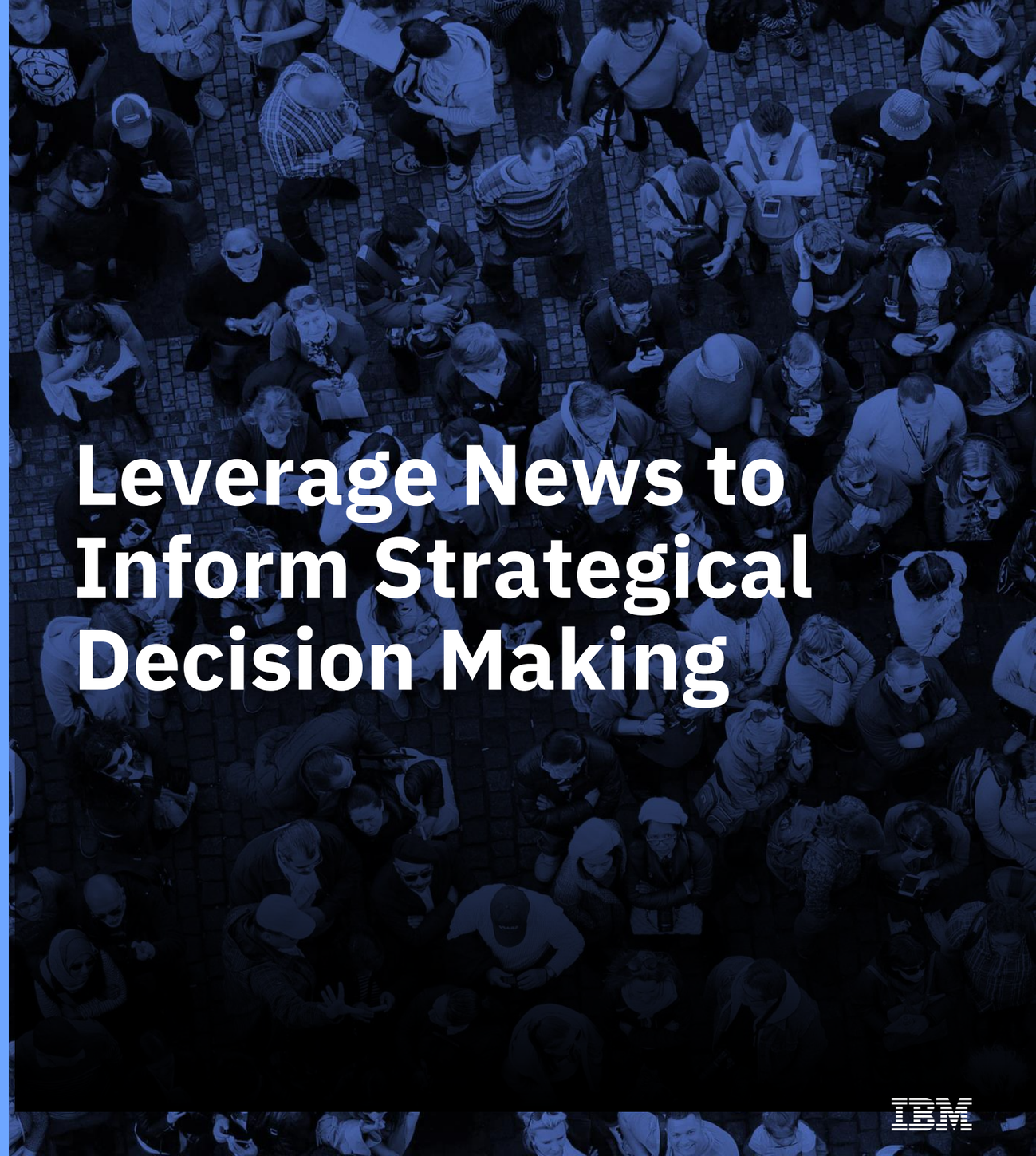
Visko – News to Intelligence



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Technical executive passionate about solving complex business problems by deploying AI, NLP, Machine Learning and Big Data solutions

Nick Kadochnikov

Distinguished Engineer

Chicago, IL | +1 847 805 2734 | nkadochn@us.ibm.com

Nick is a Distinguished Engineer and a Data Scientist in GBS CBDS, focusing on the development of Cognitive Enterprise capabilities. These initiatives combine the power of Machine Learning, Deep Learning and Big Data analytics with Artificial Intelligence and Natural Language Processing to enable intelligent, data-driven decision making based on the multitude of both structured and unstructured data sources. Applications of AI capabilities cover the majority of enterprise operations, including supply-chain, sales, marketing, finance, procurement and legal functions.

Nick was also responsible for development and deployment of Data Science Platform and infrastructure within IBM, where he was working closely with Chief Data Office and Watson Data Platform teams to deliver robust analytical capabilities for both internal and external use.

Academic Experience

Nick is serving as a faculty at the University of Chicago Data Science Masters Degree program, where he teaches “Big Data Platforms” and “Natural Language Processing and Cognitive Computing” courses as well as supervising numerous capstone projects and engaging with industry partners.

