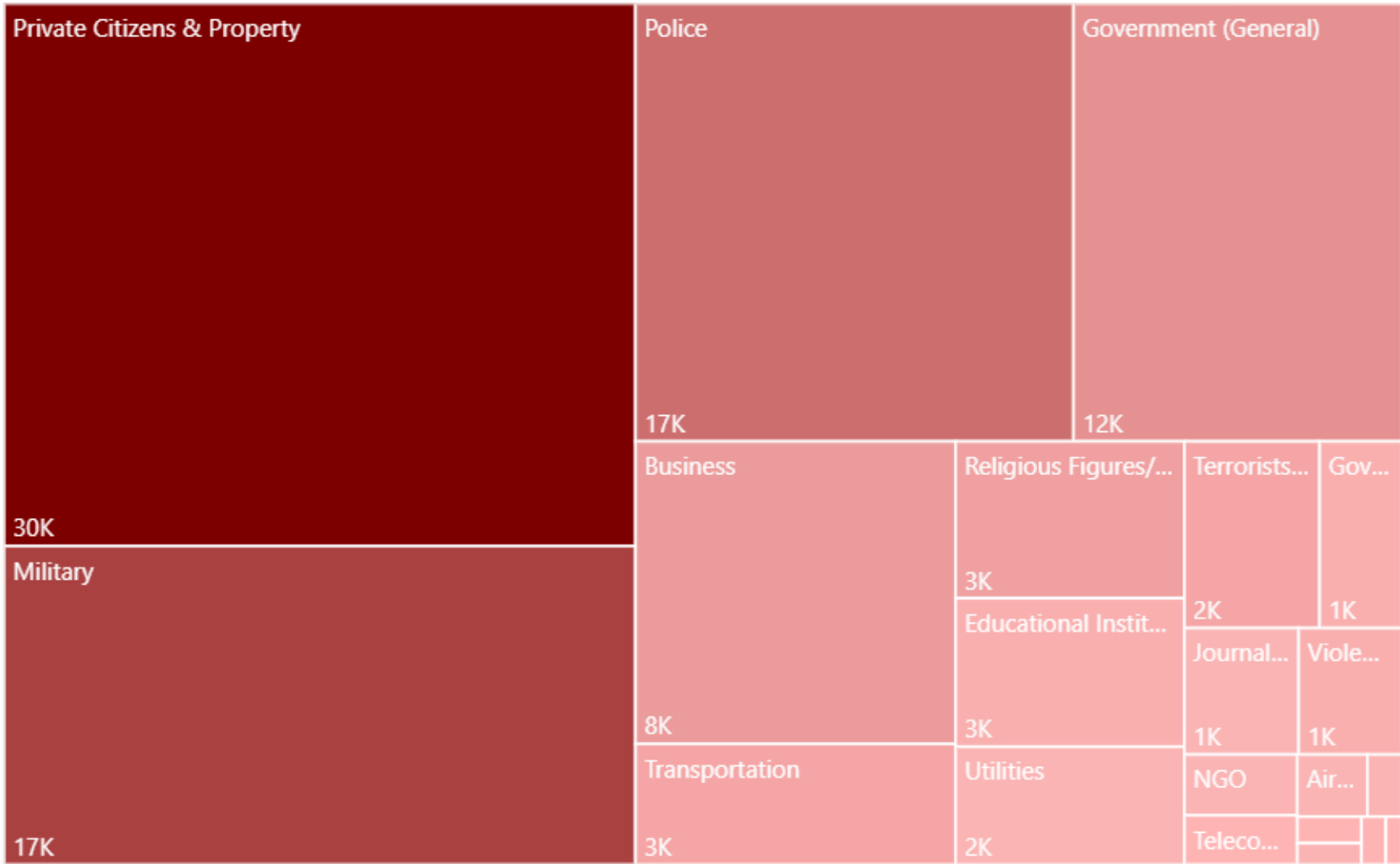
# Who are the primary targets of terrorist attacks?

Target Types of Terrorist Attacks (1997–2017)



