



# Integration of Big data and C4I systems to support Alliance against terrorism

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Ayedh Alshahrani

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# Agenda

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01

Data revolution

Slide 3 & 4

02

What is Big Data?

Slide 5, 6, & 7

03

C4i Systems

Slide 8

04

Actionable intelligence

Slide 9

05

Big data and C4i  
integration

Slide 10

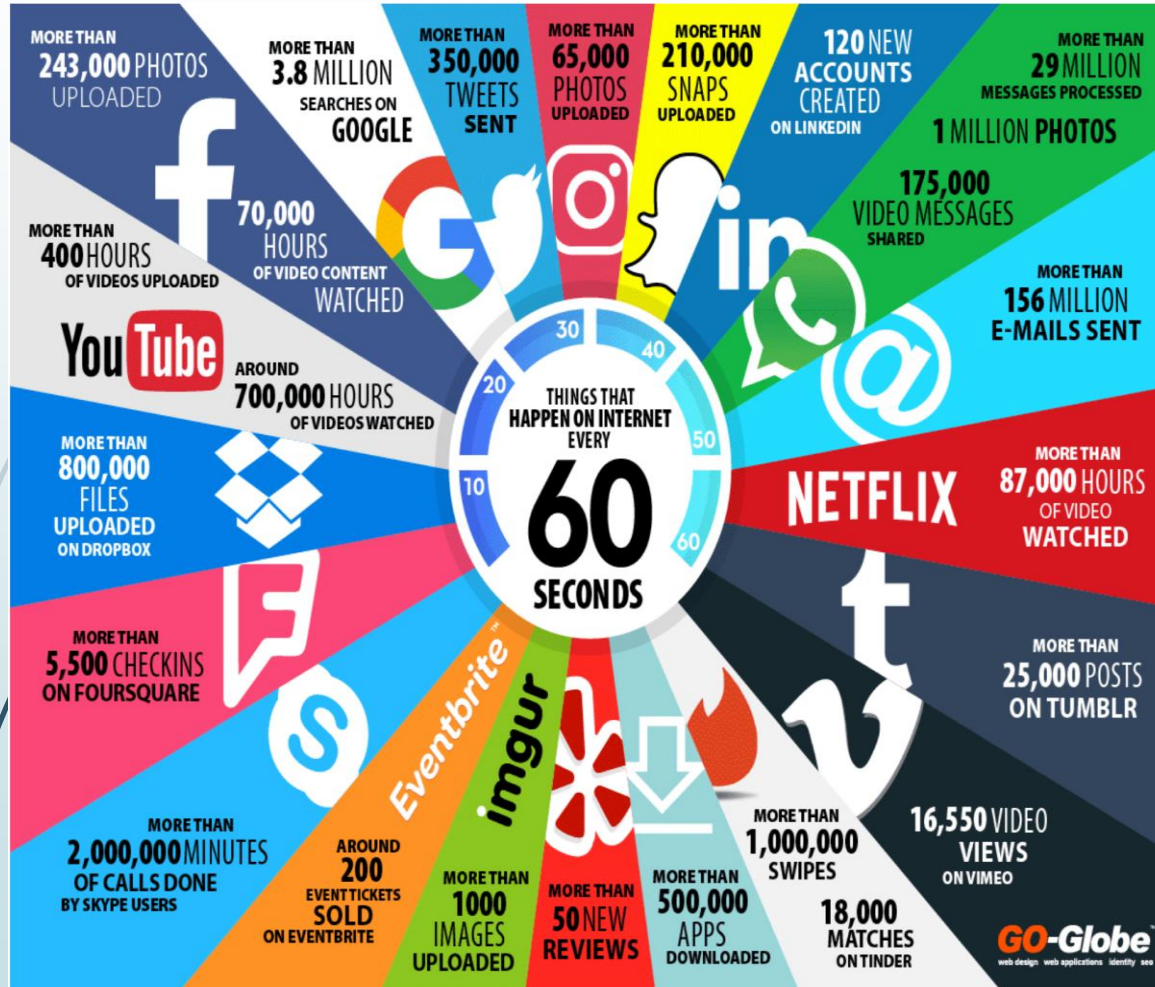
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How Big Data can support  
Alliance against terrorism

