

The Annual Analytics Summit 2018
The Operational Research Society

How AI is Driving Innovation in IBM A personal View

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MIT Sloan Fellow

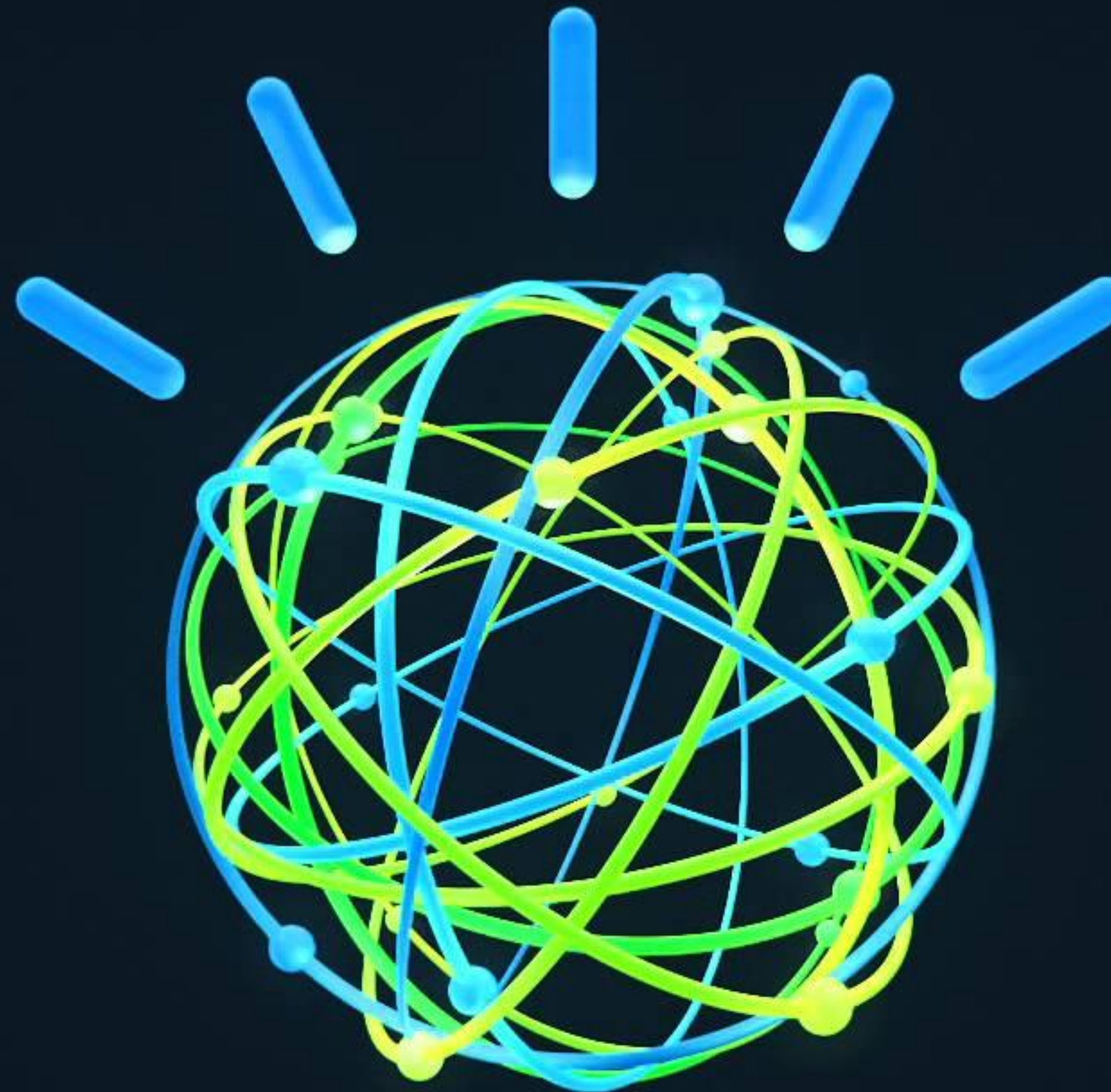
Lead Data Scientist, Office of GM
IBM IGF, Client Financing

Armonk New York

Tom Ward

IBM Supply Chain Watson Leader

Armonk New York



BEYOND “IMAGE CAPTIONING ACCURACY”



“A blue boat is sitting on the side of a building”



“A green bird sitting on top of a bowl”



“A woman sitting on a table with a giraffe”

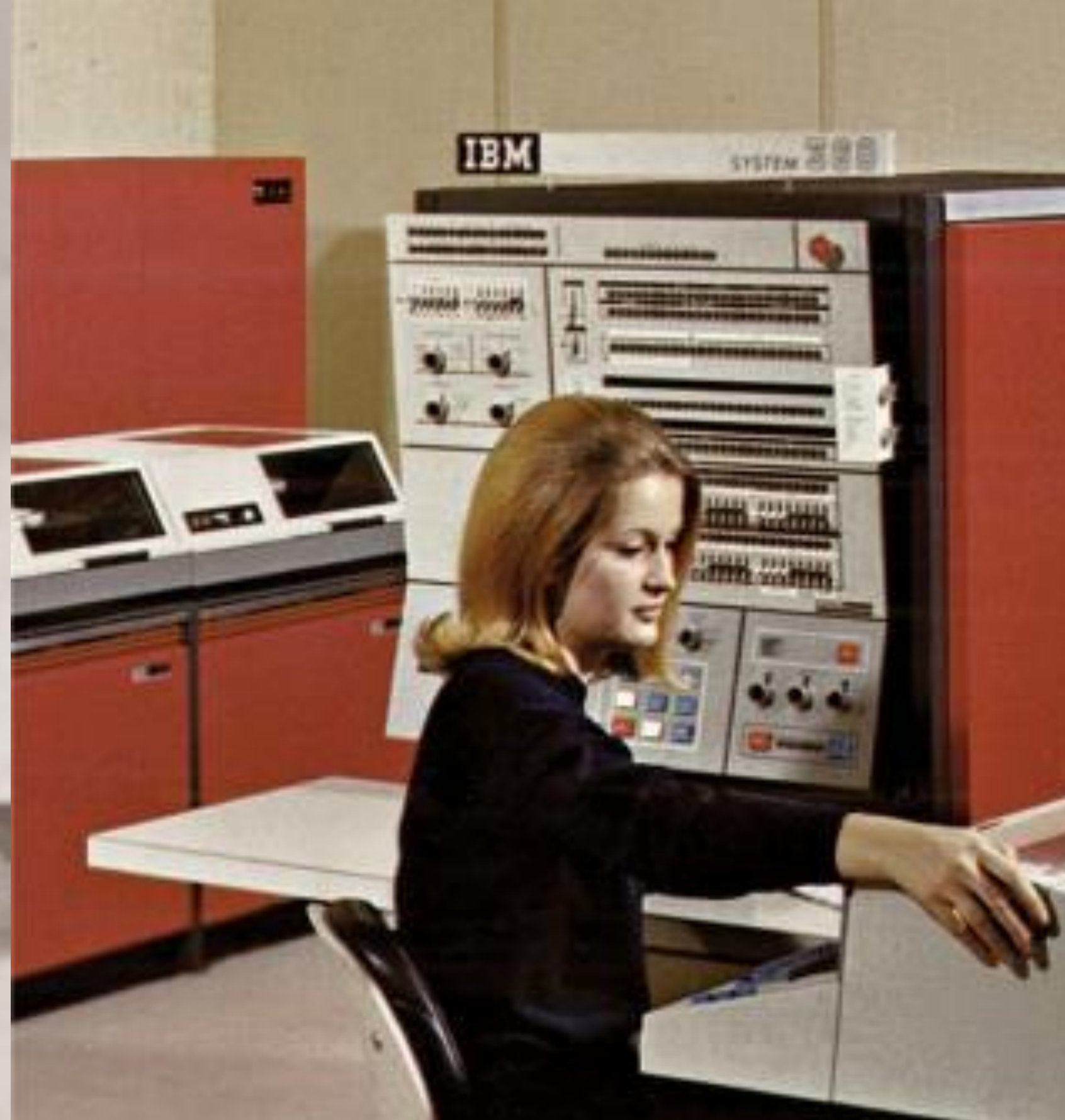
AI = Artificial Intelligence, IBM view: Augmented Intelligence