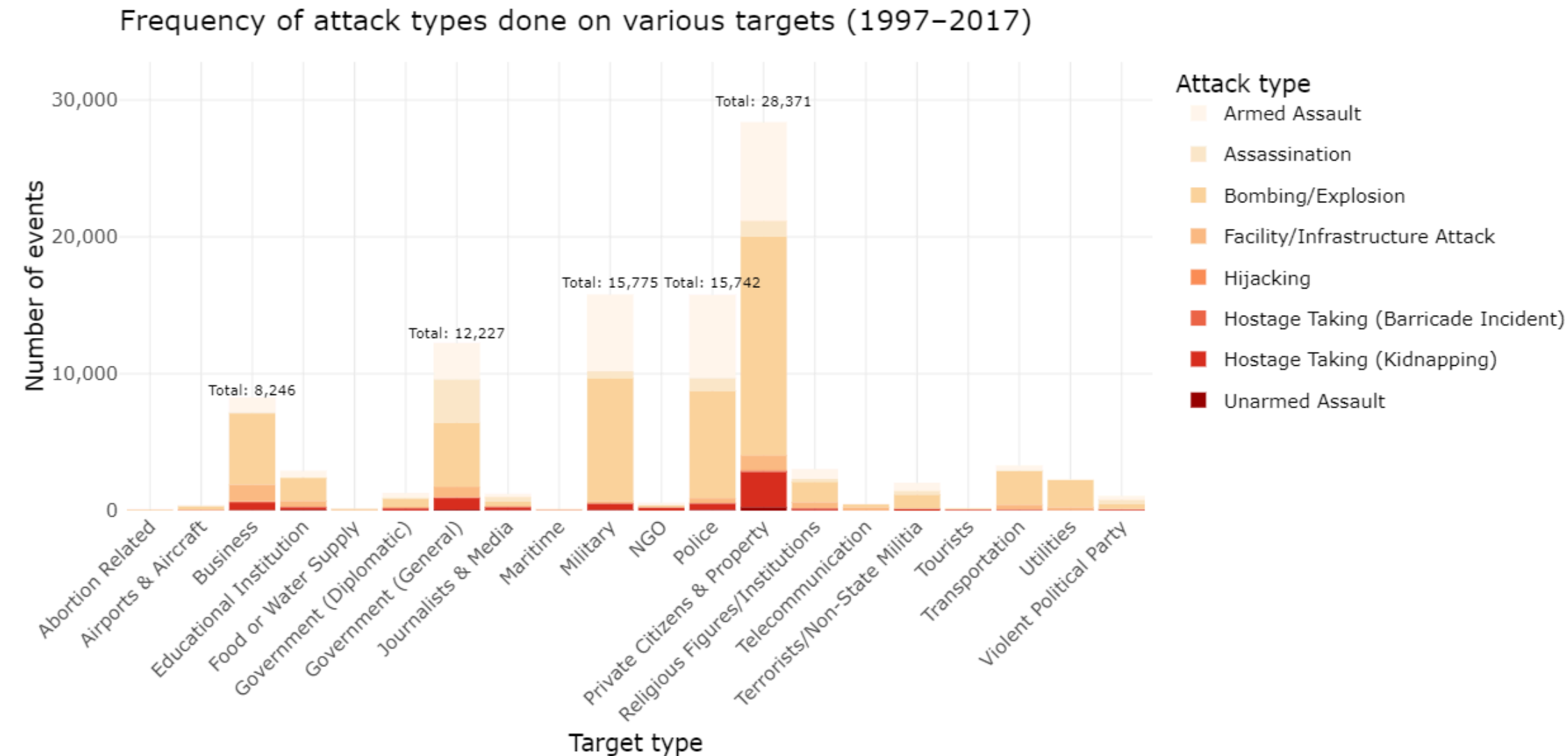
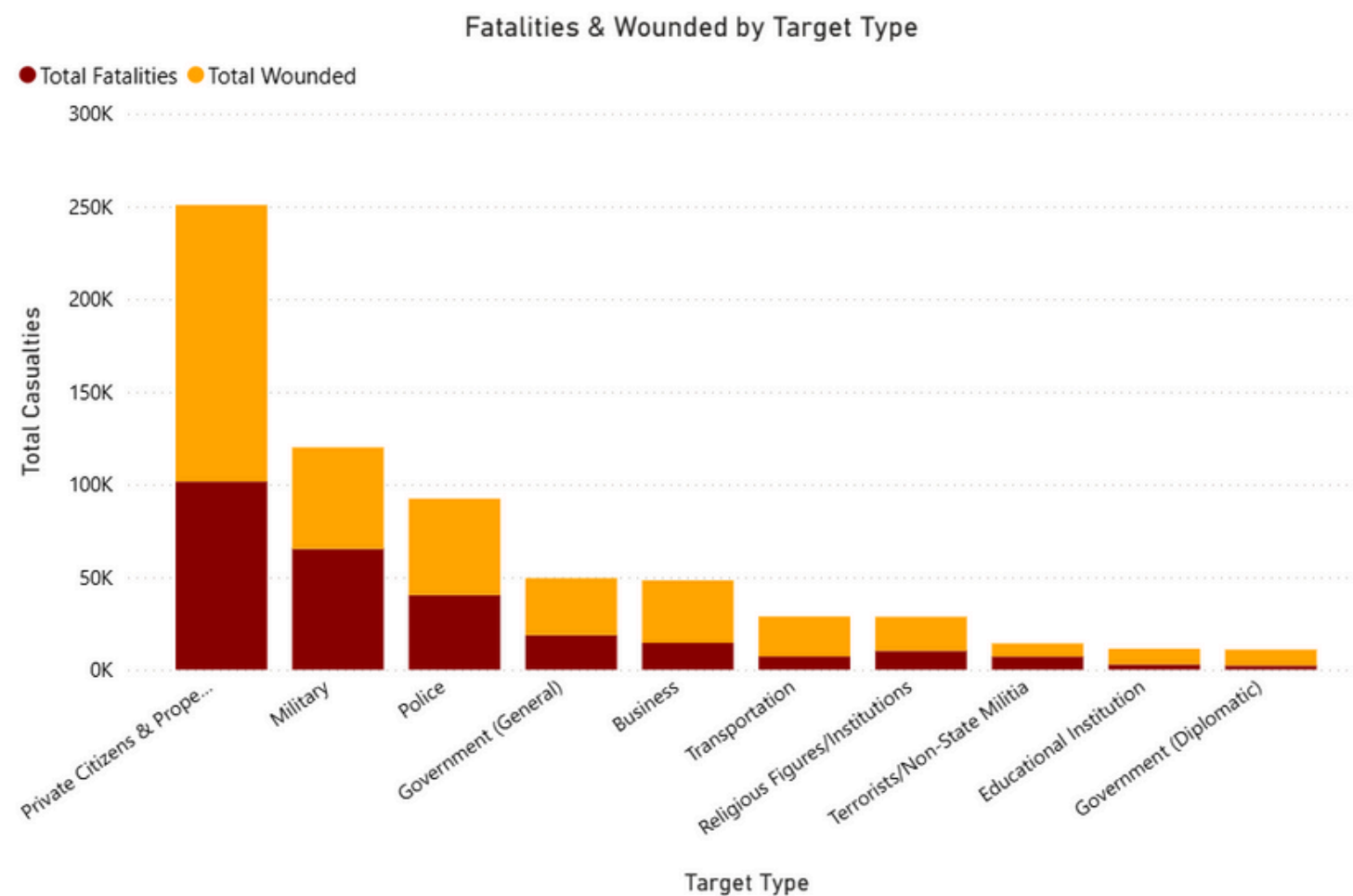
- Private citizens and property face the majority of attacks (28%).
- Military and police are also major targets.

Target Type Severity (Incidents vs Fatalities)



- Government institutions and businesses face consistent attacks but with fewer fatalities.

# Which targets suffer the most casualties?



- Private citizens suffer the highest casualties, over 250K fatalities/wounded combined.
- Military and police also face significant losses.