Slide 10-20

# Quick Facts about today's data

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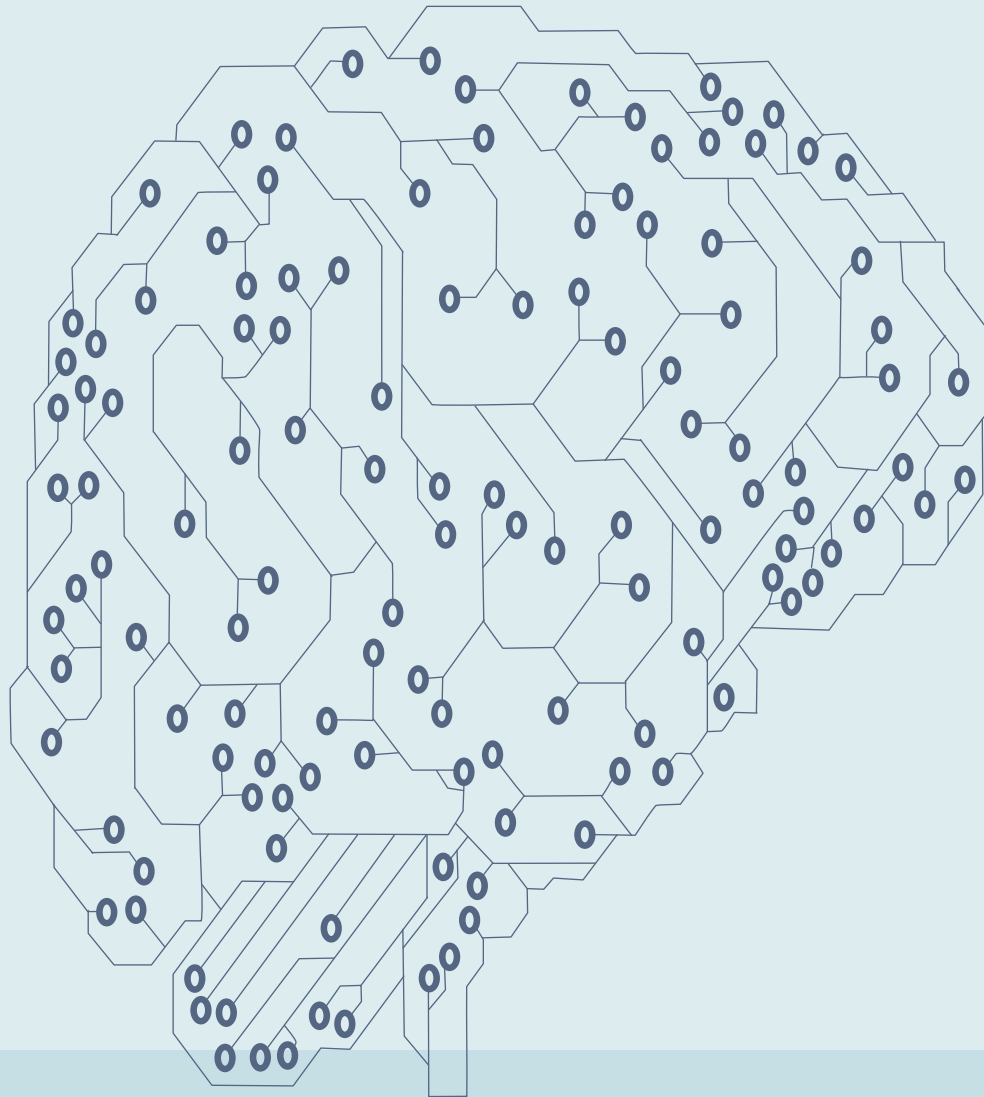
- 3.8M search on GOOGLE.
- 234K photos uploaded on Facebook.
- 400 Hours of video uploaded on YouTube.
- 29M messaged on WhatsApp.
- 210K snaps uploaded on Snapchat.