Technical Skills

- AI and Machine Learning: neural networks and deep learning for computer vision and NLP {CNN, RNN, LSTM, GRU}; boosted trees; linear and non-linear techniques; time-series analysis; association rules
- Natural Language Processing {BERT; Word2Vec; LDA; LSA} and Elasticsearch
- Big Data: Hadoop, Spark, SparkML and relational databases
- Hybrid and Public Cloud: containerization environments and micro-services: Docker, Kubernetes

Personal

Love everything high speed: auto racing, go-karts, skiing and rollerblading

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The Case for Change

Automated, Real Time, Proactive Insights Engine

Growing phenomenon

Leverage NLP to Harness Power of Textual and Unstructured Data

6.5B

News articles, blog posts and opinions are published daily

$75B

Spent on market intelligence and competitive research in 2018

100K+

Hours could be saved in client and competitive research in IBM, using automated news processing

$10M

Estimated saving for IBM in 2019 from automated news-based insights engine

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News to Intelligence: applications

scale

100K+ articles ingested daily
2+ years history
>100M article corpus

enrichments

Domain-conscious classification

feature engineering

Structuring the unstructured data

Business Event Examples

- Merger & Acquisition
- Location Change
- Data Breach
- Leadership Change

Applications	Visko Features Utilized
Offering recommendations	Curated newsfeed
Patent infringement monitoring	Curated newsfeed with custom events and email alerts.
Financial distress monitoring	Curated newsfeed with custom events and email alerts. ML models for financial distress prediction
Business ownership change monitoring	Curated newsfeed with custom events and Blockchain profile monitoring. ML models for acquisitions entity extraction
Supply-chain disruptions with AI	Curated newsfeed with custom events and email alerts, Event impact assessment and next best actions

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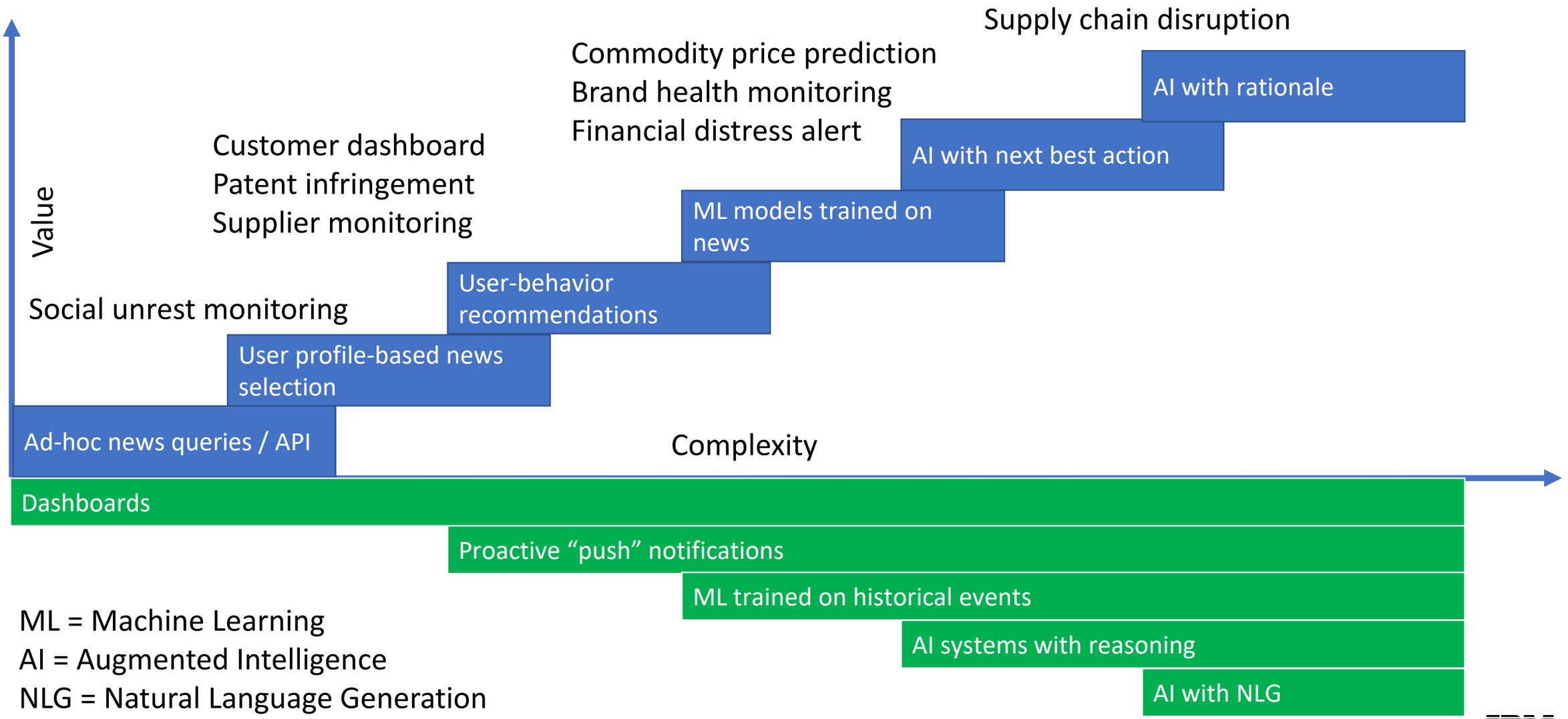
News to Intelligence: complexity vs. value