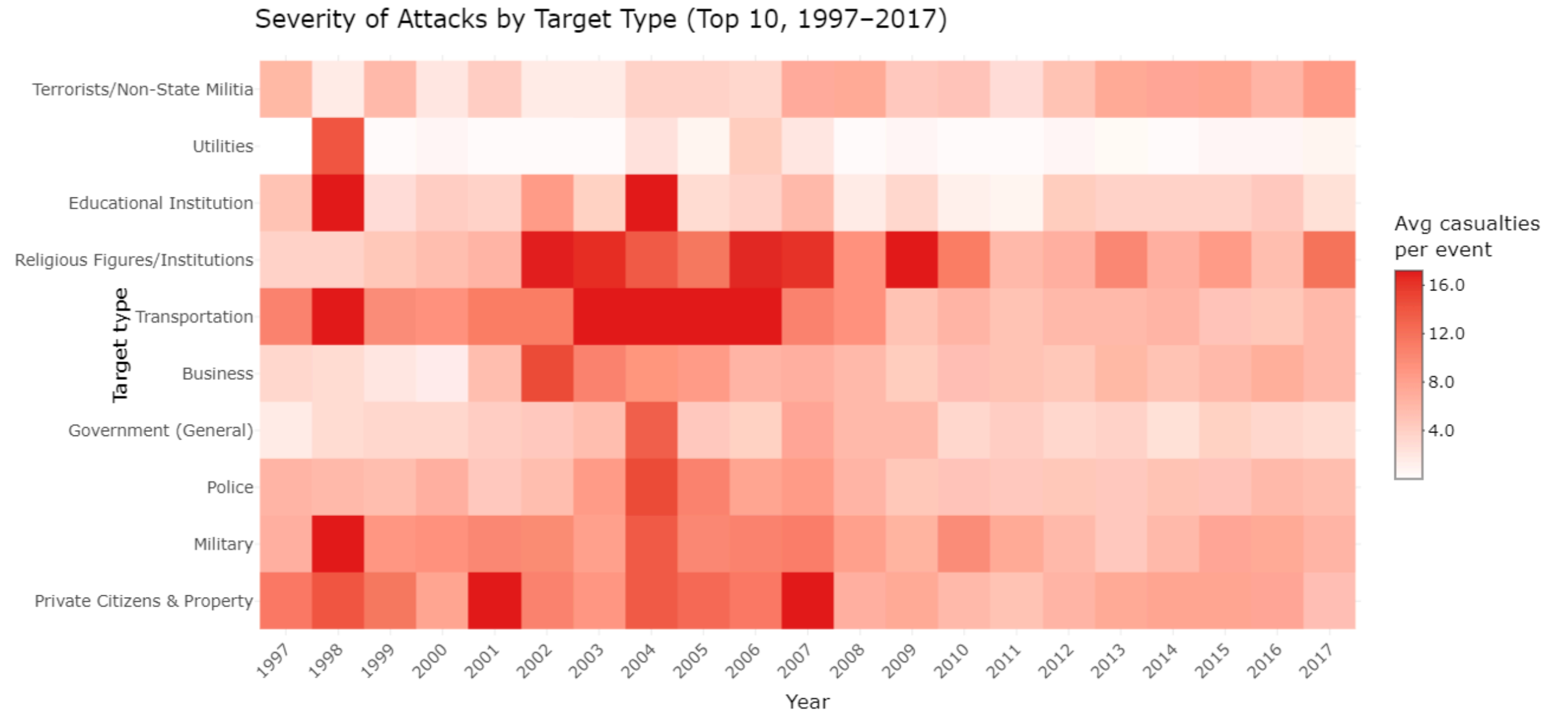
- Business and transportation sectors are frequent but less lethal targets.

# How severe are attacks across different target types?

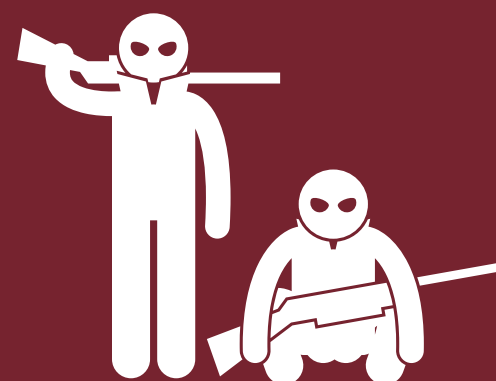
**6.44**  
Casualties per Attack

**3.78**  
Wounded per Attack

**2.67**  
Fatalities per Attack

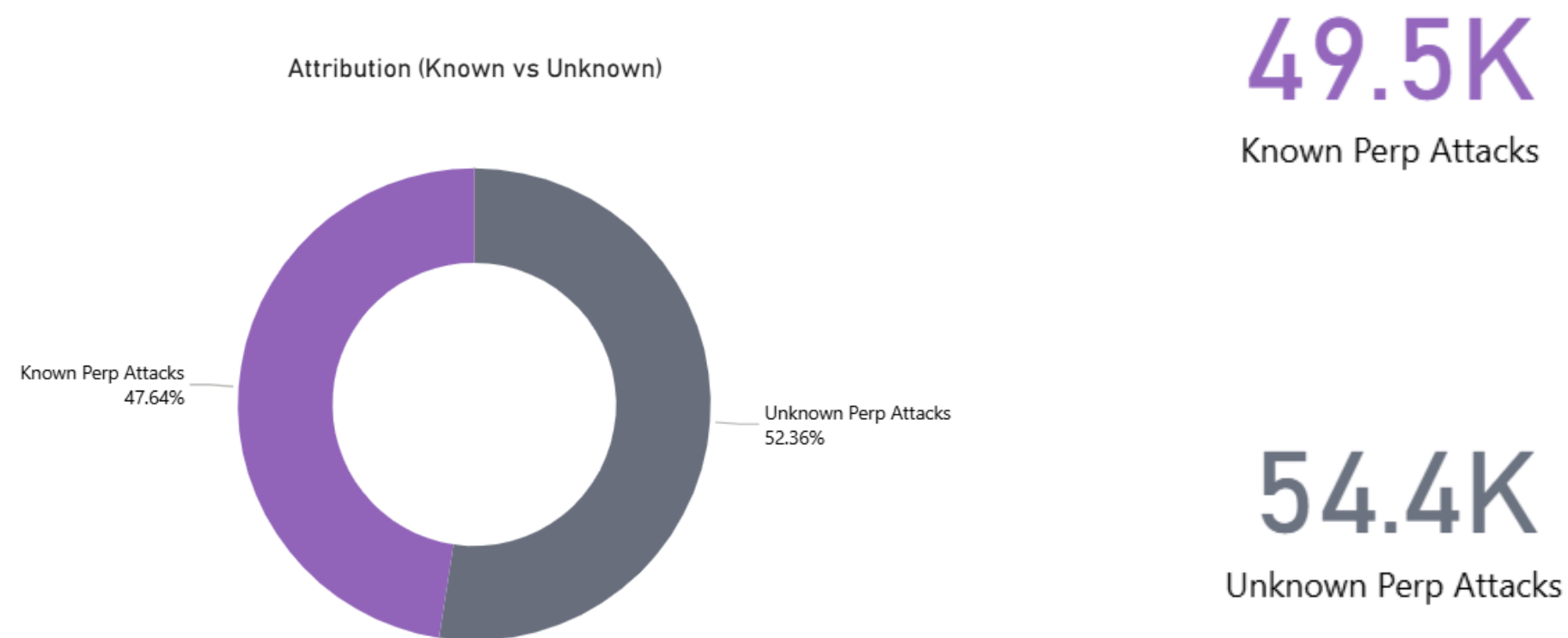


- Transportation and religious institution attacks often have the highest casualties per event.
- Civilian attacks are consistently deadly, with spikes in conflict years.
- Educational institutions, though less frequent, also have attacks of high severity.