# Citizen-As-Sensor



# What is Big Data?

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## Big Data

*Big data" is high-volume, -velocity and -variety information assets that demand cost-effective, innovative forms of information processing for enhanced insight and decision making".*

*(Gartner)*

# Is the “BIG” part or the “DATA” part more important ?

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- ➡ (1) the “big” part.
- ➡ (2) the “data” part.
- ➡ (3) both.
- ➡ (4) neither.

# What organizations do with BIG DATA is what is most important.

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The analysis your organization does against big data combined with the actions that are taken to improve your business are what matters.

# Command, Control, Communication, Computing, and Intelligence (C4i)

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**C4i systems** are concerned with gathering, retrieving, analyzing, and disseminating time-sensitive information to achieve mission-critical objectives. (Gorge Masson)

**C4i is about supporting decision making in various domains:**

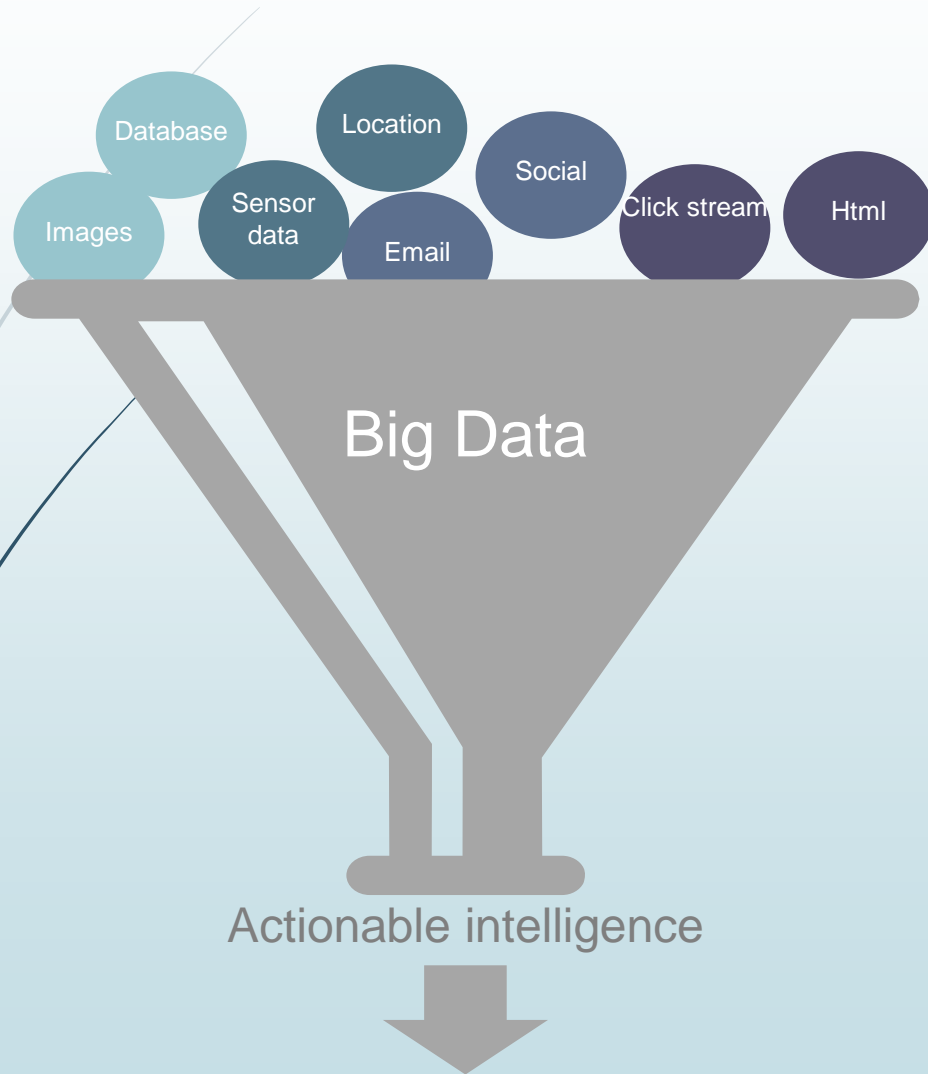
- Military operations.
- Intelligence operations.
- Transportation monitoring.
- Emergency response.
- Others





# Actionable Intelligence

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# BIG DATA can integrate and support C4i in different layers

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## Example

How Big Data can support Alliance against terrorism?