ML = Machine Learning
AI = Augmented Intelligence
NLG = Natural Language Generation

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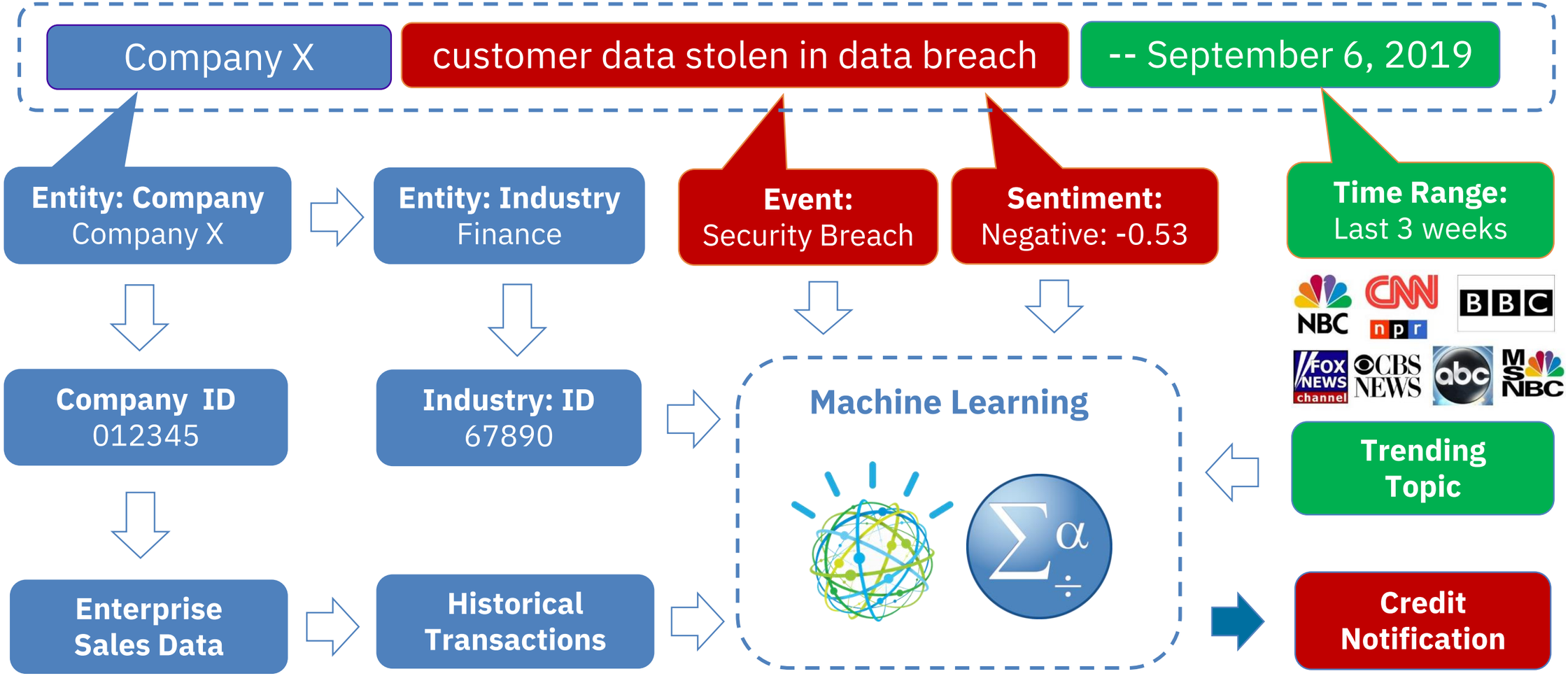
News to Intelligence: use-case schematics