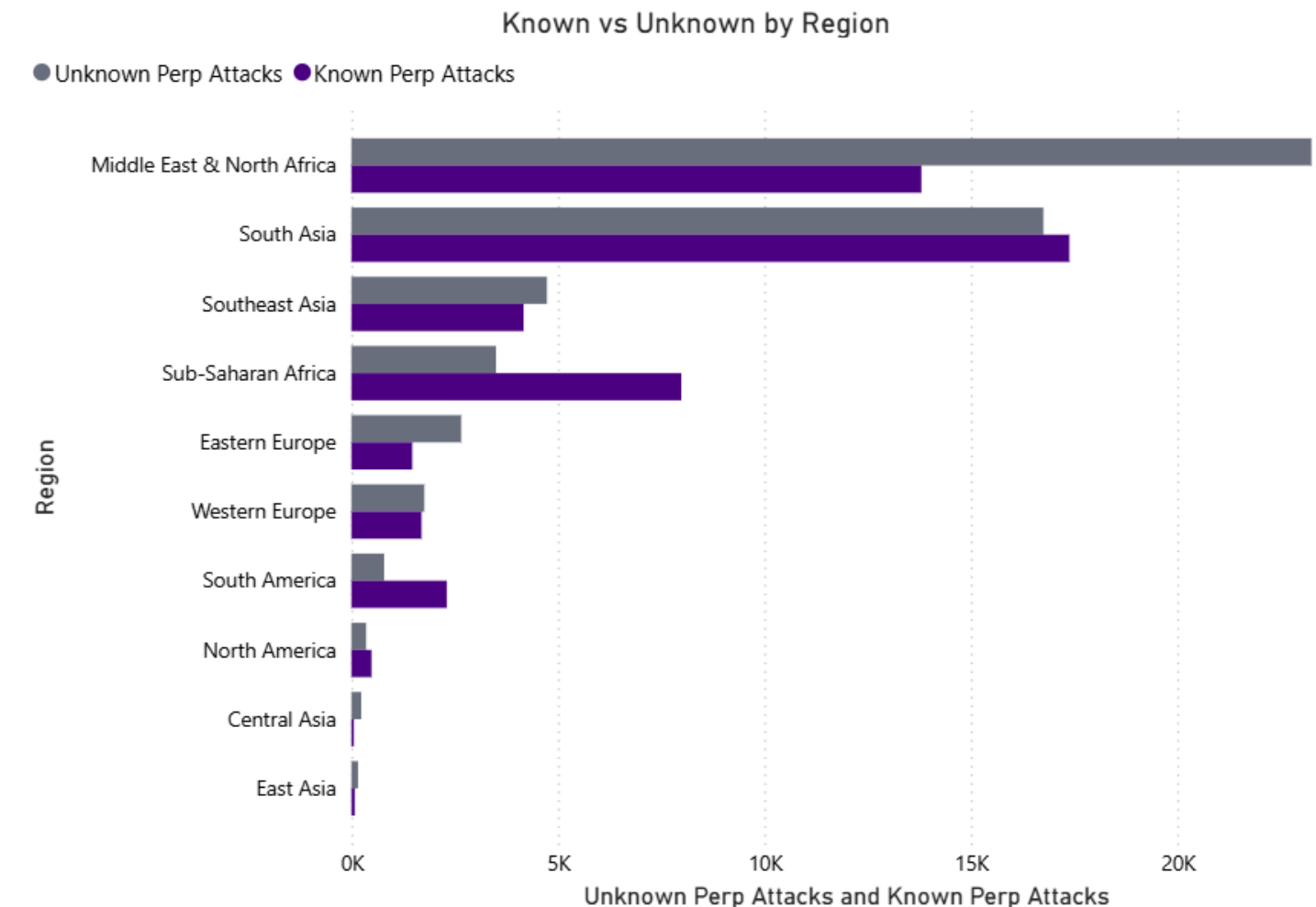


# Attribution of Terrorist Attacks

# Who is Behind the Attacks?



- Globally, over 52% of attacks remain unattributed, showing gaps in intelligence and accountability.
- Middle East & South Asia dominate in both known and unknown perpetrator attacks.

