

# Terrorist Attacks in Relation to the Top 10 Tourist Countries

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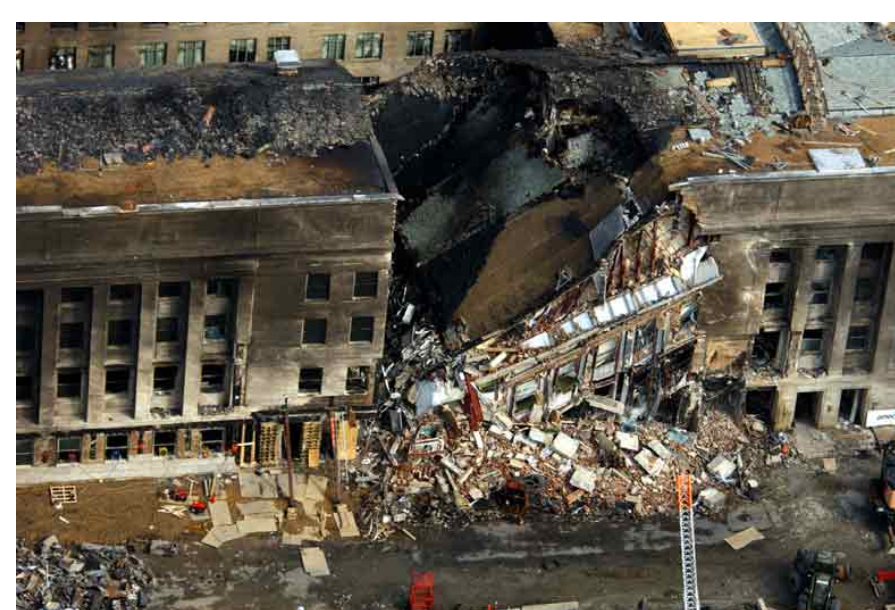
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## Introduction

- What is Terrorism?
- The impact on tourism destinations
  - Results: Jobless, homeless, depreciation
- Mentality of traveler is affected by past danger
- The effect on society?
  - Costs of flying, increase in cost in hospitality services to accommodate safety
- Tourism, a source of revenue for developing countries
- Goal?
  - Minimize fear in travelers
  - Minimize number of terrorist attacks in future

## Background Summary

Although terrorism and tourism have been studied extensively, it still remains a global issue and may cause damage to a whole country or economic status. Authors like Alexandros Paraskevas and Sevil F. Sonmez have stated that terrorism is inescapable. It's not a matter of if terrorists will attack anymore but a matter of how and when. Tourist areas are subtle targets for such attacks. With that being said, the countries have to find a way to incorporate safety management for safety of the travelers and sustainability and functionality of the country.



In another viewpoint, Z. Ismail and G. Feichtinger agree that terrorists are attracted to major cities and countries, but forecasting these events can be unpredictable, not to say that predictions cannot be made. Terrorism and tourism follow a cyclical pattern in terms of attraction, revenue, and destruction. In this pattern, there exists many uncertainties beyond the attacks that we cannot control.



In our research, we try to apply these concepts to better understand the attack trend, the attack type/target type, the terrorist network, and so on. Also, we will use time series models to do some predictions on terrorist events.