# Virtual C4i for the entire world.

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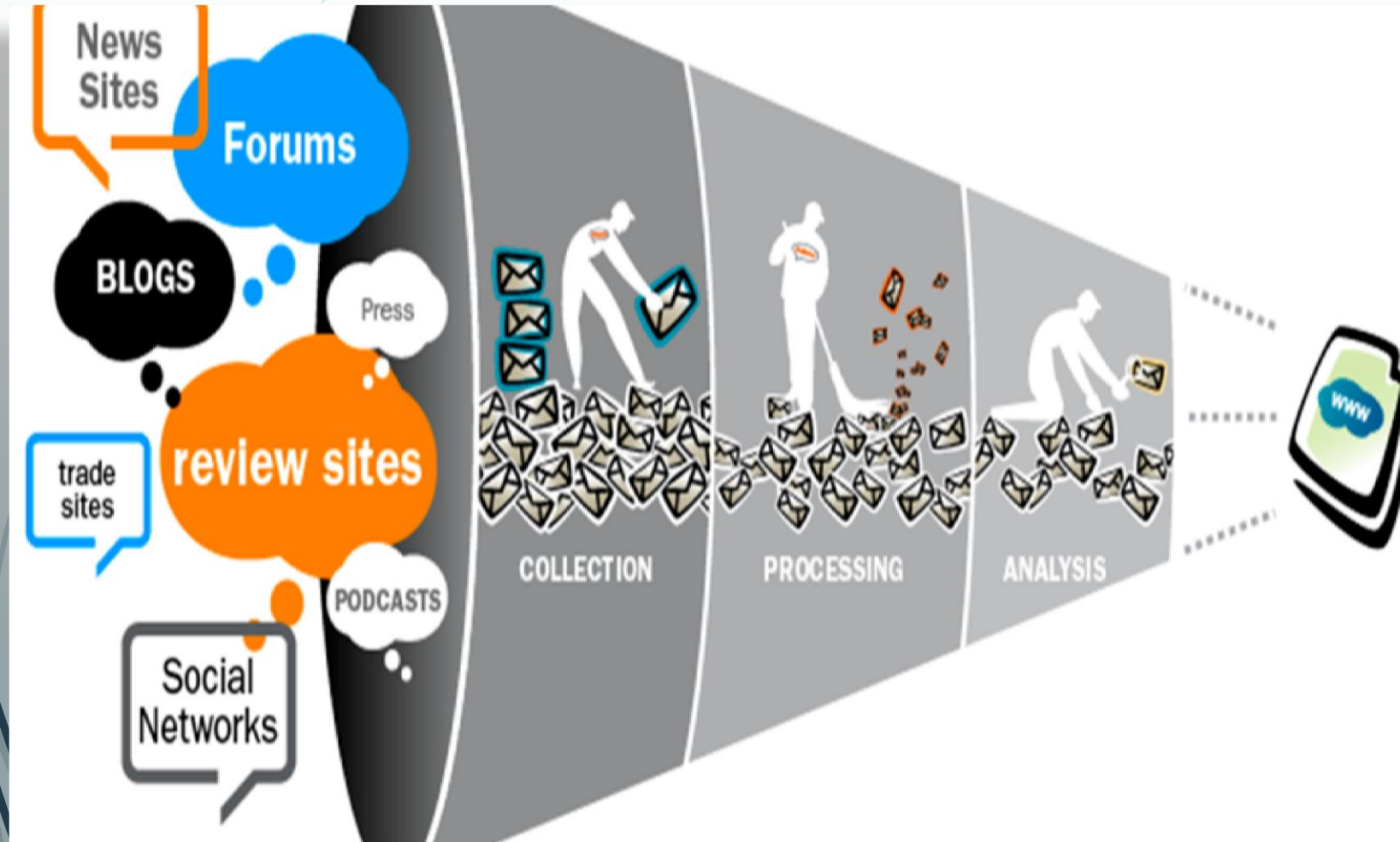


The Internet is now the default Command and Control, Communications, Computing, and Intelligence (C4i) architecture for virtually the entire world.