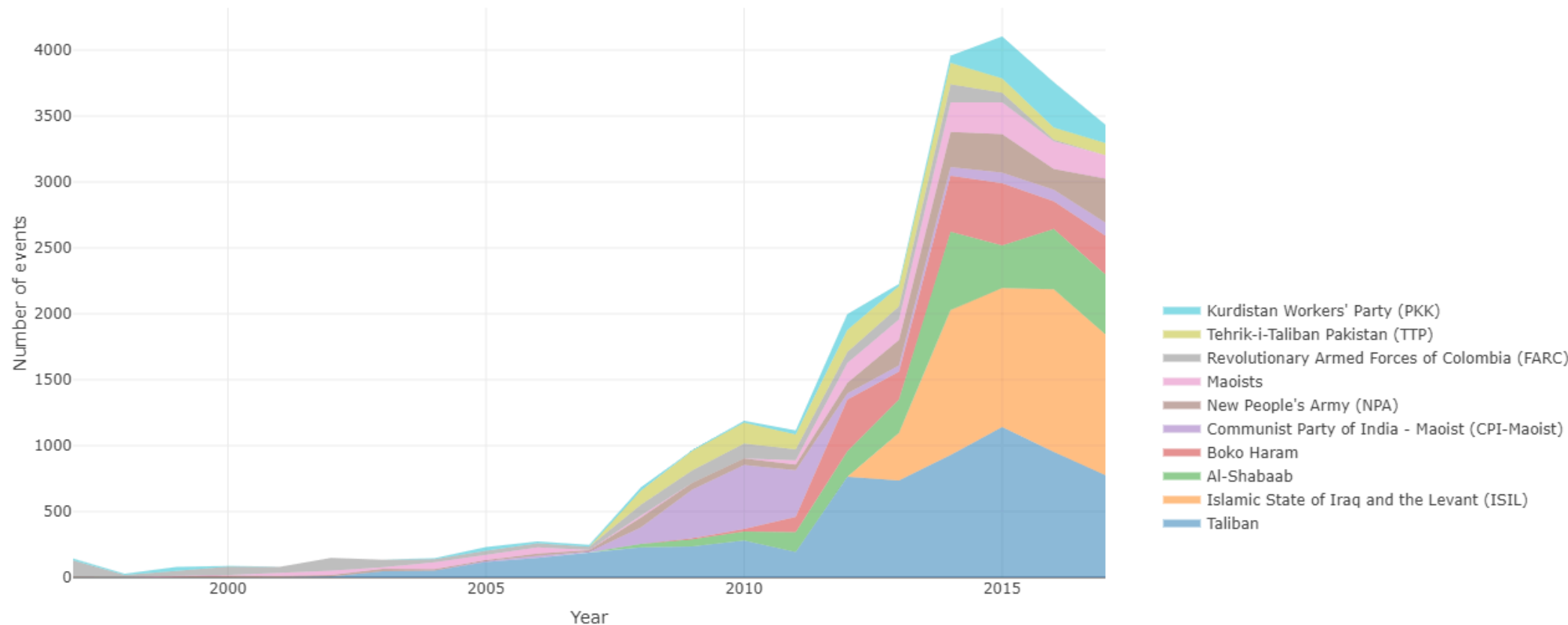


- Regions like Southeast Asia & Sub-Saharan Africa show significant known-group activity (Al-Shabaab, Boko Haram, Abu Sayyaf, etc.).
- European region suffers from more unknown-perpetrator attacks.



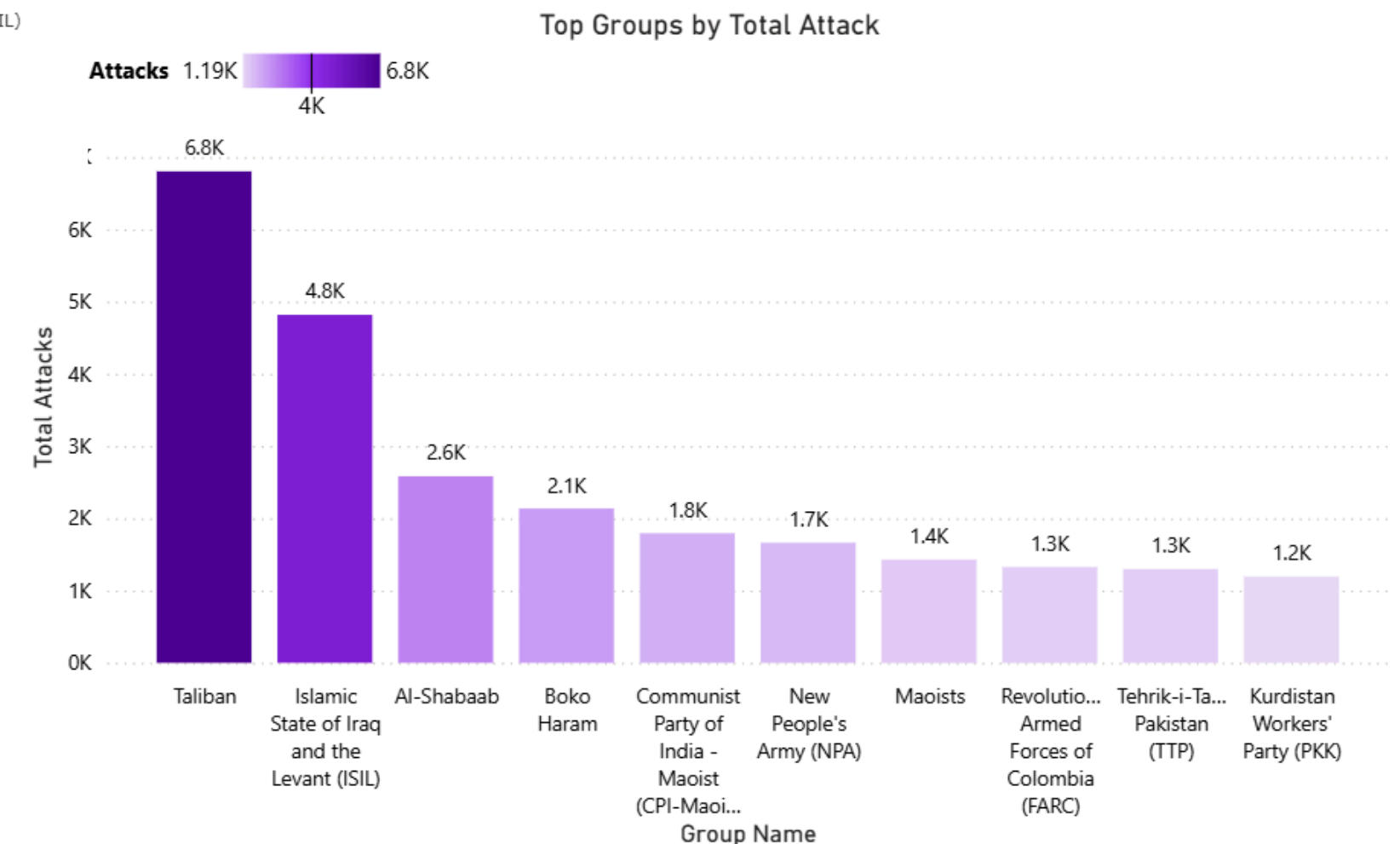
# Which groups carried out the most attacks, and how did their activity evolve over time?

Activity of Top 10 Terrorist Groups (1997–2017)