## Methods

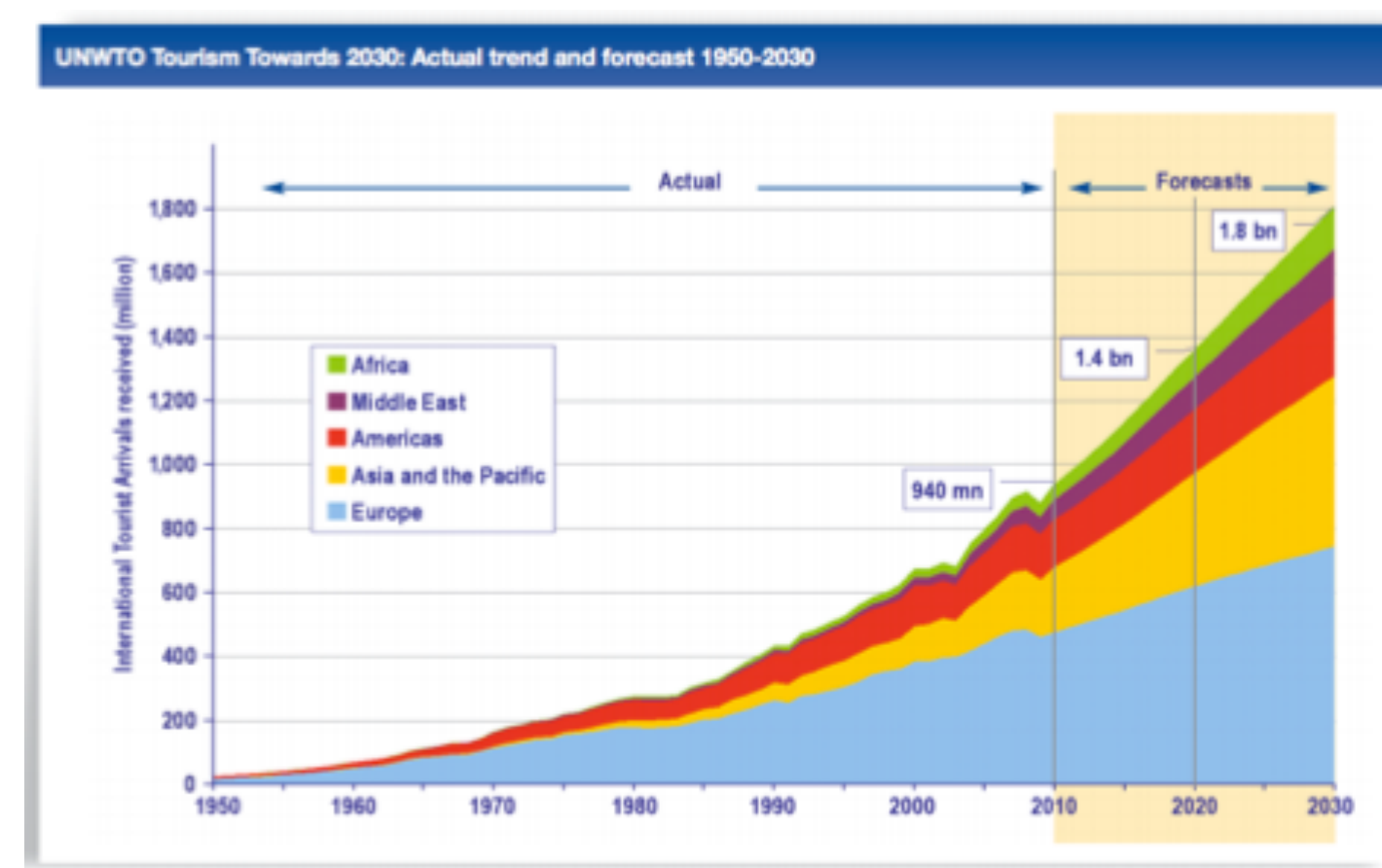
All of the data was taken from START's Global Terrorism Database (GTD) and was filtered down by place, year, number of incidents, fatalities, and wounds, group type, target type, and attack type in two different trials.

1. Filtered data by Forbes.com Top 20 Most Visited Cities in 2013 generated from MasterCard's Global Destinations Cities Index for 2013 based on expenditures.
  - Data gathered from 2000-2011, but then stretched another 10 years for a better historical understanding
  - Put through a system which returned the data to be not significant (too many zeros existed)
  - Forced to refocus idea and broaden the topic
2. Filtered data by UNWTO's (United Nation World Tourism Organization) list of the Top 10 Visited Countries in 2012.

