Global Terrorism Risk & Impact Analysis (1970–2017)

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1. Infrastructure Setup

1.1 Tools and Technologies

- **Cloudera Hadoop QuickStart VM:** To host Hadoop ecosystem (HDFS, Hive).
- **Hadoop Distributed File System (HDFS)**: Used for managing ~162MB terrorism dataset.
- **Hive**: For distributed querying and processing of terrorism data using SQL-like HiveQL.
- **Power BI Desktop**: For interactive and exploratory dashboards.

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2. Hadoop & Hive Data Processing

2.1 Dataset Overview

- File Name: `GlobalTerrorismDataset.xlsx`
- Size: 162.81 MB
- Time Range: 1970 to 2017
- Records: Over 180,000 terror incidents across 205 countries

2.2 Hive Table Creation

```
CREATE DATABASE IF NOT EXISTS terrorism_db;
USE terrorism_db;

CREATE EXTERNAL TABLE global_attacks (
    eventid STRING,
    iyear INT,
    imonth INT,
    iday INT,
    country_txt STRING,
    region_txt STRING,
    provstate STRING,
    city STRING,
    success INT,
    attacktype1_txt STRING,
    targtype1_txt STRING,
    targsubtype1_txt STRING,
    weaptype1_txt STRING,
    gname STRING,
    nkill INT,
    nwound INT,
    nkillter INT,
    summary STRING
```

```
)
ROW FORMAT DELIMITED
FIELDS TERMINATED BY ','
STORED AS TEXTFILE
TBLPROPERTIES ("skip.header.line.count"="1")
LOCATION '/user/terror/global_attacks';
```

2.3 Key Hive Queries Used

```
-- Total Attacks by Year
SELECT iyear, COUNT(*) AS total_attacks
FROM global_attacks
GROUP BY iyear
ORDER BY iyear;

-- Top 10 Terrorist Groups
SELECT gname, COUNT(*) AS total_attacks
FROM global_attacks
GROUP BY gname
ORDER BY total_attacks DESC
LIMIT 10;

-- Most Common Weapon Types
SELECT weaptype1_txt, COUNT(*)
FROM global_attacks
GROUP BY weaptype1_txt
ORDER BY COUNT(*) DESC;

-- Attack Distribution by Region
SELECT region_txt, COUNT(*)
FROM global_attacks
GROUP BY region_txt;

-- Civilian Target Attacks
SELECT targtype1_txt, COUNT(*)
FROM global_attacks
WHERE targtype1_txt = 'Private Citizens & Property'
GROUP BY targtype1_txt;
```

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3. DAX Measures in Power BI

```
Total Attacks = COUNTROWS(Sheet1)

Successful Attacks =
CALCULATE(COUNTROWS(Sheet1), Sheet1[Success Rate] = 1)

Success Rate % =
DIVIDE([Successful Attacks], COUNTROWS(Sheet1), 0) * 100

Civilian Targets =
CALCULATE(
    COUNTROWS(Sheet1),
    Sheet1[Target Type] = "Private Citizens & Property"
)
```

```
Countries with Civilian Attacks =
CALCULATE(
    DISTINCTCOUNT(Sheet1[Country]),
    Sheet1[Target Type] = "Private Citizens & Property"
)

Most Affected Region =
VAR TopRegion =
    TOPN(
        1,
        SUMMARIZE(
            Sheet1,
            Sheet1[Region],
            "AttackCount", COUNTROWS(Sheet1)
        ),
        [AttackCount],
        DESC
    )
RETURN
    MAXX(TopRegion, Sheet1[Region])

Most Used Lethal Weapon =
CALCULATE(
    MAXX(
        TOPN(1, SUMMARIZE(Sheet1, Sheet1[Weapon Type], "WeaponCount",
COUNTROWS(Sheet1)), [WeaponCount]),
        Sheet1[Weapon Type]
    )
)

Most Used Weapon Type =
CALCULATE(
    MAXX(
        TOPN(1, SUMMARIZE(Sheet1, Sheet1[Weapon Type], "WeaponCount",
COUNTROWS(Sheet1)), [WeaponCount]),
        Sheet1[Weapon Type]
    )
)
```