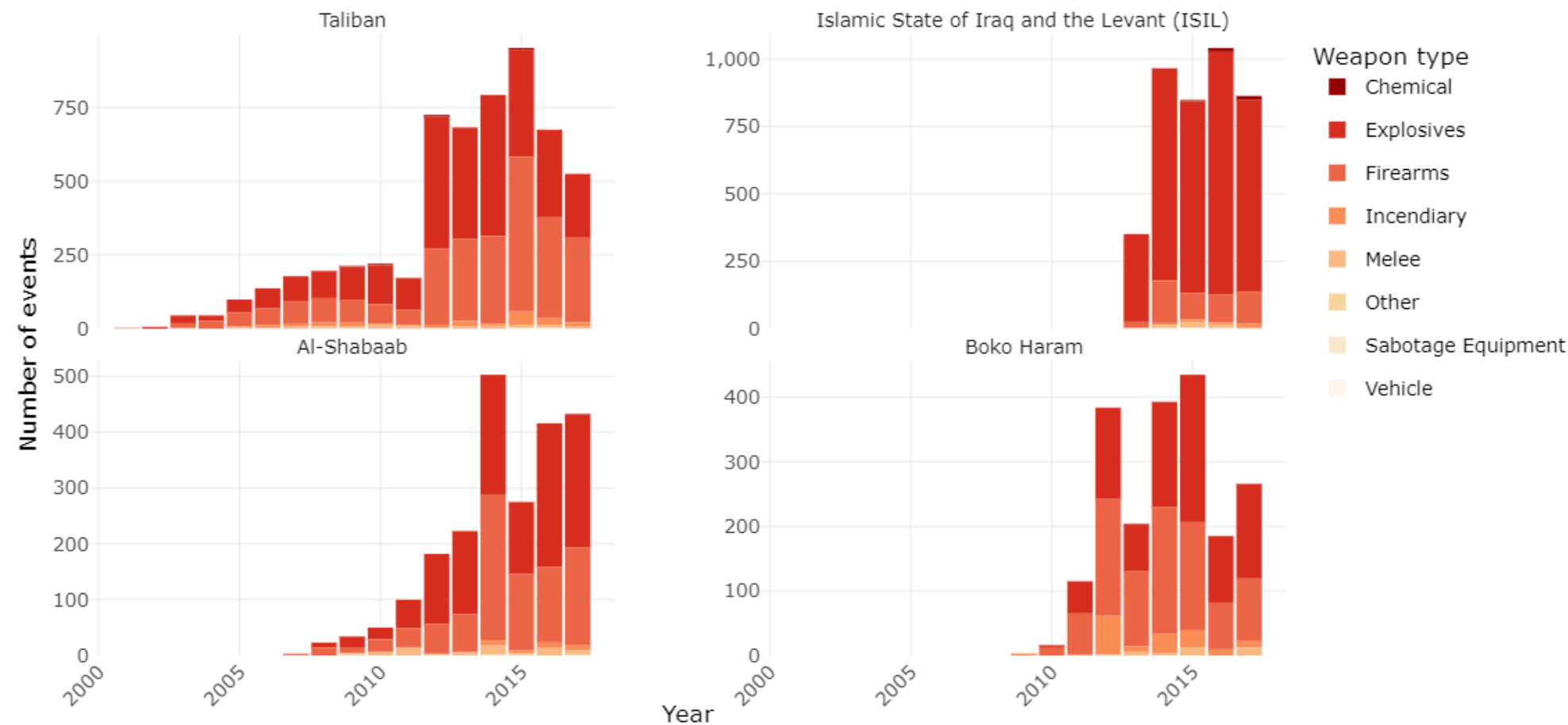
- Taliban & ISIS dominate in terms of number of attacks, followed by Al-Shabaab and Boko Haram.

- Clear surge in activity post-2010, with peaks around 2014–2016 (coinciding with ISIS expansion & regional insurgencies).
- Different groups peaked at different times:
  1. Taliban: consistently active.
  2. ISIS: rapid escalation post-2012, peak in 2014–15.
  3. Boko Haram & Al-Shabaab: regionally focused but deadly during peak years.



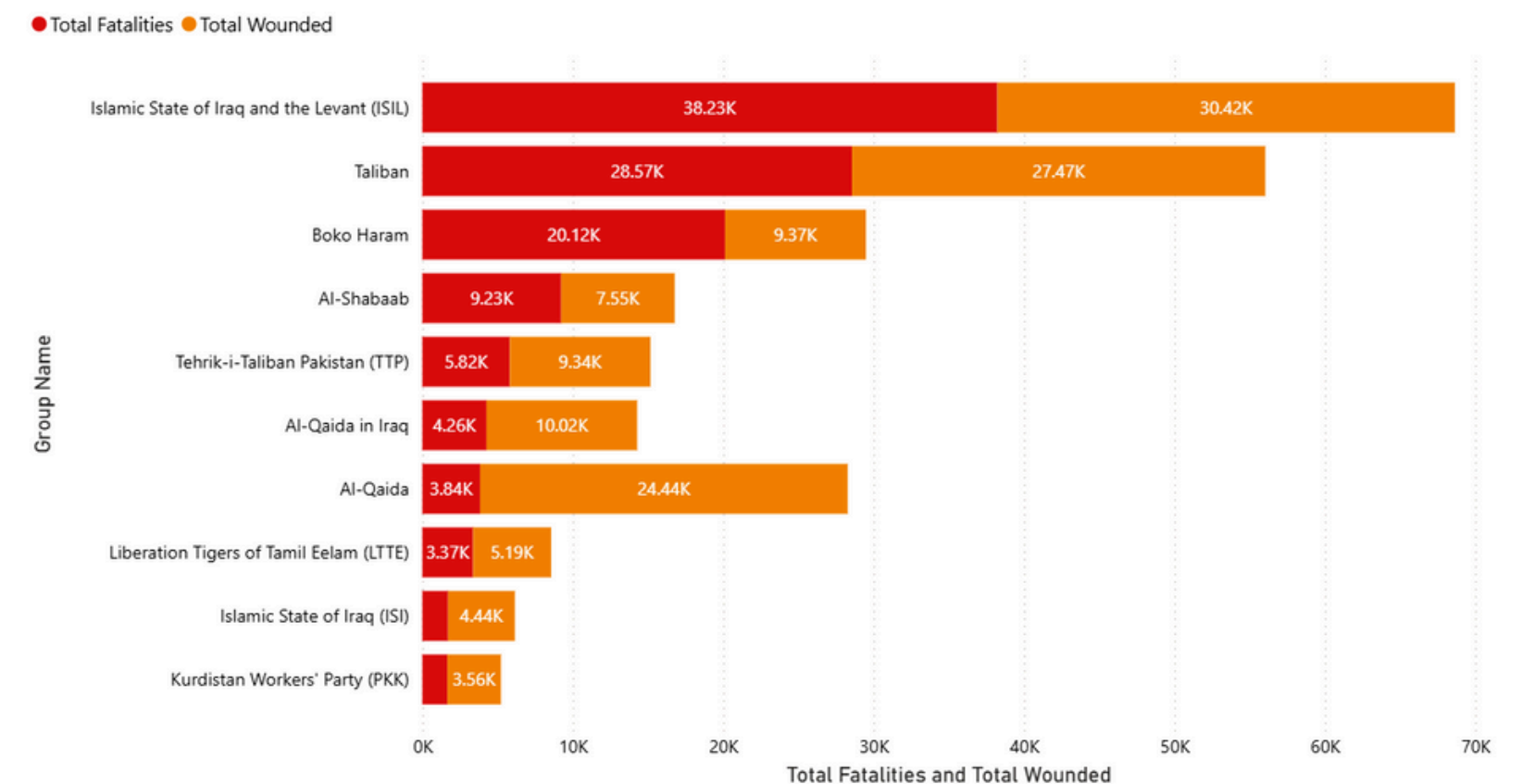
# How did top groups operate and how deadly were their tactics?