Rank	Series	2010	2011*	Change (%)	19/09	11/10
1	France	77.1	79.5	0.5	3.0	
2	United States	59.8	62.3	8.8	4.2	
3	China	55.7	57.6	9.4	3.4	
4	Spain	52.7	55.7	1.0	7.6	
5	Italy	43.6	46.1	0.9	5.7	
6	Turkey	27.0	29.3	5.9	8.7	
7	United Kingdom	28.3	29.2	0.4	3.2	
8	Germany	26.9	28.4	10.9	5.5	
9	Malaysia	24.6	24.7	3.9	0.6	
10	Mexico	23.3	23.4	4.2	0.5	

Source: World Tourism Organization (UNWTO) ©  
 \* - percentage derived from series in US instead of local currency

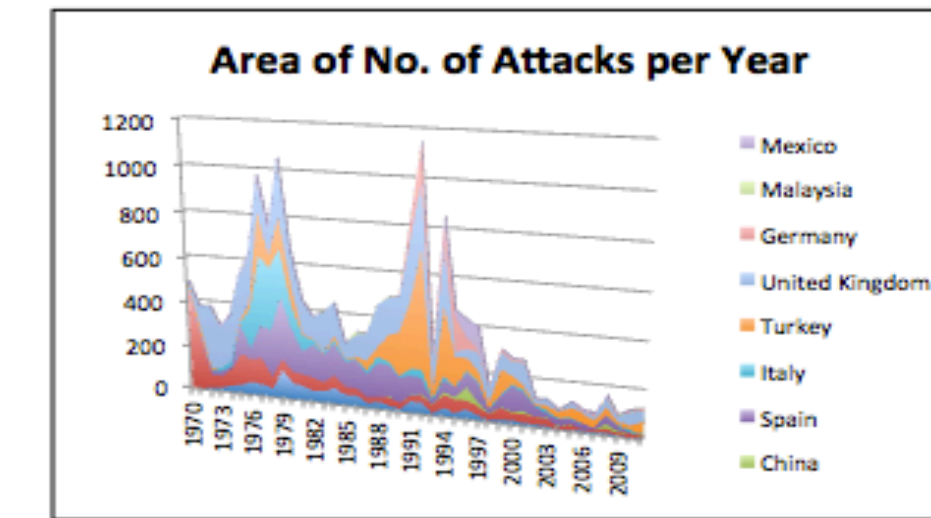
- Data collection from 1970-2011
- Filtered further by *Target Type: Tourists*
  - Of the **17,159** attacks, only **61** of those targets were tourists and were sub-grouped by Attack Types in 2 trials: Countries & Group types
- Data Analysis with charts and network graphs to observe trends and extraneous factors
- Gathered tables for specific info analysis through Minitab program
  - Generate mathematic regression models for future predictions



- Model is an example of the typical forecasting trend desirable
- Not specific to the top 10 countries
- Expected tourist arrivals should spark attention for more terrorist attacks in theory