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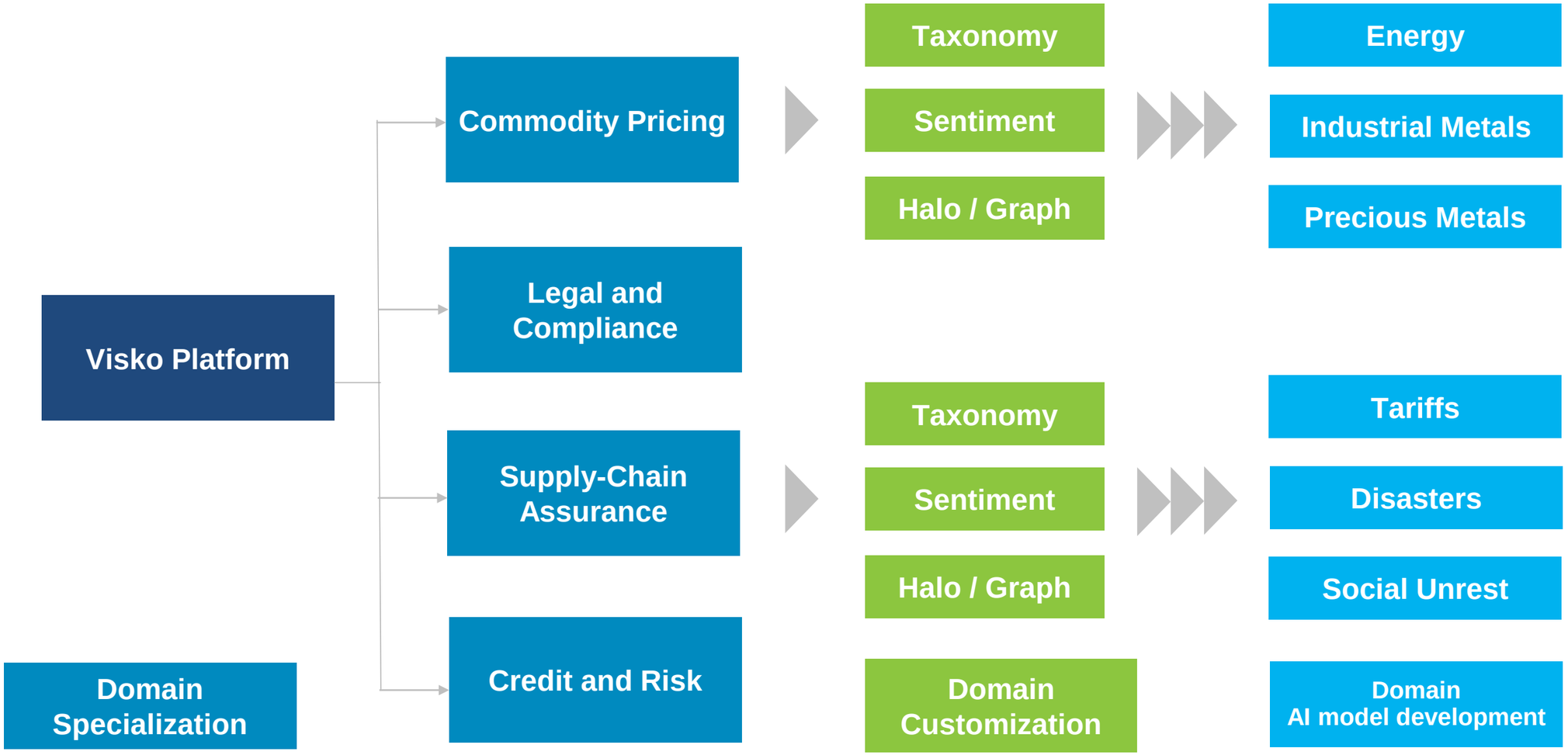
News to Intelligence: domain-conscious classification



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Bankruptcy predictions and early warnings of company distress

Over 20,000 companies file for bankruptcy annually in the United States

https://www.uscourts.gov/news/2019/07/26/june-2019-bankruptcy-filings-fall-03-percent

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News to Intelligence: predicting financial distress based on the presence and content of the news

non-Bankrupt

Frequency of **positive** news events (n>0)

Lack of **negative** news events (n=0)

Bankrupt

Frequency of **negative** news events (n>0)

Lack of **positive** news events (n=0)

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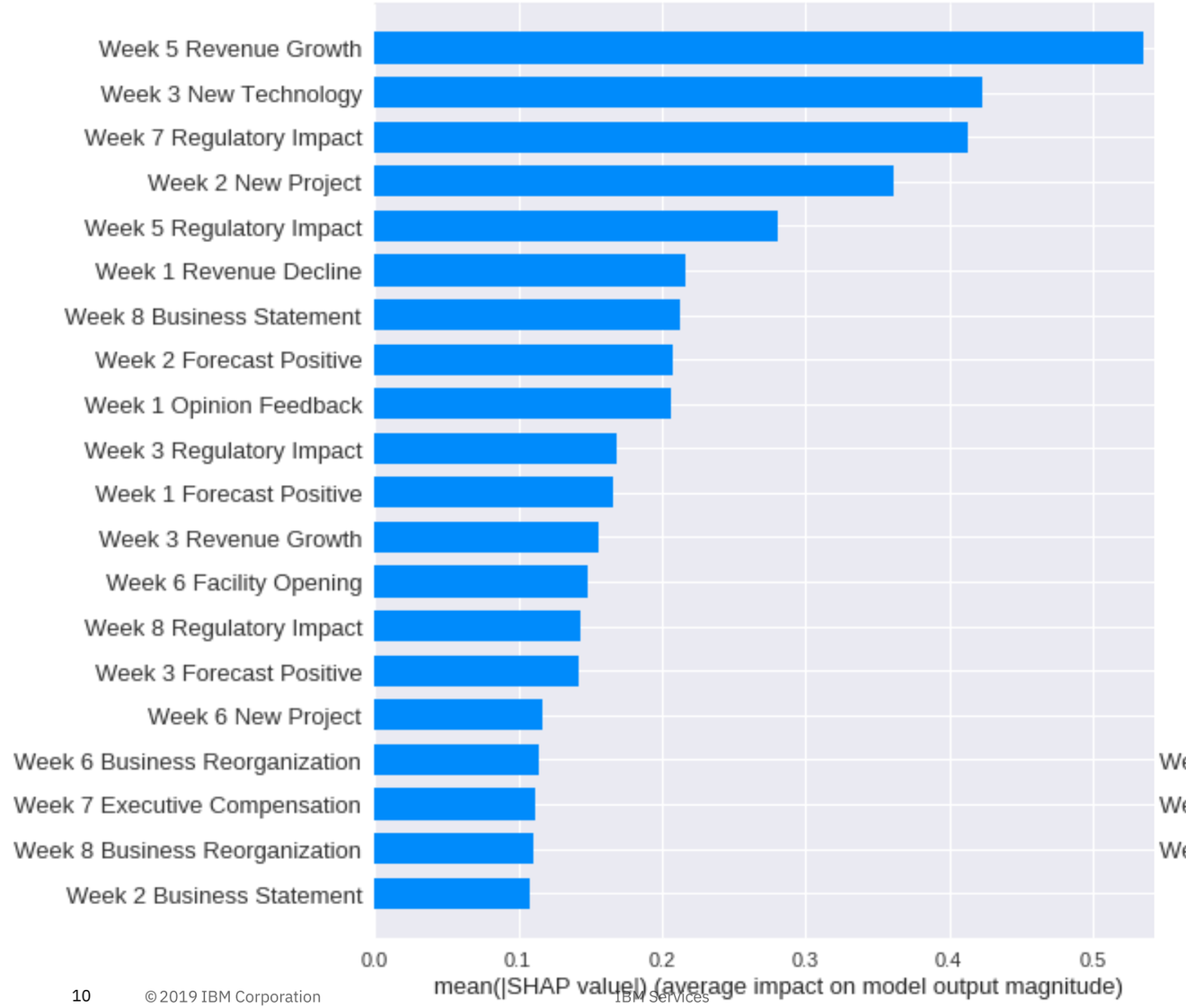
News to Intelligence: model is trained on major business events occurring each week