Weapon Use Over Time by Top Terror Groups (1997–2017)



- Explosives & firearms were the most common weapons, especially for ISIS, Taliban, Boko Haram.
- Some groups experimented with chemical, incendiary, and vehicle attacks (notably ISIS).

Total Fatalities and Total Wounded by Groups

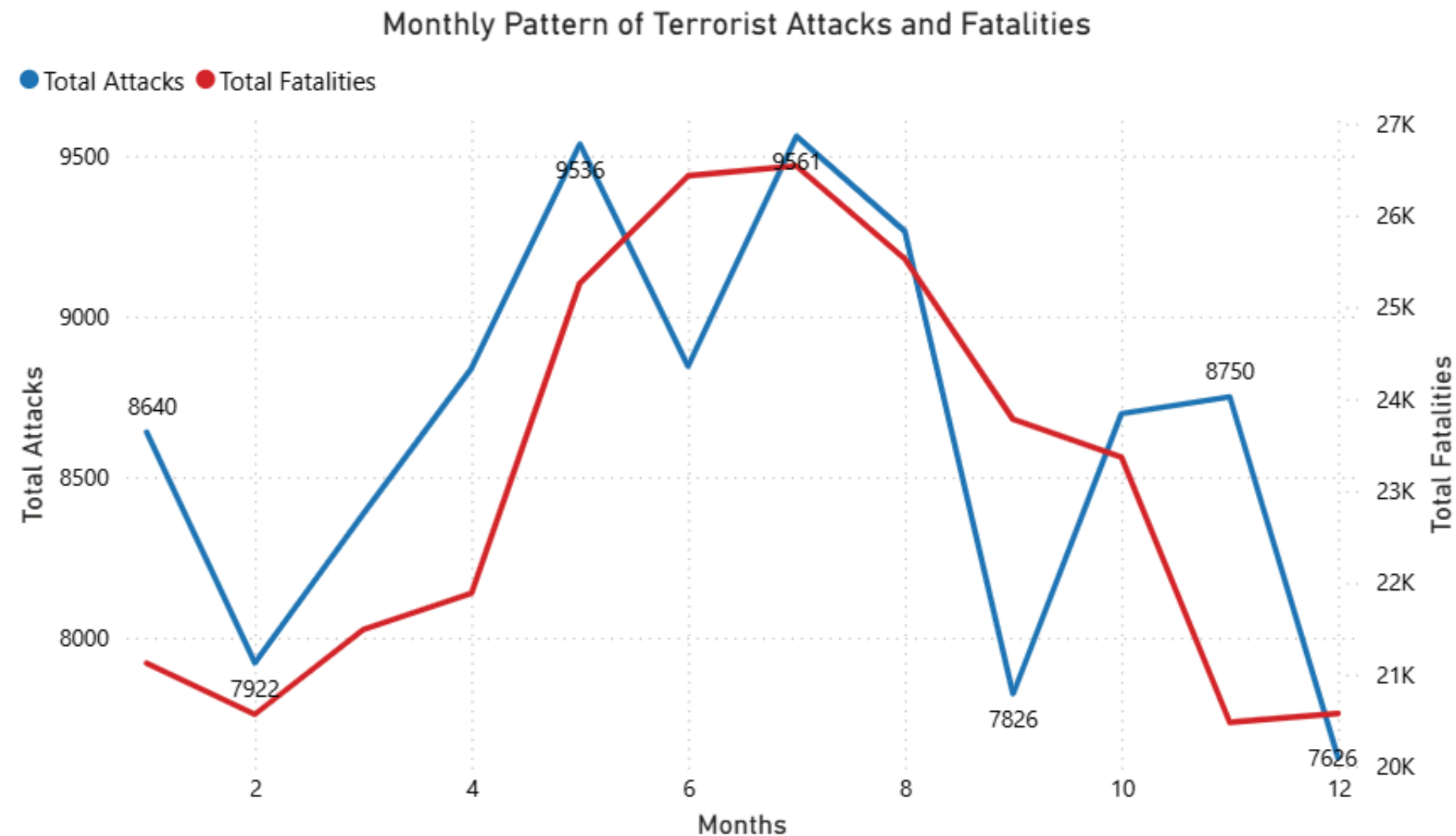


- ISIS & Taliban caused the highest number of fatalities and wounded combined (70K and 55K, respectively).
- Boko Haram was extremely lethal relative to its size, with a fatality-heavy profile.
- Smaller groups (e.g., Al-Qaida in Iraq, TTP, Al-Shabaab) still caused thousands of deaths and injuries.



# Temporal Pattern & Success Insights

# What were the seasonal patterns and surges in these attacks?



7626

Quietest Month - December

9561

Deadliest Month - July

- Terrorist activity peaks in July (9,561 attacks).
- December shows the lowest activity (7,626).
- Fatalities trend closely with incidents, suggesting intensity rises alongside frequency.