(Handbook of Intelligence Studies Book, 2006)

# Open Source Intelligence (OSINT)

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Open Source Intelligence (**OSINT**) is intelligence collected from publicly available sources.

# Global Terrorism Database – Open Source Data

## 170,000 cases (1970-2016)

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https://www.start.umd.edu/gtd/about/ | سن



GLOBAL TERRORISM DATABASE

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ABOUT GTD

**Overview**

**History**

**GTD Team**

**GTD In The News**

## Overview of the GTD

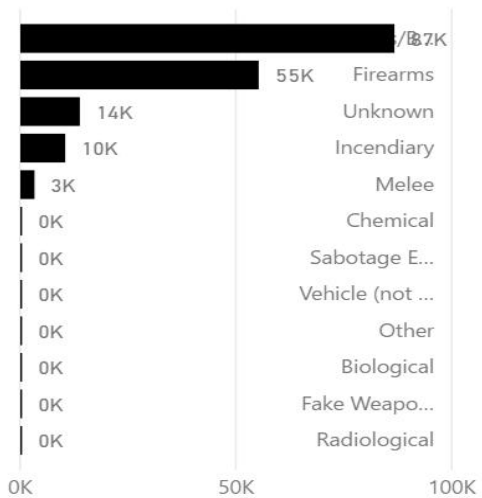
The Global Terrorism Database (GTD) is an open-source database including information on terrorist events around the world from 1970 through 2016 (with additional annual updates planned for the future). Unlike many other event databases, the GTD includes systematic data on domestic as well as transnational and international terrorist incidents that have occurred during this time period and now includes more than 170,000 cases. For each GTD incident, information is available on the date and location of the incident, the weapons used and nature of the target, the number of casualties, and--when identifiable--the group or individual responsible.

Statistical information contained in the Global Terrorism Database is based on reports from a variety of open media sources. Information is not added to the GTD unless and until we have determined the sources are credible. Users should not infer any additional actions or results beyond what is presented in a GTD entry and specifically, users should not infer an individual associated with a particular incident was tried and convicted of terrorism or any other criminal offense. If new documentation about an event becomes available, an entry may be modified, as necessary and appropriate.