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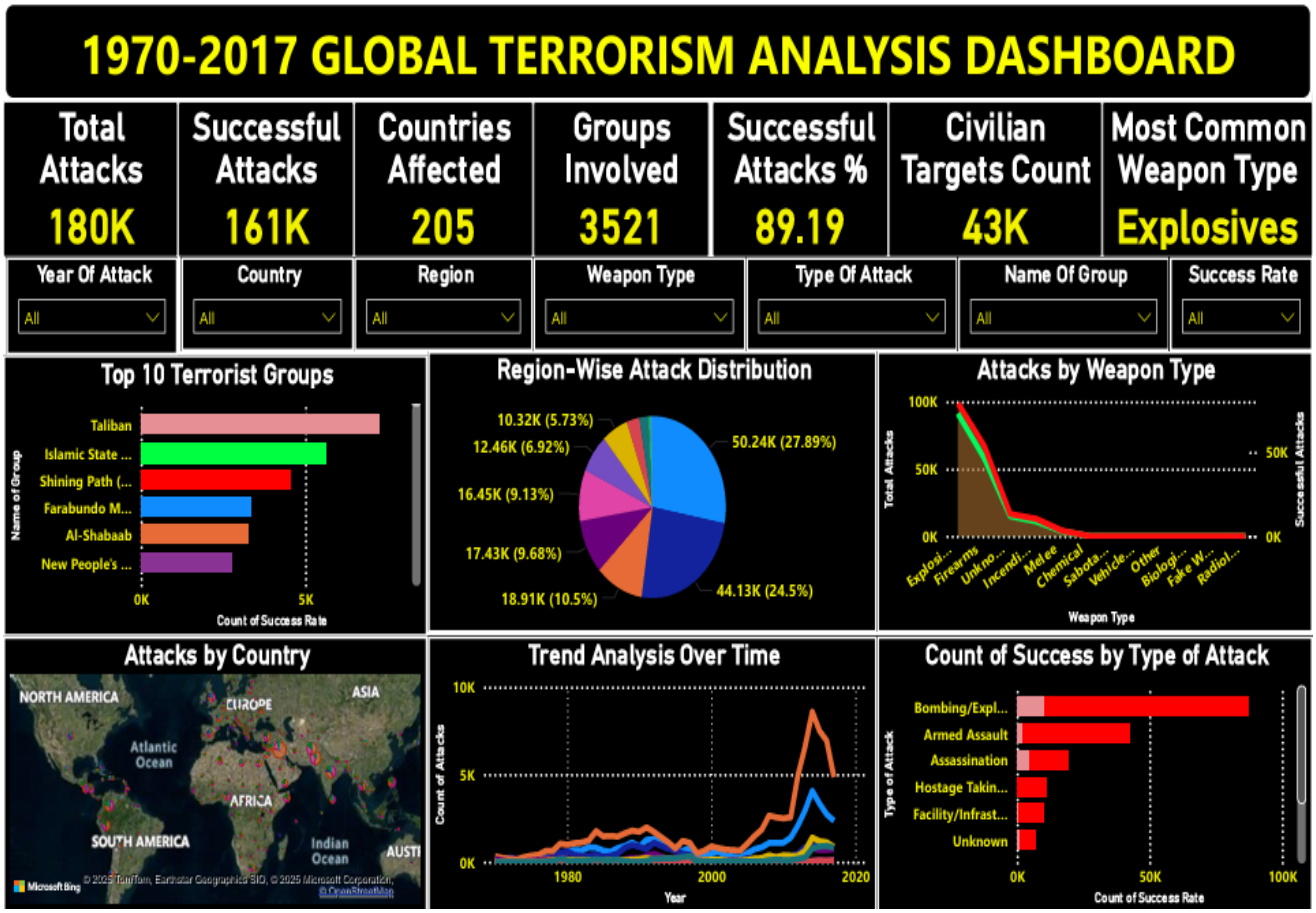
4. Dashboard 1: Global Terrorism Overview (1970–2017)

- **Total Attacks**: 180K+
- **Successful Attacks**: 161K (89.19%)
- **Countries Affected**: 205
- **Groups Involved**: 3521
- **Most Common Weapon**: Explosives
- **Civilian Target Attacks**: 43K