# Which days of the week are most vulnerable?

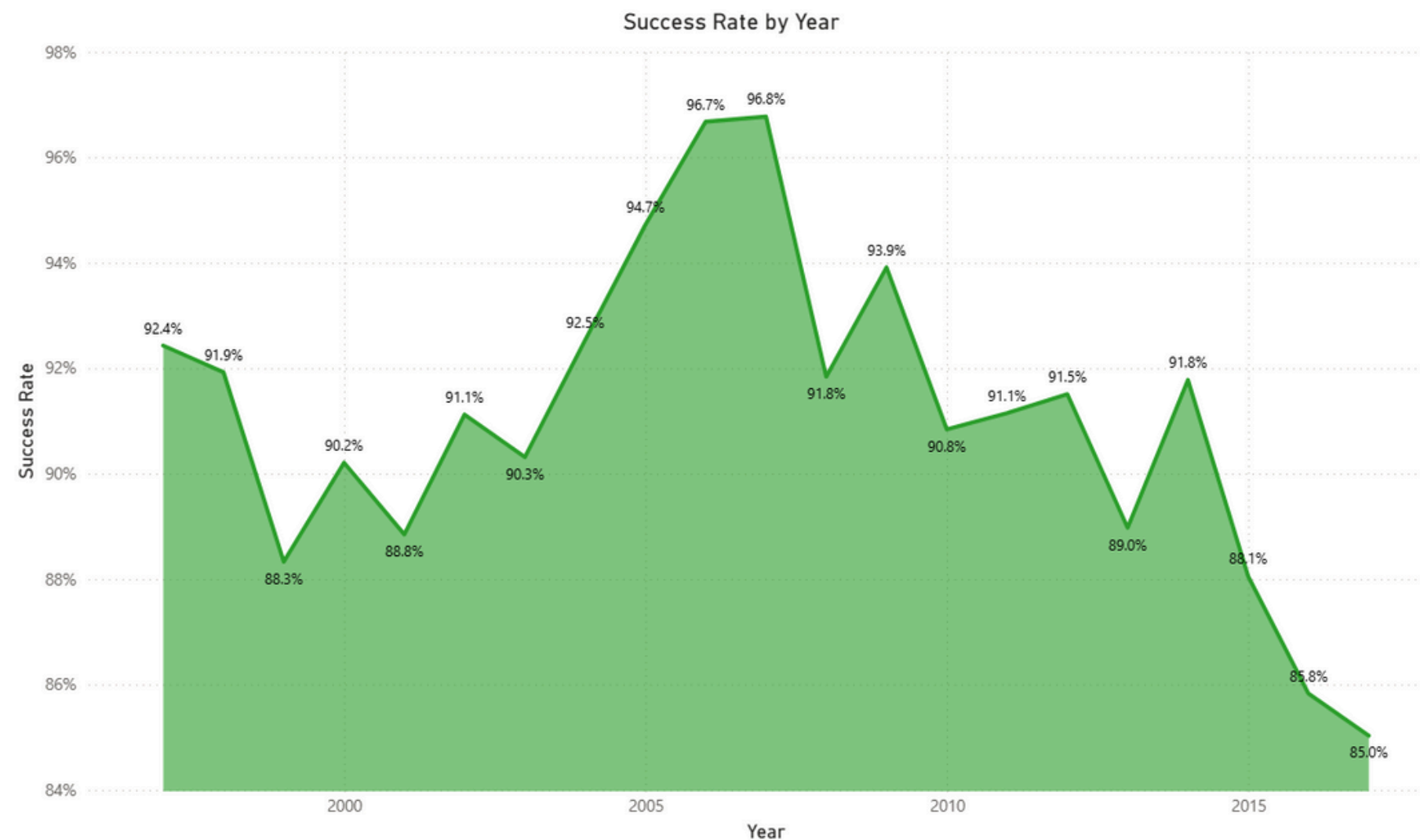
Heatmap of Attacks by Month and Day of Week

Month Name	Friday	Monday	Saturday	Sunday	Thursday	Tuesday	Wednesday
July	1382	1512	1279	1328	1345	1363	1352
May	1183	1517	1309	1392	1365	1397	1373
August	1208	1409	1249	1389	1321	1286	1403
June	1117	1379	1139	1294	1222	1322	1372
April	1128	1420	1152	1245	1275	1277	1341
November	1104	1304	1175	1383	1241	1286	1257
October	1099	1312	1185	1184	1300	1267	1350
January	1150	1295	1224	1241	1240	1275	1215
March	983	1272	1209	1212	1131	1356	1222
February	1010	1193	1054	1204	1147	1223	1091
September	985	1180	1081	1169	1031	1120	1260
December	926	1194	968	1153	1138	1156	1091

**Monday**  
Most Common Day of the Week

- Mondays record the highest attack frequency, possibly linked to work/school week starts.
- Fridays and weekends also see spikes in some months, suggesting strategic timing around gatherings.
- Seasonal weekday clustering is clear – e.g., summer months (May–July) are consistently red zones.

# How effective are terrorist operations over time?



89.93%



Success Rate

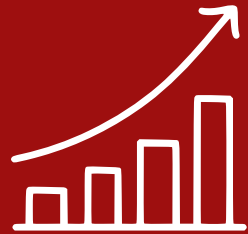
- Overall success rate is very high (90%), showing that most attacks result in considerable harm to the world.
- Peaks in mid-2000s (up to 96.8%) coincide with intensified conflicts in Iraq/Afghanistan.
- Recent declines to ~85% by 2017 show stronger counter-terrorism measures.



# Key insights from our analysis



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Terrorism in these 20 years has had an increasing trend (with deadly peaks in 2001, 2007, 2014).



Bombings and explosions account for over 51% of the incidents, making it the preferred attack type of terrorists.



Regular citizens, policemen and military folks are the primary targets of terrorists, while regular citizens suffer the most casualties.



More than half of the attacks are performed by unknown perpetrators and of the known ones, Taliban, ISIS, Boko Haram and Al-Shabab account for the most (and deadliest) attacks.



Post 2014, global terrorism has shown a steady decline, indicating the success of counter-insurgency operations (like operation Inherent Resolve), airstrikes, and other security measures taken by US and its allies.

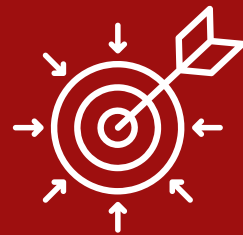
# Recommendations



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Nations and intelligence agencies must improve collaboration and sharing of counter-terrorism intel.



Region-specific surveillance must be prioritized further. stronger bomb detection protocols are needed in the MENA and south Asia region, while improved military readiness is needed for armed assaults prevalent in sub-Saharan Africa and south-east Asia.



Enhance security measures in high-density areas having more civilians, like markets, transport hubs, etc., as they are highly targeted by terrorists. The defences around police stations and military camps also require more attention due to the same fact.



Countries must continue their focus on targeting the top-terrorist groups through their military and counter-insurgency operations.



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# THANK YOU!

*The dataset used for this study was sourced from Kaggle (<https://www.kaggle.com/datasets/START-UMD/gtd>) and is maintained by the National Consortium for the Study of Terrorism and Responses to Terrorism (START) at the University of Maryland.*

*The dataset follows the Global Terrorism Database (GTD) methodology, where a single attack might be recorded as multiple instances in case it involves different locations or multiple weapon types, or other variations. Our visualizations maintain this standard as defined by START to ensure consistency and accuracy.*

*Insights on reasons behind the peaks and drops in trends were formed using articles from sources such as The Guardian, the U.S. Department of State, and other reputable publications and sources.*

*For further investigating into the data or statistics refer to the R and powerBI files which are part of this project, for the interactive visuals.*