- AI is spreading everywhere across technology platforms:
 - Enterprise Software
 - Cloud and
 - Big Data
- In the forms of: natural language understanding, vision systems, security and risk systems, facial and speech recognition, health care, just to name a few
- Enterprises are viewing AI as the new competitive advantage
- AI leadership is becoming a national competitiveness issue for the US, China, UK France, Germany and Russia.
- What does AI mean for you, your clients and your jobs?
 - A personal reflection of what that means for IBM
 - The IBM I joined approximately 20 years ago
 - How it has shifted its business model to leverage the disruptive effects of AI, Big Data and Cloud
 - Help us understand “why the elephant is still dancing” and disrupting?



Tabulating Systems Era

1900 – 1940s



Programmable Systems Era

1950s – Present



Cognitive Computing Era = AI

2011 –

IBM's **history of AI leadership** and my career experience

1968, 2001: A Space Odyssey



Youth in London

1997: Deep Blue



2002: Imperial College PhD

2011: Jeopardy!



2009: MIT Sloane MBA

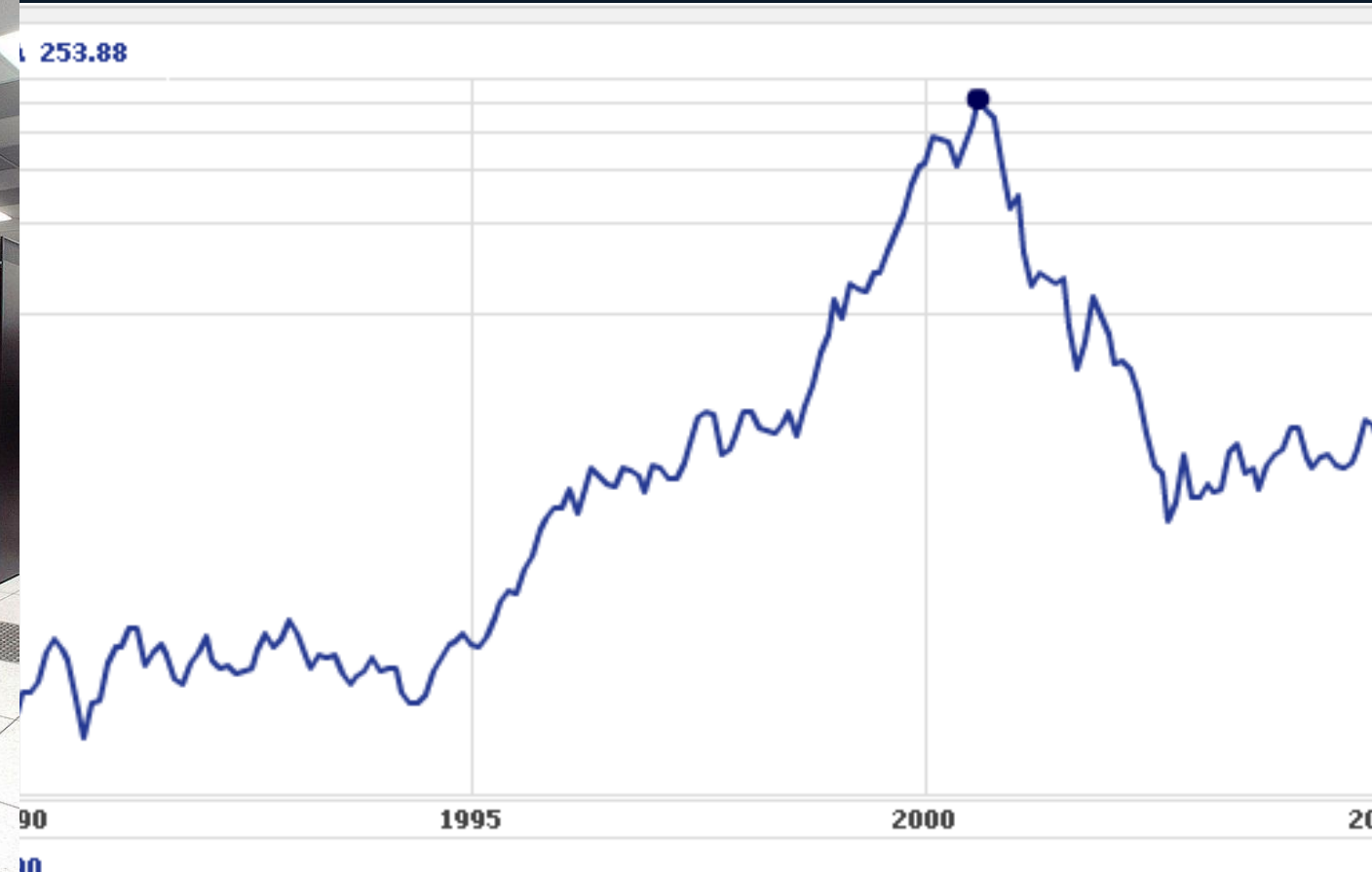
2018: Open Tech, AI and emerging standards