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IGF **Dashboard**

Auto Industry Exposure

Search

Search →

Geography

Industry

Selected Event Filters

Months

3 6 9 12

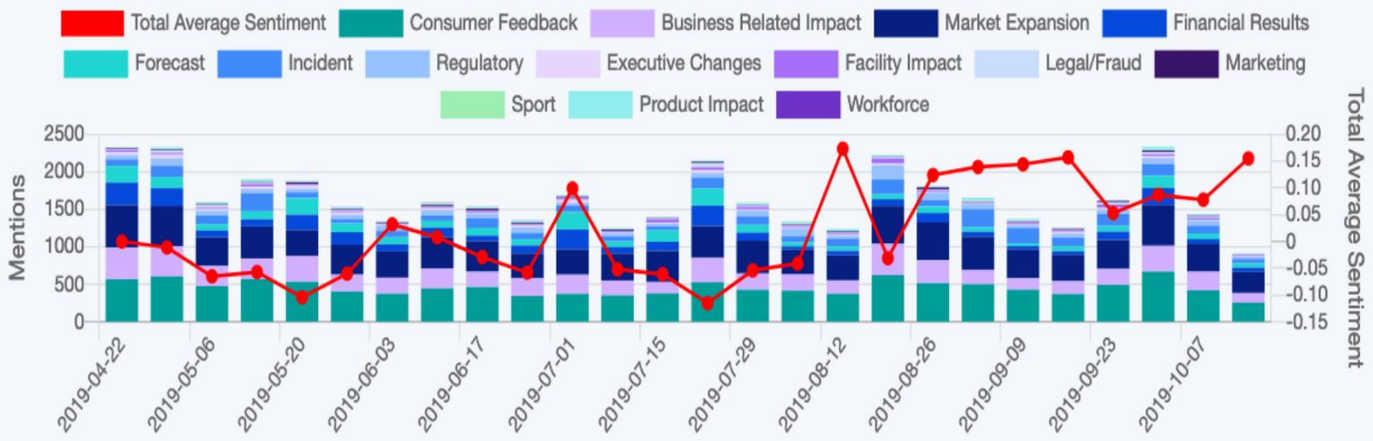
Aggregate By: Week

Start Date: 04/24/2019

End Date: 10/24/2019

Run

Company	Mentions	Events	Sentiment	Event Categories
Tesla United States of America Automotive	16869	43	0.04	
Honda Japan Automotive	30393	41	0.16	
Audi Germany Automotive	5445	45	0.2	
Ford United States of America Automotive	47345	38	0.09	



Examine →

Items per page: 10 | 1-4 of 4 items

1 of 1 pages

1

From Insights to Action

Flexible search capabilities allow for **targeted market investigations**

- In week of Jul. 22nd 2019, **Tesla** hit a 6 month high in negative news presence across the global web
- During that week Tesla was **fighting legal issues** over fires in its solar panels and dangerous self-driving practices

Customizable portfolio monitoring allows users to monitor all exposure risk in an industry in singular view

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Supply-chain disruptions monitoring with AI-based next best action

Over 1,000 supply-chain disruptions are happening each year

https://www.mhlnews.com/global-supply-chain/supply-chains-disruptions-highest-rate-3-years

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News to Intelligence: supply-chain disruptions alerts

Cognitive Advisor Recommends

Based on your derived priorities: Supply Assurance, Shortages

Source: VISKO
Event Id: 1905290087

Risks: **Supply Shortage (Medium)**

Categories: Workforce Discontent (71%)

Mentions: Country (2)

CNN: Hong Kong extradition bill: Hundreds of thousands join third huge protest in a week

→ Hong Kong (CNN)Hundreds of thousands of people took to the streets of Hong Kong for the second consecutive Sunday, despite a move by the city's embattled leader to suspend a controversial extradition bill.