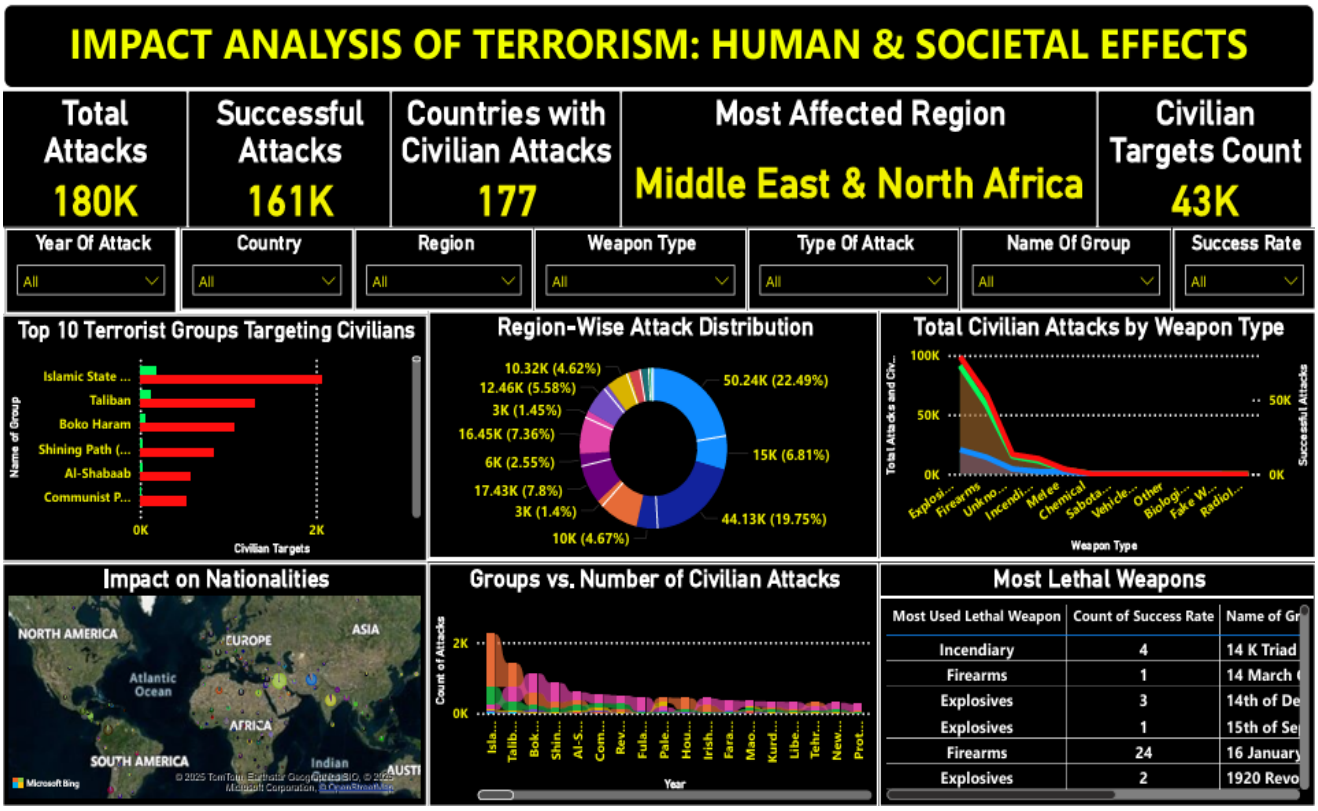
Insights:

- Terrorism activity surged from 2004–2014, peaking in 2014.
- Explosives were used in 55% of all successful attacks.
- Taliban and ISIS ranked highest in coordinated operations.
- Top affected regions: Middle East & North Africa, South Asia.

Recommendations:

1. Prioritize counter-terrorism investments in high-frequency regions.
2. Strengthen border control against explosive imports.
3. International intelligence sharing to track group evolutions.
4. Civilian protection policies in vulnerable zones.
5. Establish terrorist profiling models based on group tactics.

Dashboard 2: Human & Societal Impact of Terrorism



- **Civilian Attacks**: 43,000 across 177 countries
- **Most Affected Region**: Middle East & North Africa
- **Primary Perpetrators**: ISIS, Taliban, Boko Haram
- **Common Civilian Targeting Weapon**: Firearms & Explosives

Insights:

- Civilian attacks were most fatal in Iraq, Afghanistan, Nigeria.
- Groups like ISIS and Boko Haram explicitly targeted civilians.
- Incendiary and explosive weapons led to the highest injuries.
- Rural and ungoverned zones face higher civilian loss rates.

Recommendations:

1. Expand international humanitarian protections in active regions.
2. Deploy armed civilian defense units in rural zones.
3. Monitor chemical and incendiary weapon supplies globally.
4. Run education campaigns in extremist-prone localities.
5. Include civilian impact metrics in all military response planning.

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5. Focus Section: India-Specific Insights

Key Observations:

- **Total Attacks in India**: Approx. 11,000 (1970–2017)
- **Heavily Affected States**: Jammu & Kashmir, Chhattisgarh, Assam
- **Frequent Groups**: CPI-Maoist, Hizbul Mujahideen, ULFA
- **Most Used Weapons**: Explosives, Firearms
- **Top Targets**: Police, Civilians, Government

India-Focused Recommendations:

1. Upgrade security in Maoist insurgency zones.
2. Expand cyber intelligence programs to track separatist threats.
3. Use AI-based surveillance to monitor remote border regions.
4. Enhance education, economic inclusion in extremist-prone regions.
5. Formalize cooperation between central & state intelligence bureaus.

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6. Strategic & Global Recommendations

1. Form a global terrorism data-sharing alliance.
2. Integrate predictive analytics into international counter-terror systems.
3. Increase transparency of global weapons tracking.
4. Develop region-specific de-radicalization programs.
5. Partner with NGOs to rebuild post-conflict communities.

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7. Conclusion

The global terrorism dashboard reveals alarming geopolitical trends that demand both regional and international action. With nearly 90% success rates among over 180,000 attacks, prioritizing intelligence, defense innovation, and socio-economic interventions is critical. Hadoop and Power BI have enabled scalable insights that policymakers can use to tailor both national security and global collaboration frameworks.