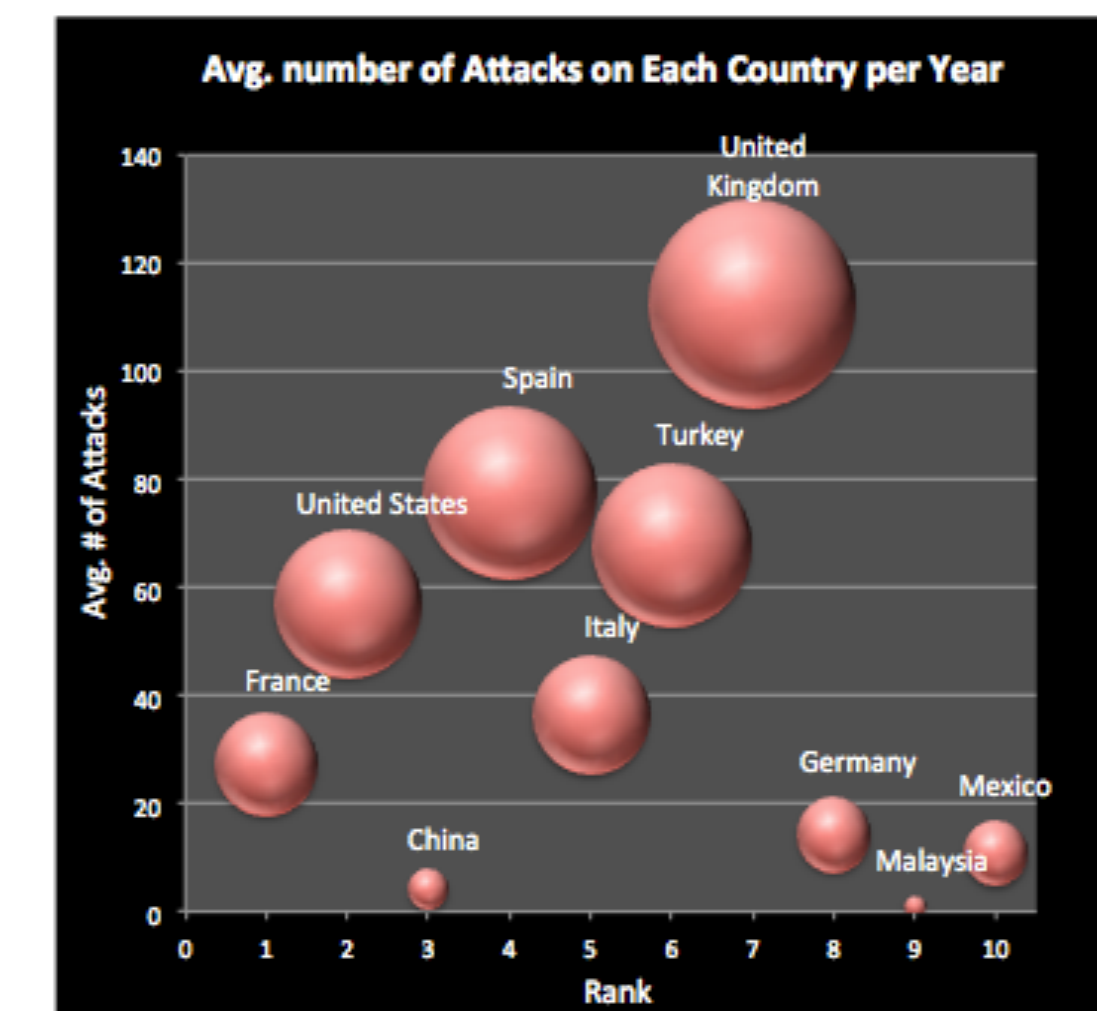
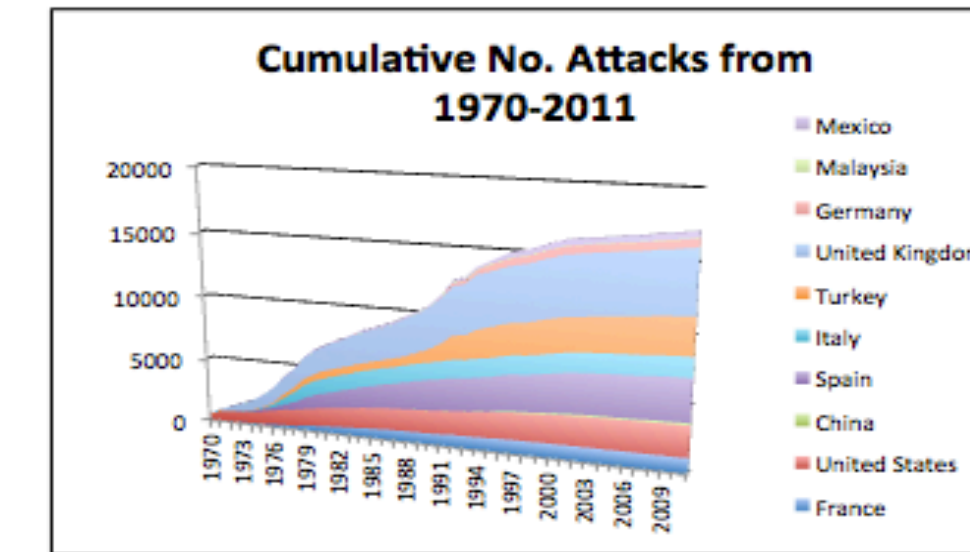
## Data Results