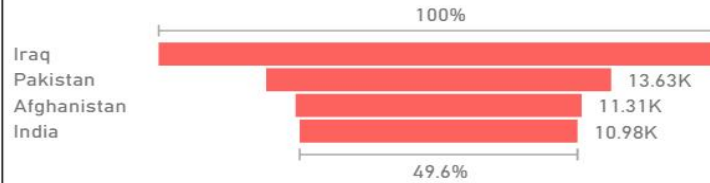
# Quick analysis of GTD

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## Weapon Type



## Top 4 countries



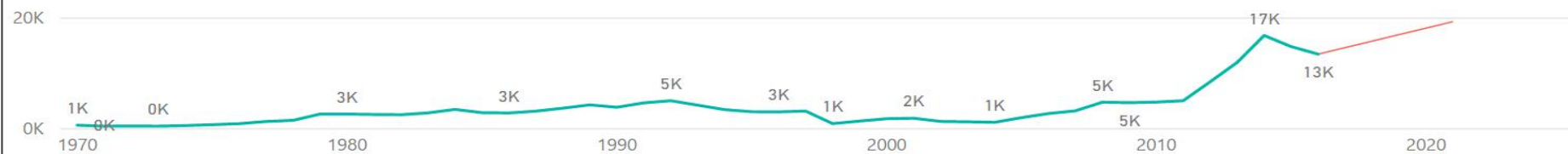
## Avg no of killed/case

2.25

## Number of Cases

170350

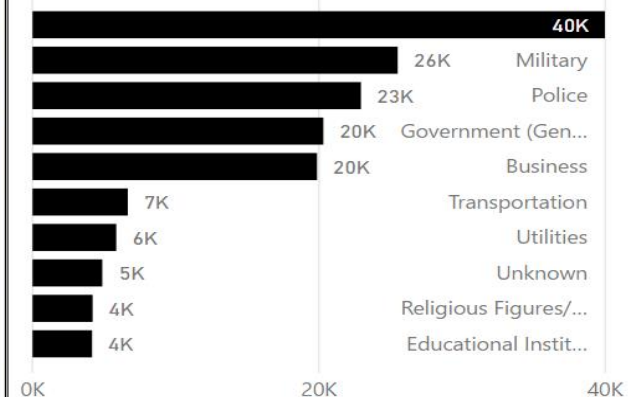
## Events over years



## Events map



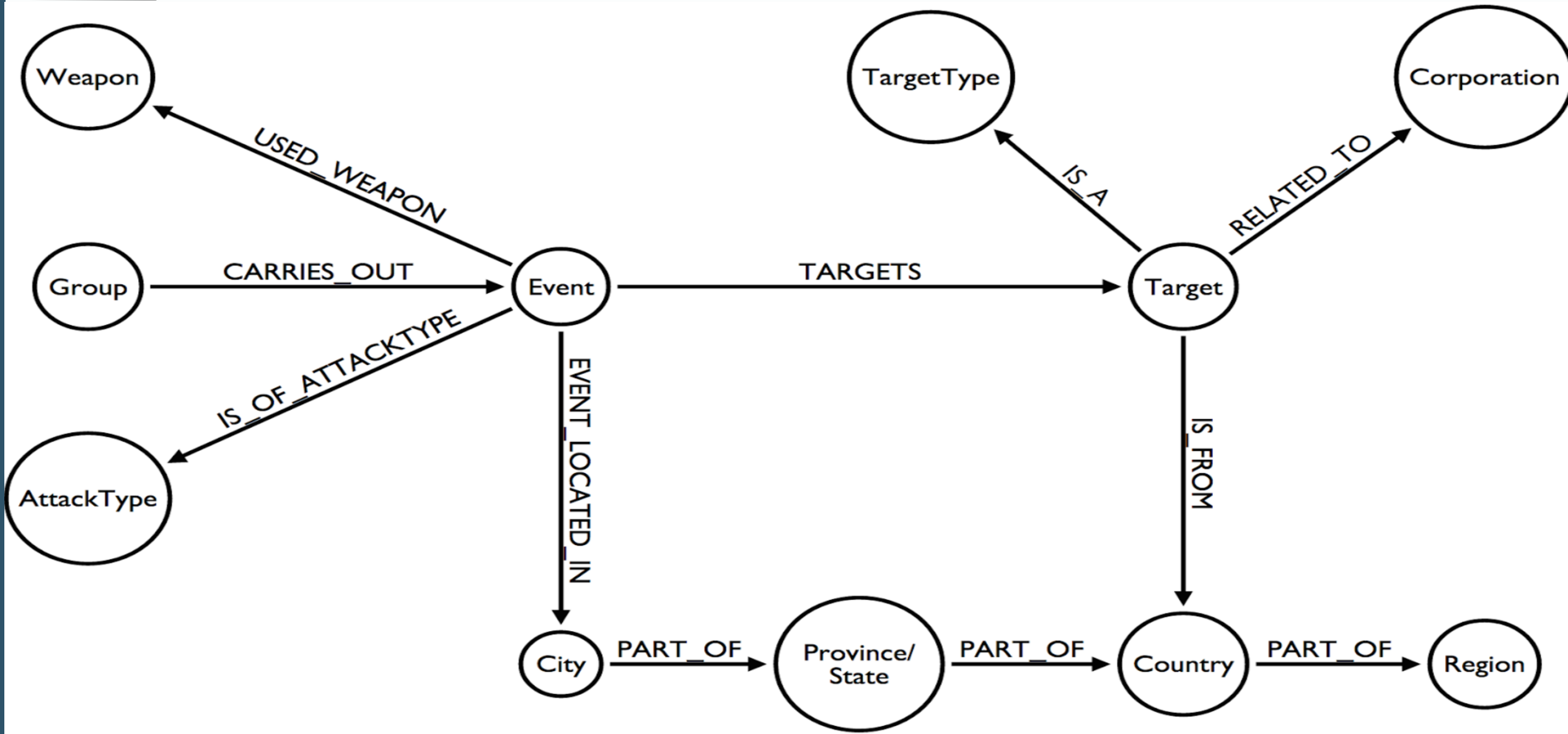