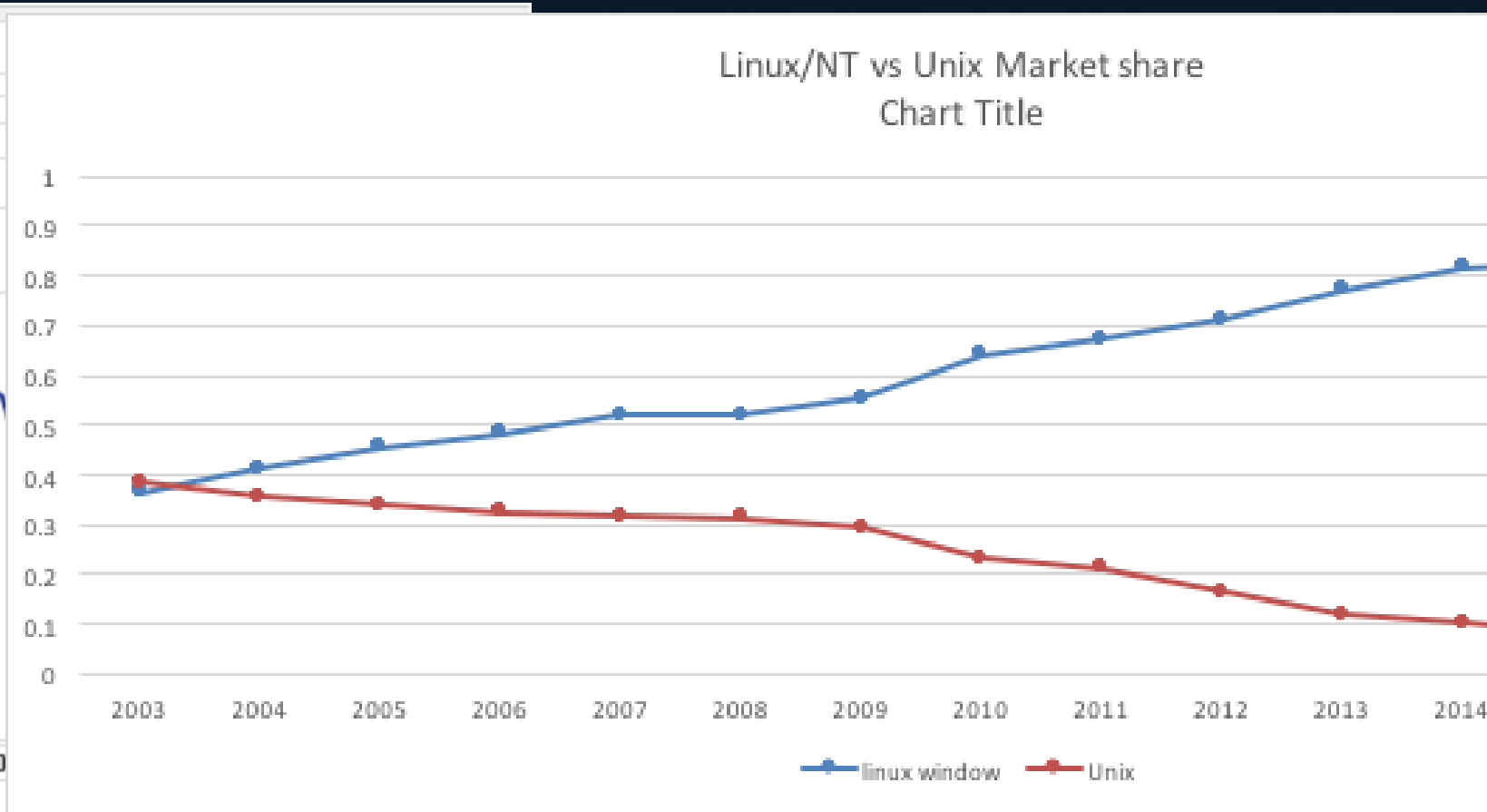
Today: IGF Machine Learning



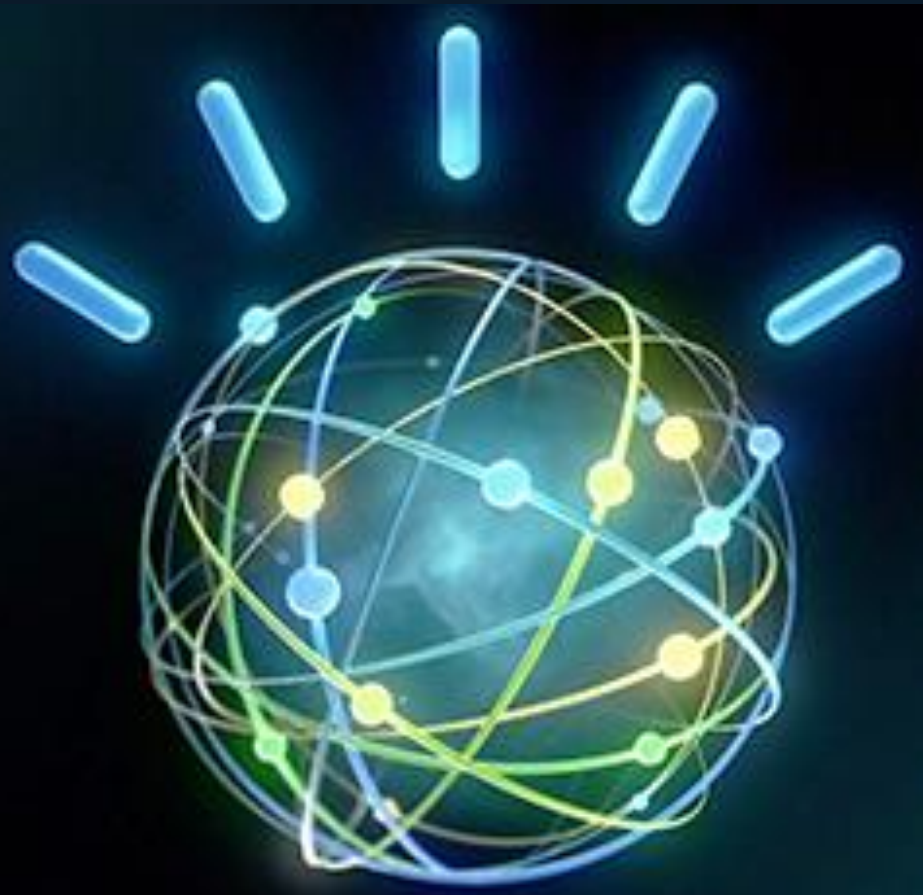
2000: Joined IBM HPC dream team ASCI Purple & Blue Gene



2005: Model Predicted Sun Micro-systems would fall



2010: Impact of Linux vs Intel X86 on UNIX markets



2015: shift to cognitive on cloud

The Startup Enterprise



Joe Gebbia, Airbnb,
Age: 33. \$3 billion



Brian Chesky, Airbnb
Age: 32. \$3 billion



Nathan Blecharczyk, Airbnb
Age: 33. \$3 billion



Jackie Ma, Alibaba



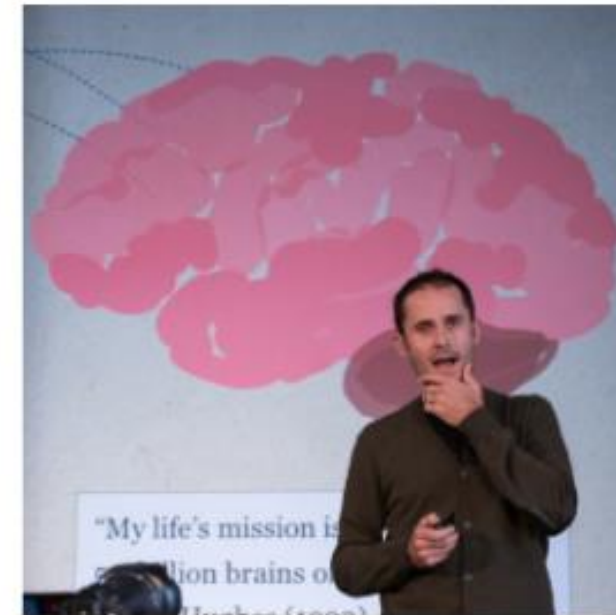
Jack Dorsey,
Twitter-Square,
Age: 40 \$1.2 billion