From the Incidents aspect, we find the following results:



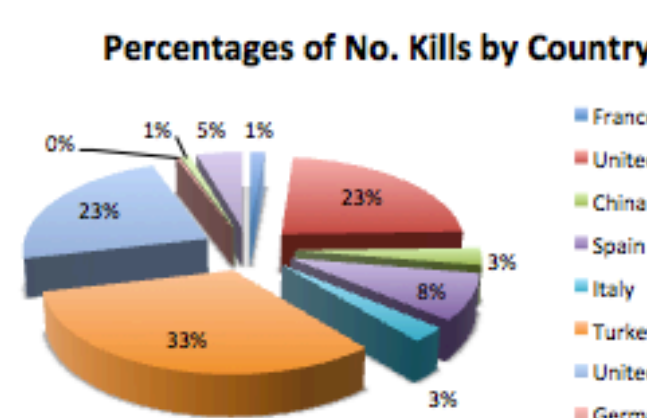
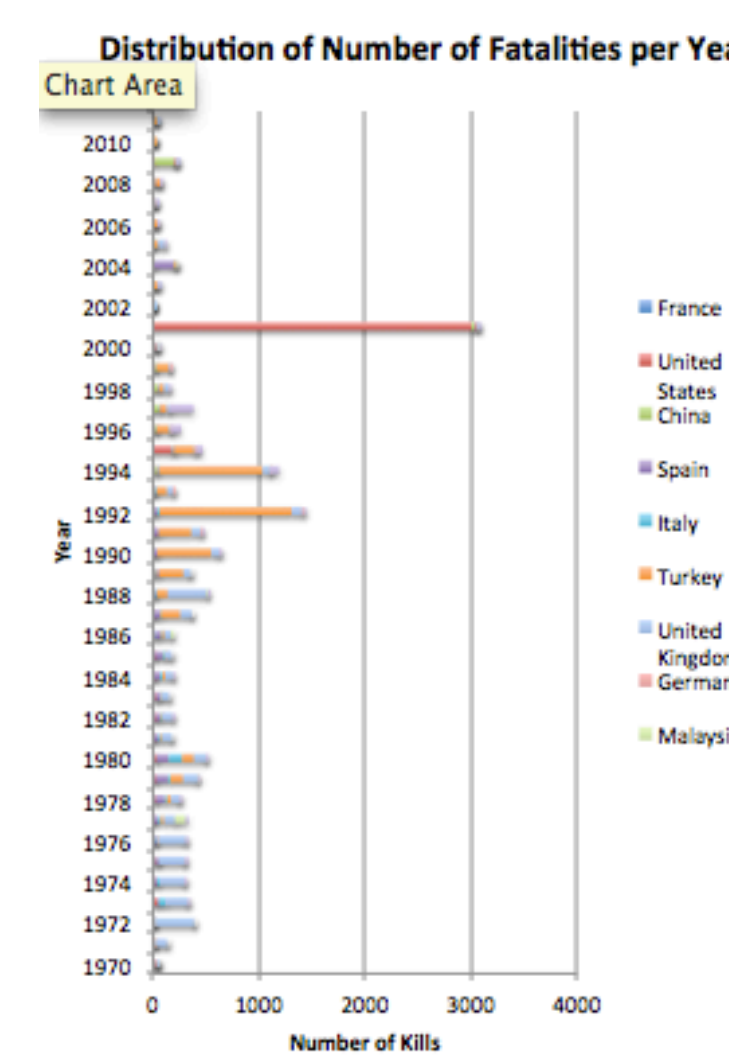
(Left) The following chart to the left shows the breakdown of the **Actual number of terrorist attacks that occurred over 1970-2011 for each country**. This graph is an area graph representing number of attacks per year in each country. This graphical model was not ideal for our forecasting approach.