...Read more

Potential impact on ...

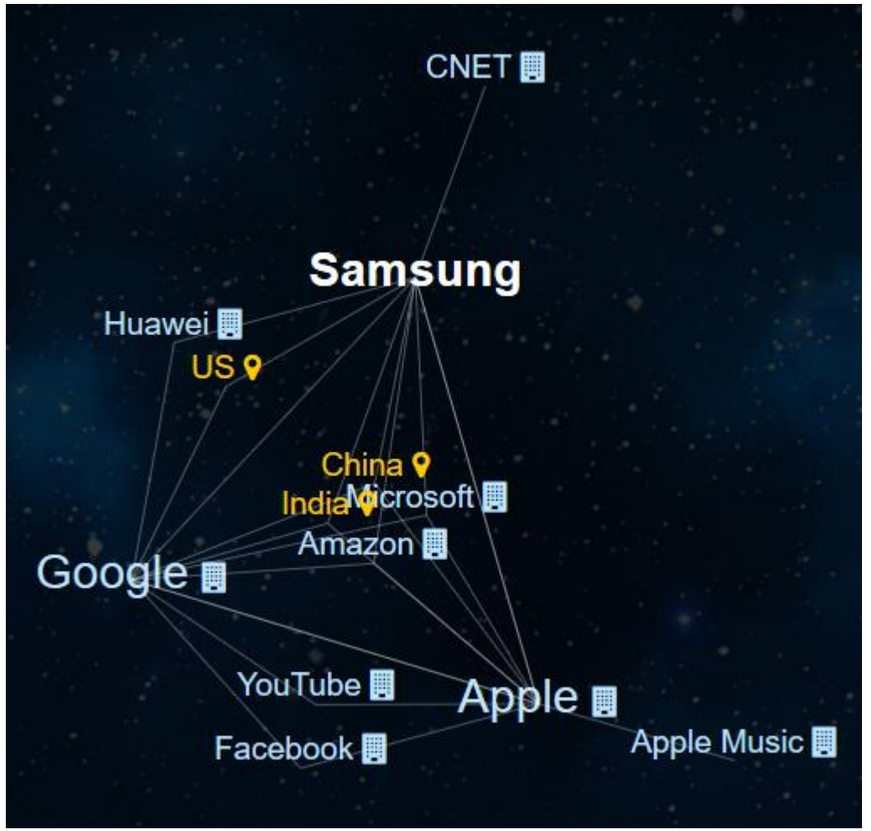
21 open POs for parts from Hong Kong with Delivery Date up to 1 Jul 2019 (total value of $987K)

I recommend reviewing Open POs for shipments through Hong Kong.

Basis for this recommendation:

→ There is a risk to Supply Shortage that is of Low Impact and High Likelihood.
→ Event affects short-term deliveries up to 1st Jul 2019
→ The impact is on 21 open POs with a total value of $987K.

Entity Halo for alternative supplier identification



Mergers and acquisitions and business ownership change monitoring

Over 15,000 M&A deals worth more than $20,000B takes place in the United States annually