Dustin Moskovitz, Facebook -
Asana, Age: 31. \$9 billion



Mark Zuckerberg, Facebook,
Age: 31. \$46 billion



Evan Williams, Twitter -
Medium, Age: 44. \$1.7 billion



Pony Ma, Tencent



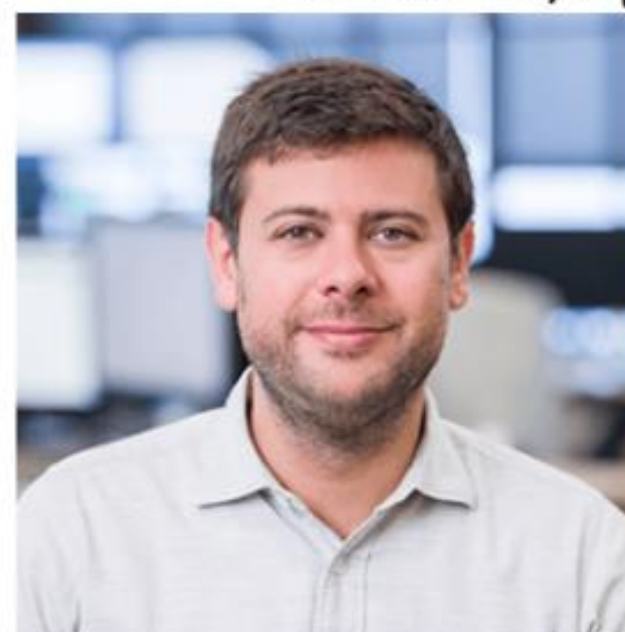
Pinterest,
Age: 34. \$1.6 billion



Scott Heiferman, Meetup



Dropbox,
Age: 33. \$1 billion



Eliot Horowitz, MongoDB



DJI,
Age: 36.
\$3.6 billion

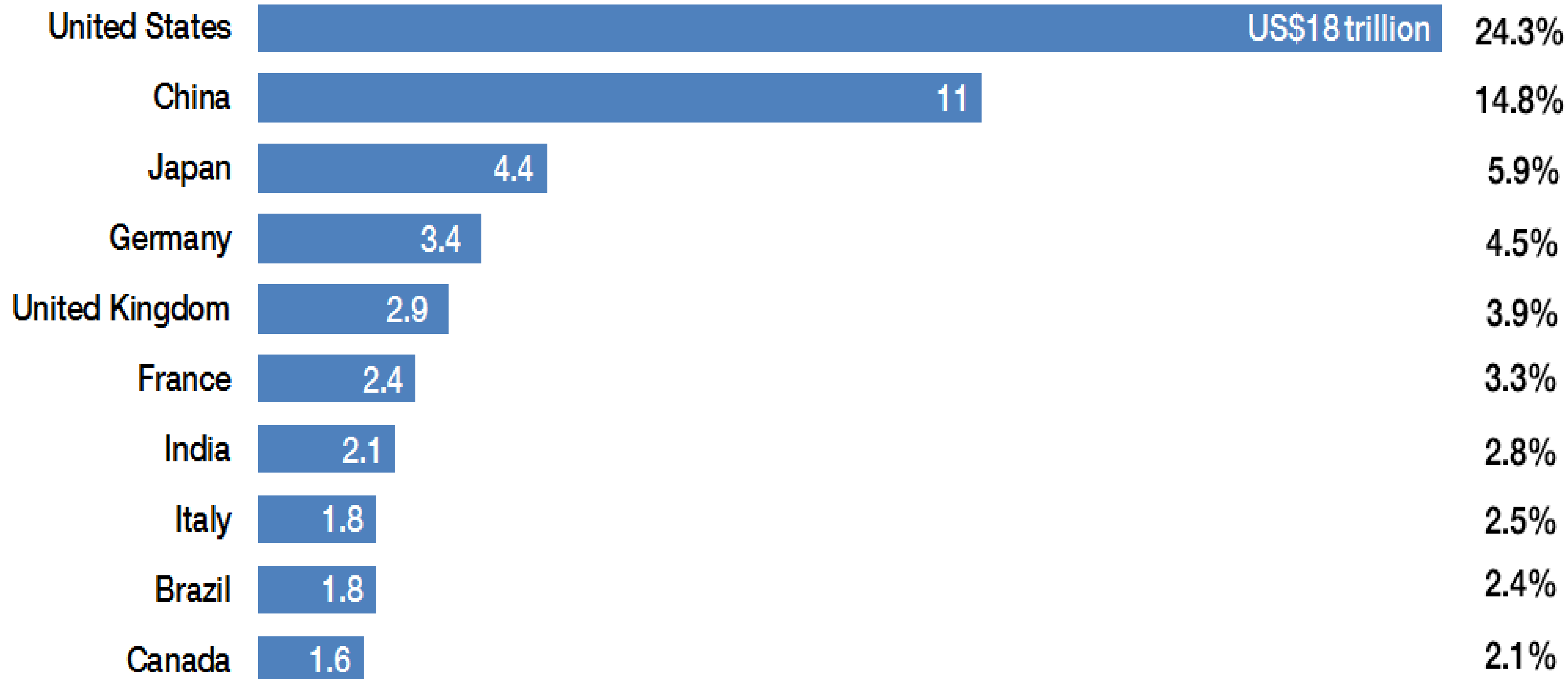


IT SPEND: \$2 TRILLION <3% of \$75T WORLD GDP

CEO PRIORITIES: GROWTH + COST SAVINGS

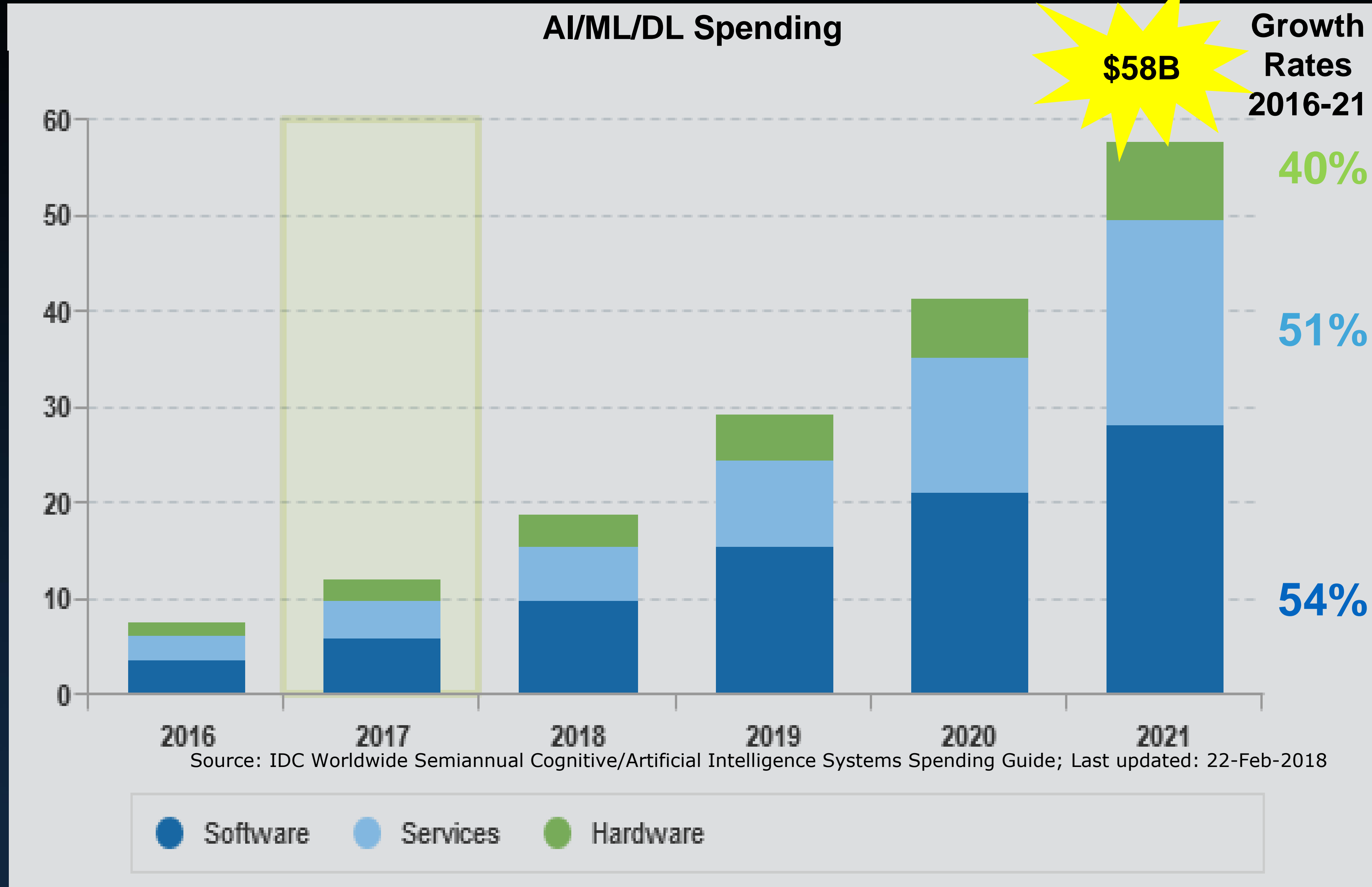
The world's biggest economies

GDP in current USD and share of global total, latest World Bank data,




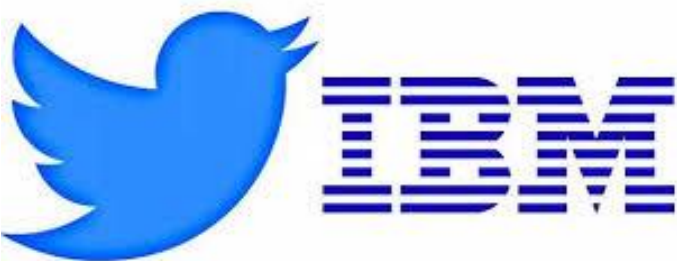
Source: World Bank and Visual Capitalist

A.I. IS FORECAST TO REACH \$58B BY 2021

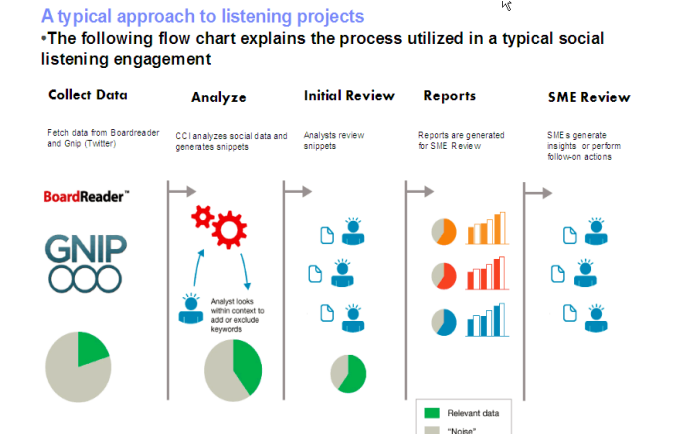


Overview of Supply Chain Risk Insights