## Target type



# Case Management Graph

## Person-Object-Location-Event relationships

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# Case Management Graph

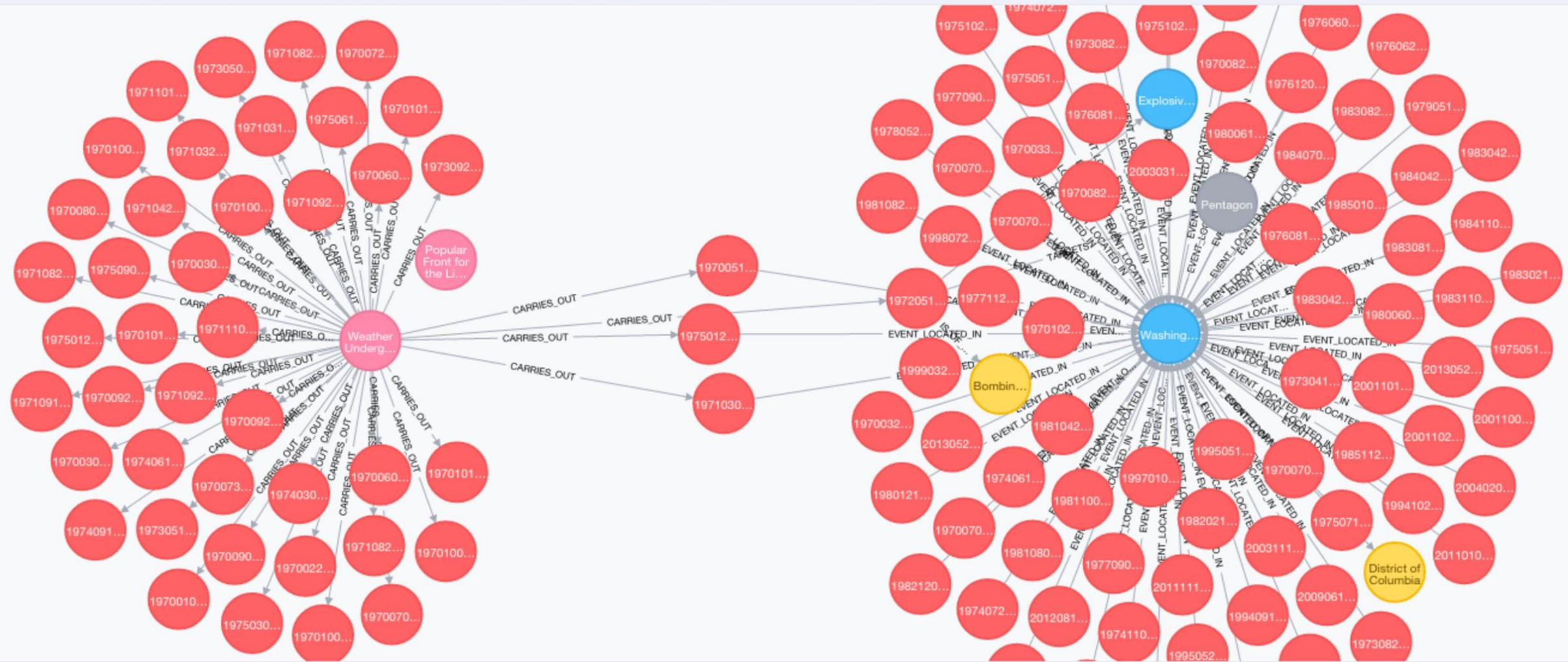
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designed by Rik Van Bruggen. [@rvanbruggen](#)

\$ MATCH (n:Group) RETURN n LIMIT 25

\*(154) **AttackType(1)** **City(1)** **Event(124)** **Group(25)** **ProvState(1)** **Target(1)** **Weapon(1)**