https://imaa-institute.org/m-and-a-us-united-states/

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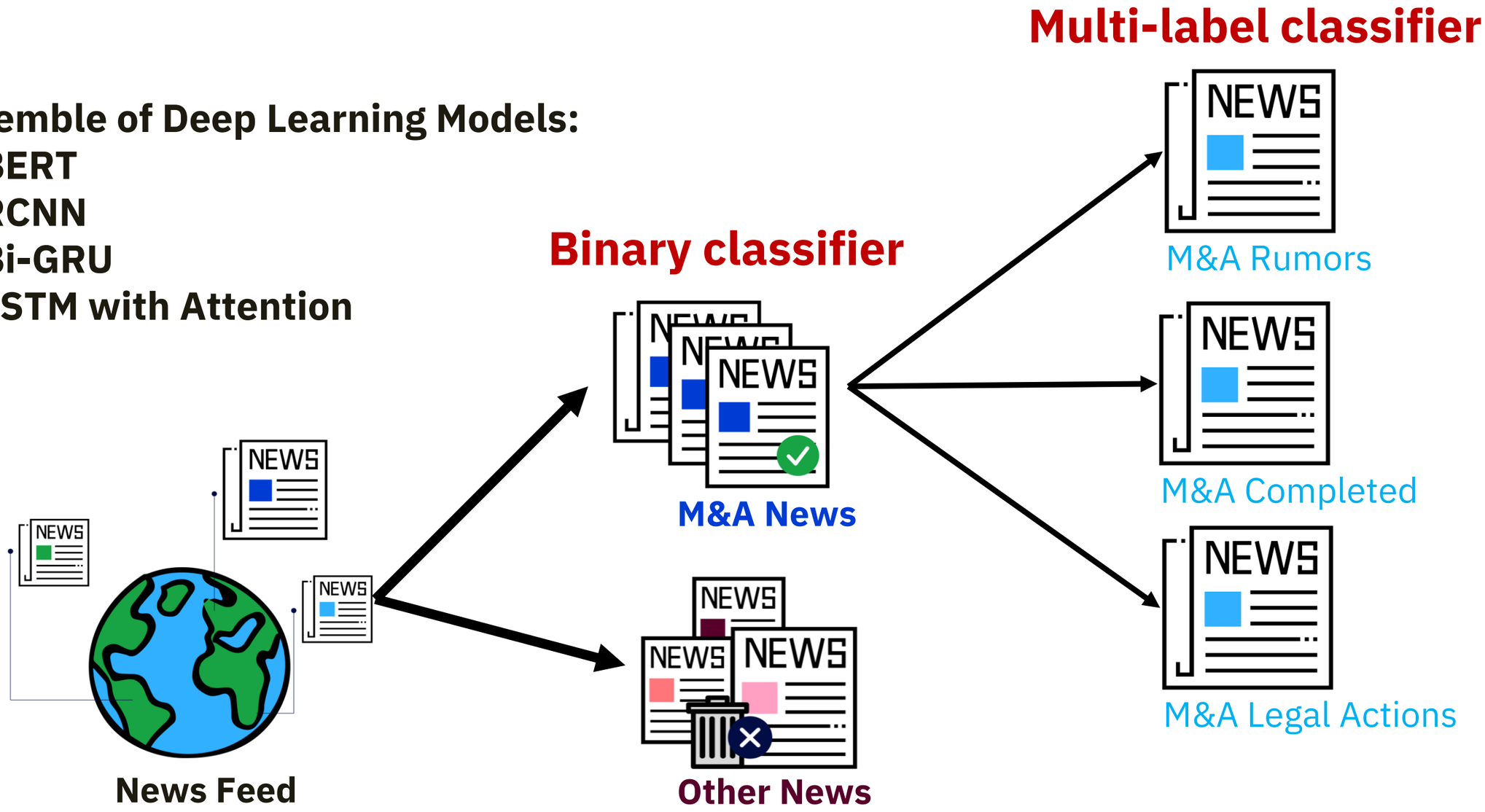
News to Intelligence: M&A event detection

Ensemble of Deep Learning Models:

- **BERT**
- **RCNN**
- **Bi-GRU**
- **LSTM with Attention**



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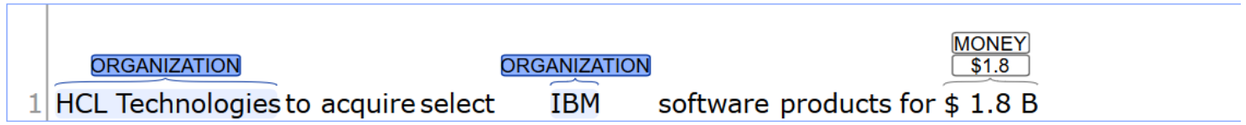
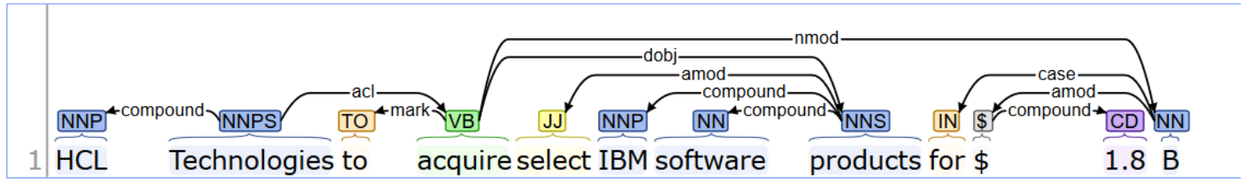
News to Intelligence: M&A relation triples extraction

{Organization} acquires some assets from another {Organization}

Named Entity Recognition:

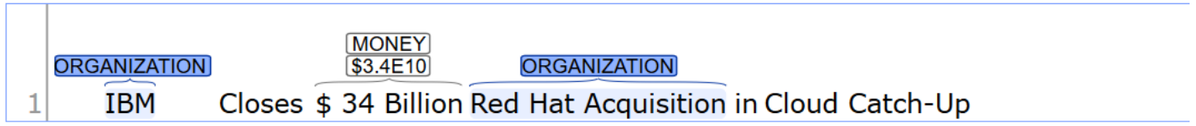


Basic Dependencies:



{Organization} acquires entire another {Organization}

Named Entity Recognition:



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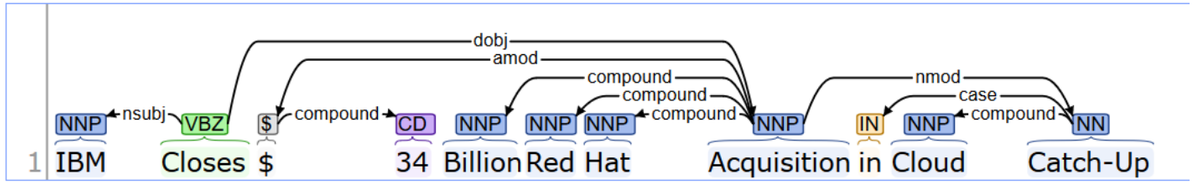