Social Media Analytics

A typical approach to listening projects
The following flow chart explains the process utilized in a typical social listening engagement



Social Listening Tool



TWC Weather forecasts

Text Analytics

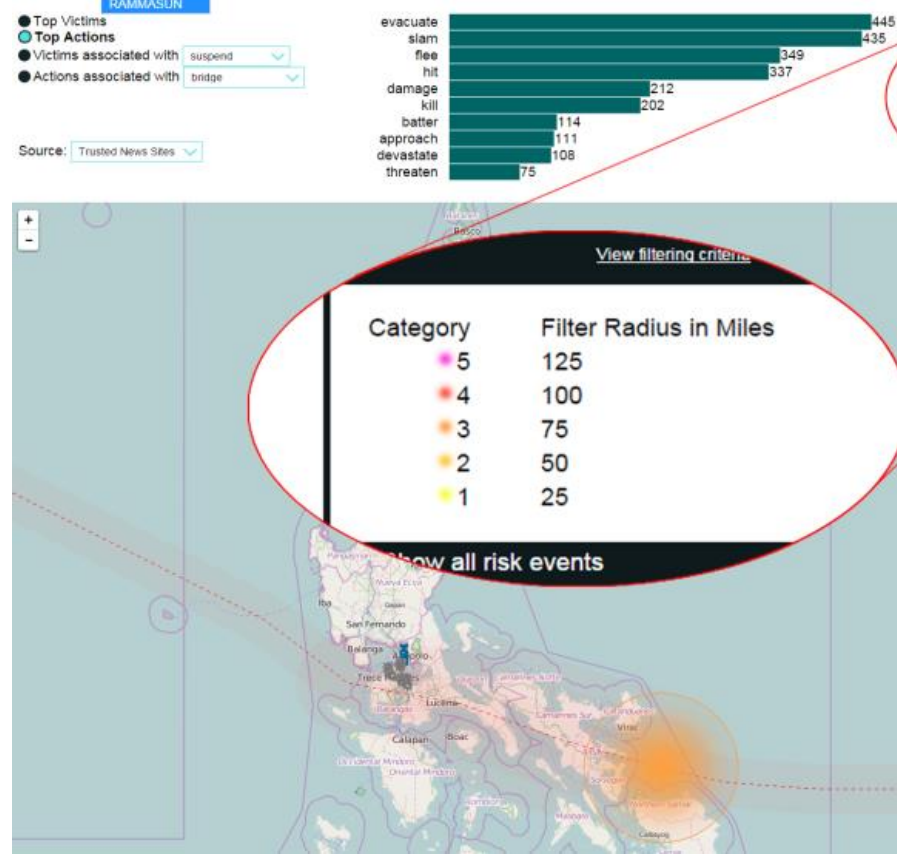
Identify, Predict Assess Events that impact IBM



Watson Content Analytics

Visualization


Geo Spatial Mapping of event to IBM Supply Chain



Category	Filter Radius in Miles
5	125
4	100
3	75
2	50
1	25

Solution(s)

Transparent Supply Chain



Other Analytics Platform

Big Data

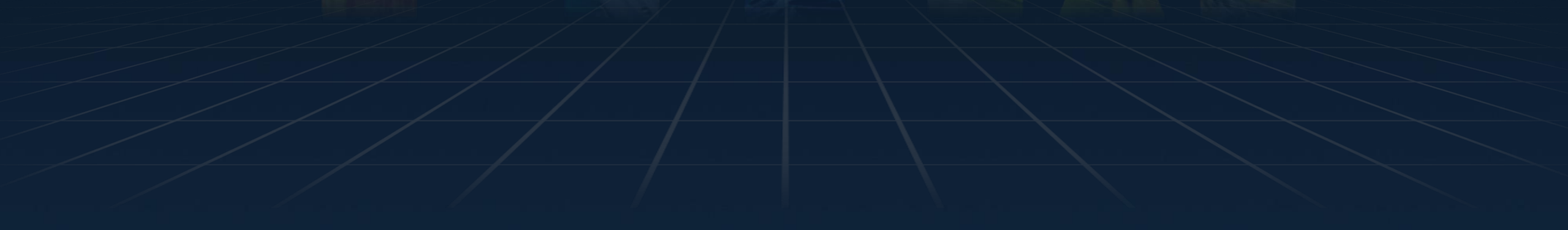
Event

API Alerts

Supply Chain Risk Management with Watson – high-level solution design

Risk Insights Demo

IBM



IBM'S HISTORY OF STRONG AI LEADERSHIP

1968, 2001: A Space Odyssey

- IBM was a technical advisor
- HAL is “the latest in machine intelligence”



2011: Jeopardy!