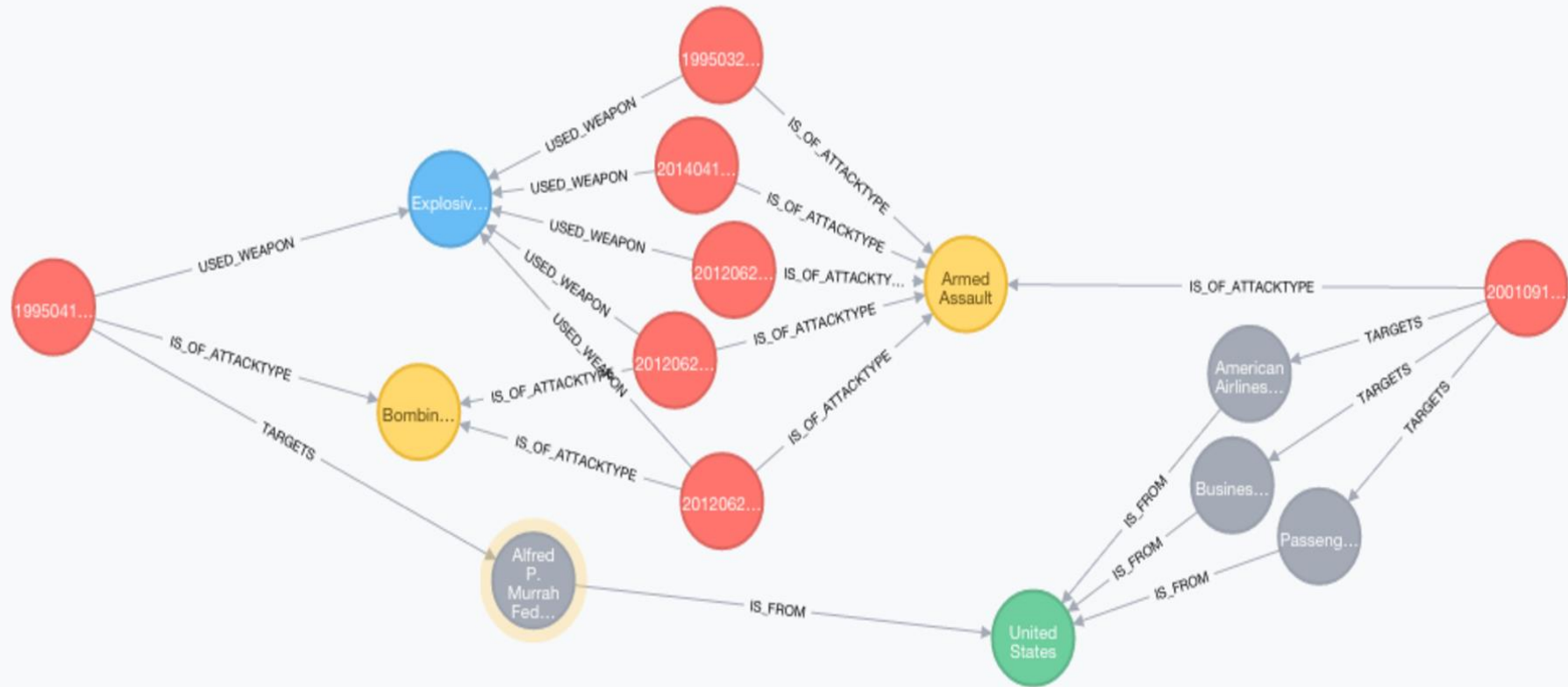
\*(132) **CARRIES\_OUT(45)** **EVENT\_LOCATED\_IN(83)** **IS\_OF\_ATTACKTYPE(1)** **PART\_OF(1)** **TARGETS(1)** **USED\_WEAPON(1)**



# Case Management Graph

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interesting view and a number of "suggested" links between different events



# Case Management Graph

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- Predict number of fatalities in an attack.
- Predict the terrorist group.
- Predicting the number of attacks per country.
- How terrorist group communicate over the internet



Thank you