(Right) The following chart to the right is a better approach and shows the **breakdown of the cumulative number of terrorist attacks that occurred over 1970-2011 for each country**. This graph represents a cumulative distribution and was used to aide the data which provided a prediction for the future of such events.



- The bubble graph to the left represents the average amount of attacks on each country per year
- Bubble is centered
- The size of the bubble represents percentage of total attacks overall
- Trends consistent throughout

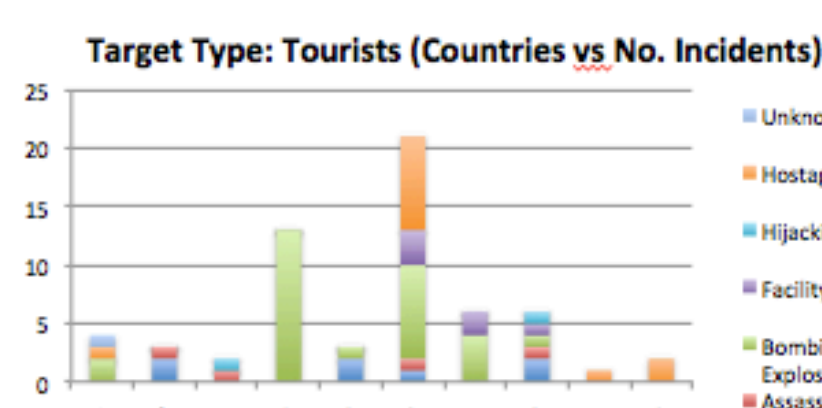
In terms of Fatalities, our results are:



(Above) The following chart to the above shows the breakdown of percentages of fatalities that occurred over 1970-2011 in each country respectively.

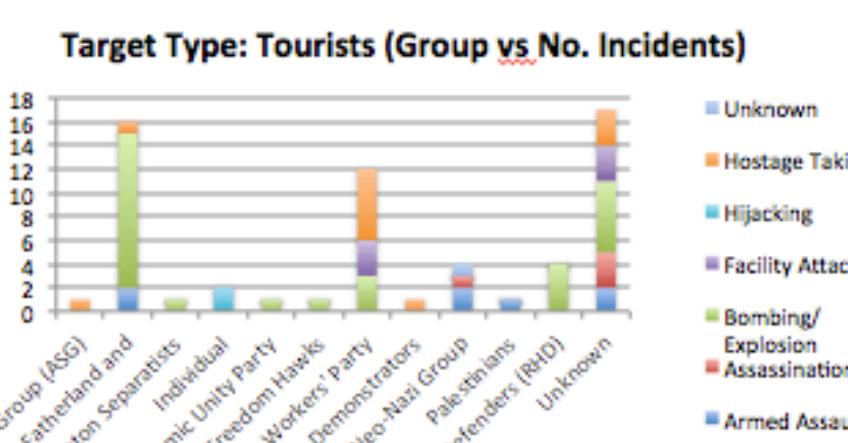
(Left) The chart to the left is a bar chart representing the amount of people killed in each country for each year.

From the perspective of attack types the interesting findings are:



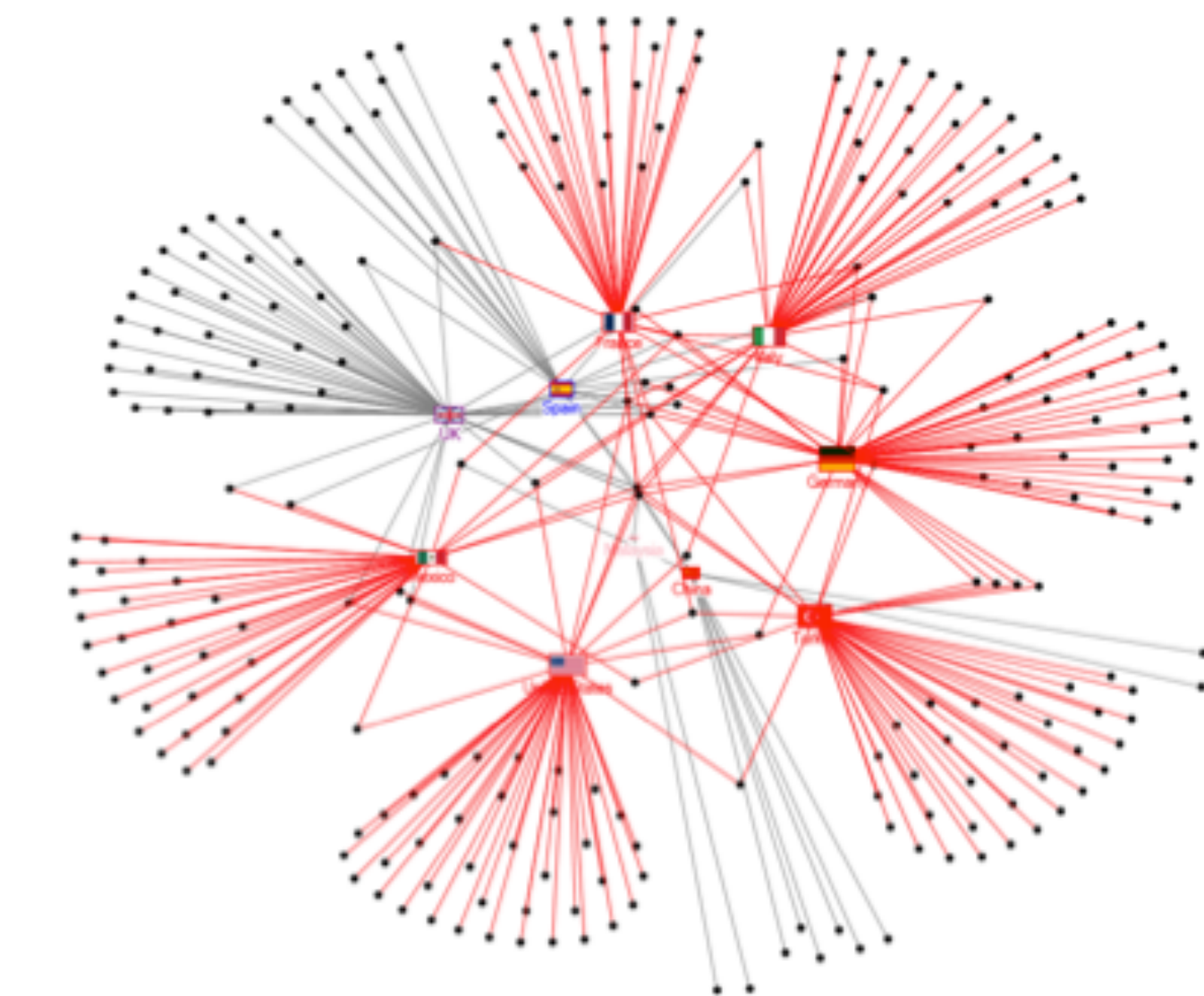
(Left) The Column graph to the left shows the breakdown of number of attack types for each country based on the target type being tourists.

(Right) The Column graph to the right shows the breakdown of number of attack types for each different group type involved based on the target type being tourists.



## Data Results

The terror network of the ten countries discovers the following diagram:



- Dots are the terrorist groups.
- From the graph we can see for each country there exists several groups that just attack that country, while a few groups will attack several countries.

## Future Work and Conclusion

- Apply methods of forecasting models
  - Towards number of attacks and fatalities for each individual country
- Use Minitab time series models to fit the trend of existing data and predict the data mathematically for future years to come
- Use diagrams similar to that of UNWTO's to show a trend and the predictions of the Top 10 countries
- Predictions will benefit the countries in preventing more terrorist attacks, thus creating safety for tourism
- Actuality of events versus predictions may not be accurate
  - External factors and uncertainties
  - Ex. One event can set off whole trend

## References

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4. Sonmez, S. F., et al. (1999). "Tourism in crisis: Managing the effects of terrorism." Journal of Travel Research 38(1): 13-18.