- Watson beat two top Jeopardy! Champions
- NLP as opposed to numeric



1997: Deep Blue

- Deep Blue became the first machine to beat a world chess champion in tournament play
- Numeric rather than NLP



2018: Open Tech, AI and standards

- New IBM centers of gravity for AI
- AI projects increasing exponentially
- Emerging global standards in AI

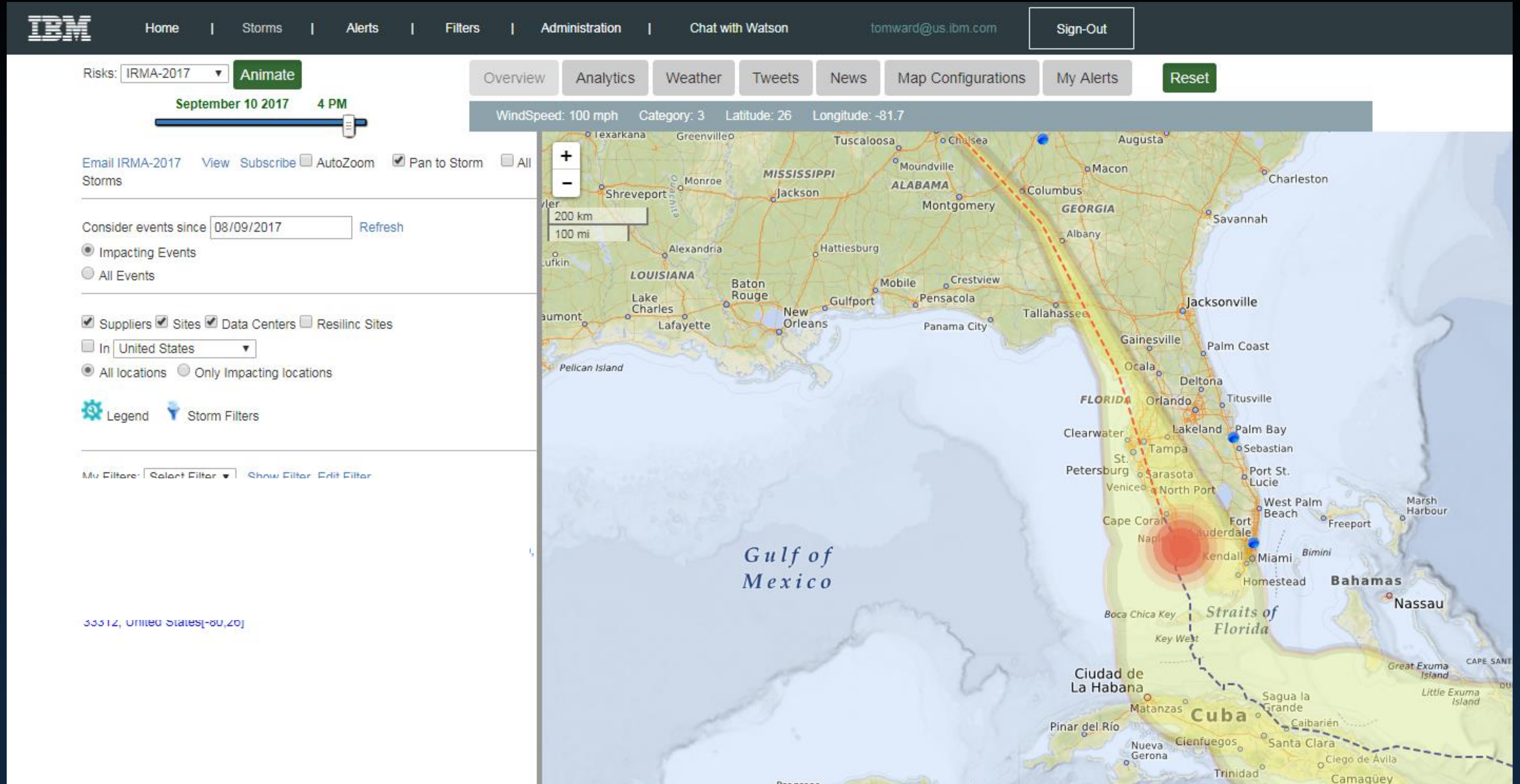


Back-up Risk Insights examples (if needed)