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Real-time, automated, unbiased market and competitive intelligence solution

$76B spent on market intelligence and competitive research in 2018

https://www.consultancy.org/news/59/global-market-research-industry-worth-76-billion-top-10-companies

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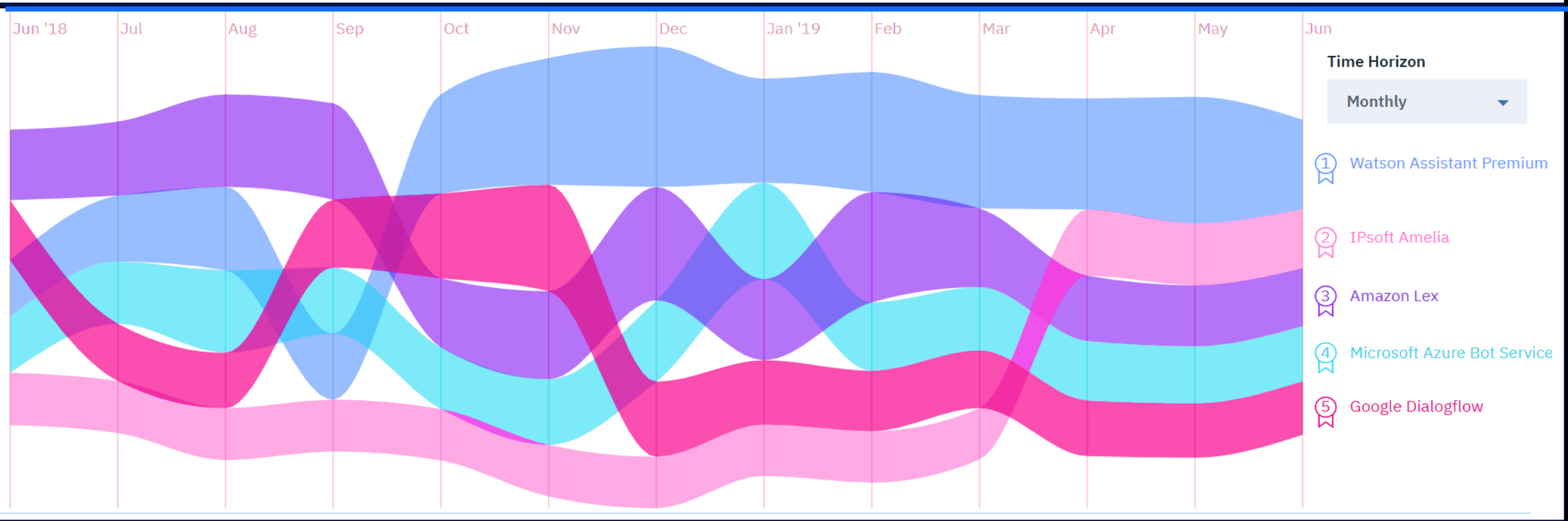
https://clarity.w3ibm.mybluemix.net/#/offering/30DFL_E

Watson Assistant Premium

Clarity

Overview | Competitive Insight | User Feedback | News Insight | Google Insight | More Resources | About Clarity

5.23	3.43	3.40	3.23	3.12
Watson Assistant...	IPsoft Amelia	Amazon Lex	Microsoft Azure...	Google Dialogflow



Watson Assistant Premium	IPsoft Amelia	Amazon Lex	Microsoft Azure Bot Service	Google Dialogflow
Star rating: 4.32	Star rating: 5.00	Star rating: 4.24	Star rating: 3.92	Star rating: 4.45
Review count: 71	Review count: 1	Review count: 29	Review count: 13	Review count: 10
Sentiment: 7.21 /10	Sentiment: 9.89 /10	Sentiment: 7.06 /10	Sentiment: 8.24 /10	Sentiment: 7.50 /10
Price: 8.12	Price: 9.87	Price: 6.59	Price: 8.38	Price: 7.84
Compatibility: 5.69	Compatibility: --	Compatibility: 7.86	Compatibility: 7.94	Compatibility: --
Functionality: 7.39	Functionality: 9.9	Functionality: 7.23	Functionality: 8.4	Functionality: 7.46
Support: 7.59	Support: 9.9	Support: 7.3	Support: 8.06	Support: 7.18
Usability: 7.27	Usability: --	Usability: 6.3	Usability: 8.4	Usability: 7.5

From Insights to Action

Watson Assistant has a competitive pulse of 5.2/10, determined as #1 since October 2018

- In Sep. 2018, **Watson Assistant** jumped from the 4th to the 1st place in overall competitiveness
- In the same period, Amazon Flex went from the 1st to the 3rd, and Google DialogFlow went from the 2nd to the 5th place

Watson Assistant is competitive pricing; but it **needs** to **focus** on improving its **compatibility** and **usability**

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