SUPPLY CHAIN RISK INSIGHTS

Storm Overview as Hurricane Irma approaches Florida – Sep 10



SUPPLY CHAIN RISK INSIGHTS

Social Media Analysis for Hurricane Irma – Sep 10



Home

Storms

Alerts

Filters

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tomward@us.ibm.com

Sign-Out

Risks: IRMA-2017

Animate

Overview

Analytics

Weather

Tweets

News

Map Configurations

My Alerts

Reset

August 30 2017 10 AM



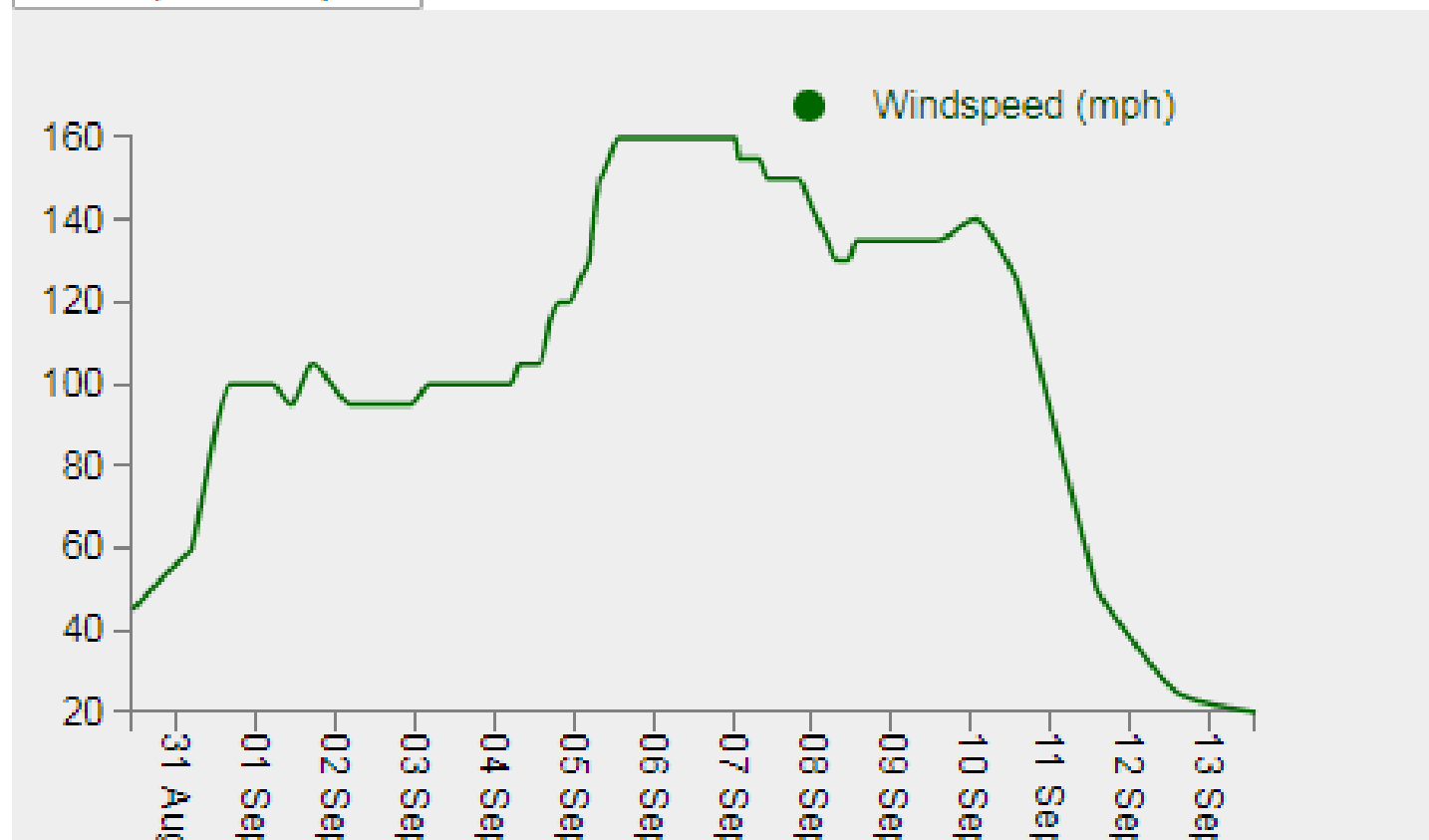
Top Pairs Top Victims Top Actions Live Data

Victims associated with cancel

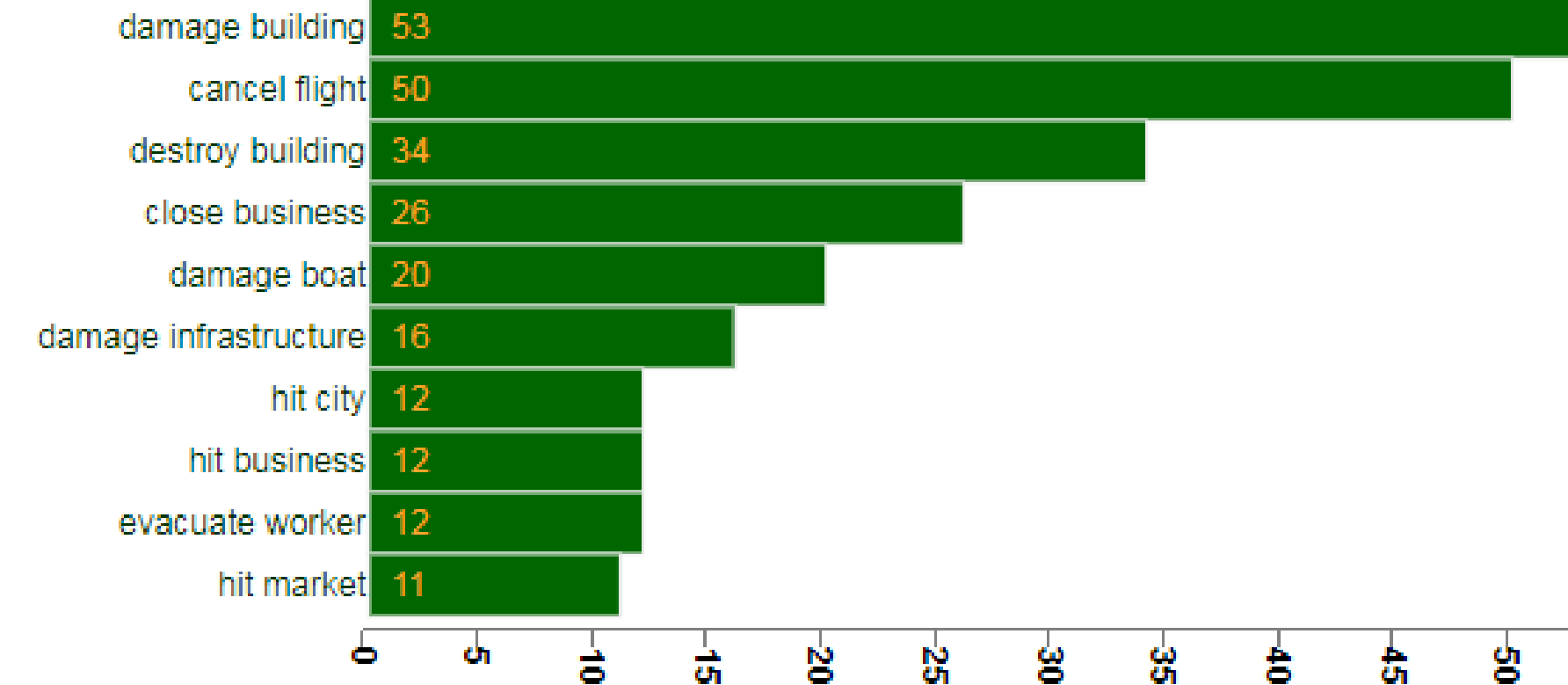
Actions associated with flight

Constrain to location United States

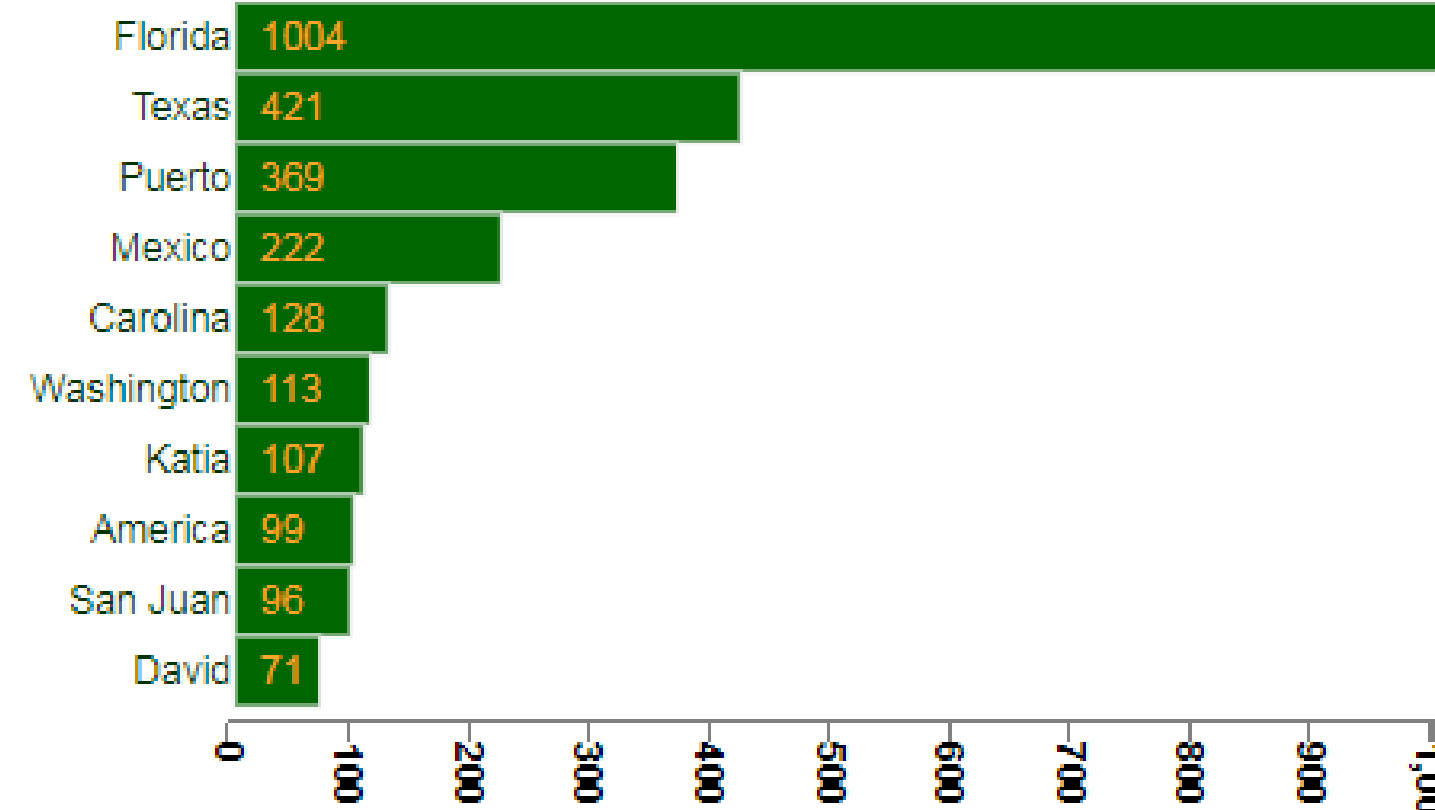
Wind Speed in mph over time



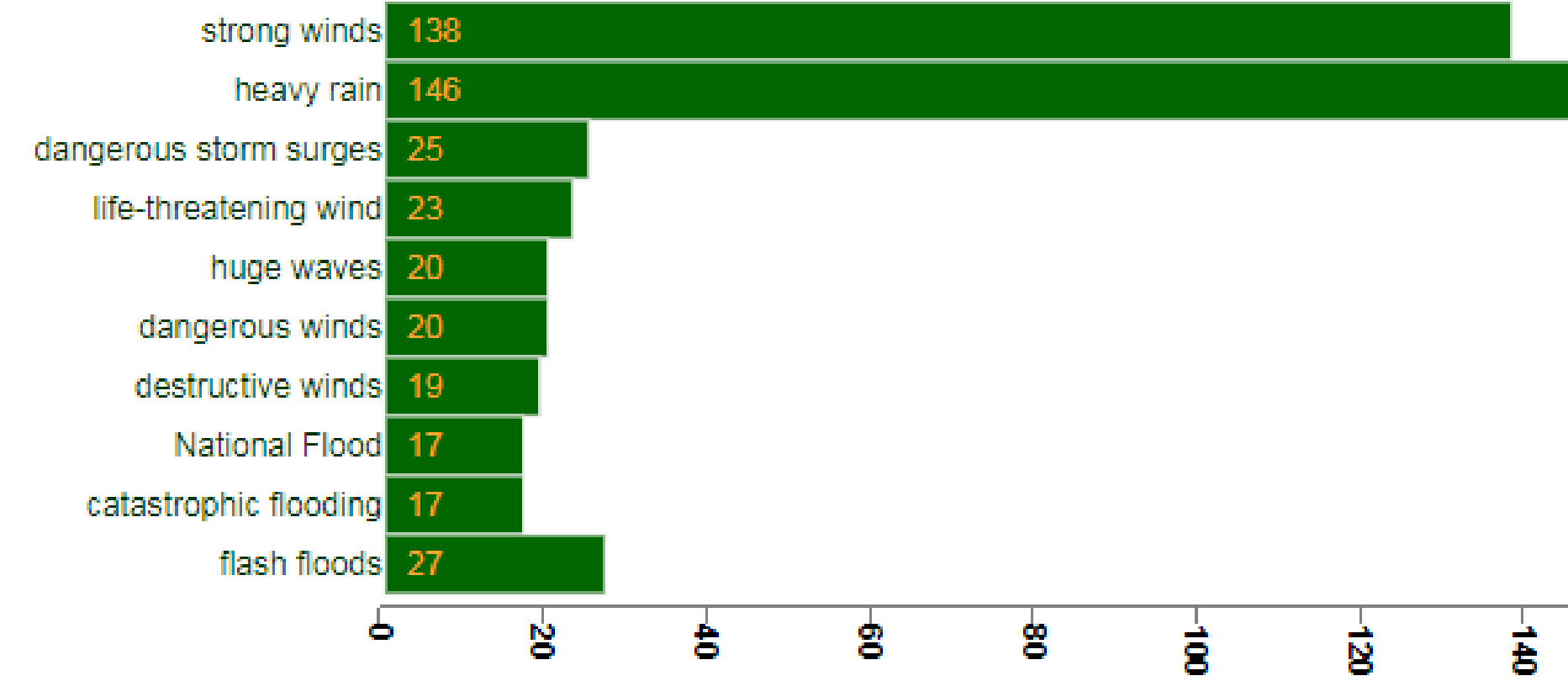
Mentions of Term Frequency



Mentions of Locations



Mentions of Weather Effects



Sample Risk Insights Alerts from USGS and NWS



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tomward@us.ibm.com

Sign-Out

Show Alerts since: 6 Hours 12 Hours 24 Hours 1 Week

- Earthquakes NWS Gdacs
- ubAlert Twc Weather-Underground
- Resilinc
- Show Impacting Alerts
- Warning Watch Advisory Statement
- Sites Suppliers DataCenters Resilinc Sites

Alerts and warnings:(Legend)

Earthquakes Around the World:(src:usgs.gov)

- * M 5.4 - Pacific-Antarctic Ridge[-56,-140] 📧 📧
- * M 5.2 - 27km ESE of Palora, Ecuador[-1,-77] 📧 📧
- * M 5.3 - 166km W of Lata, Solomon Islands[-10,164] 📧 📧
- * M 5.1 - 41km E of Pedasi, Panama[7,-79] 📧 📧

NWS Alerts:(src:weather.gov)

- * advisory - ..WINTER WEATHER ADVISORY IN EFFECT FROM 6 PM THIS EVENING TO 1 AM EST FRIDAY... * WHAT...Snow expected. Plan on slippery road conditions. Total snow accumulations of 1 to 2 inches are expected. * WH... [37,-83] 📧 📧
- * advisory - ..Snow, strong winds, and cold wind chills tonight... .Low pressure over the Great Lakes will push a strong cold front through the region this evening. Rain ahead of the front this afternoon will cha... [38,-80] 📧 📧
- * advisory - ..WINTER WEATHER ADVISORY REMAINS IN EFFECT FROM 10 AM THIS MORNING TO 1 PM EST FRIDAY... * WHAT...Lake effect snow and slippery travel expected. Total snow accumulations of 2 to 6 inches are expected... [42,-86] 📧 📧

