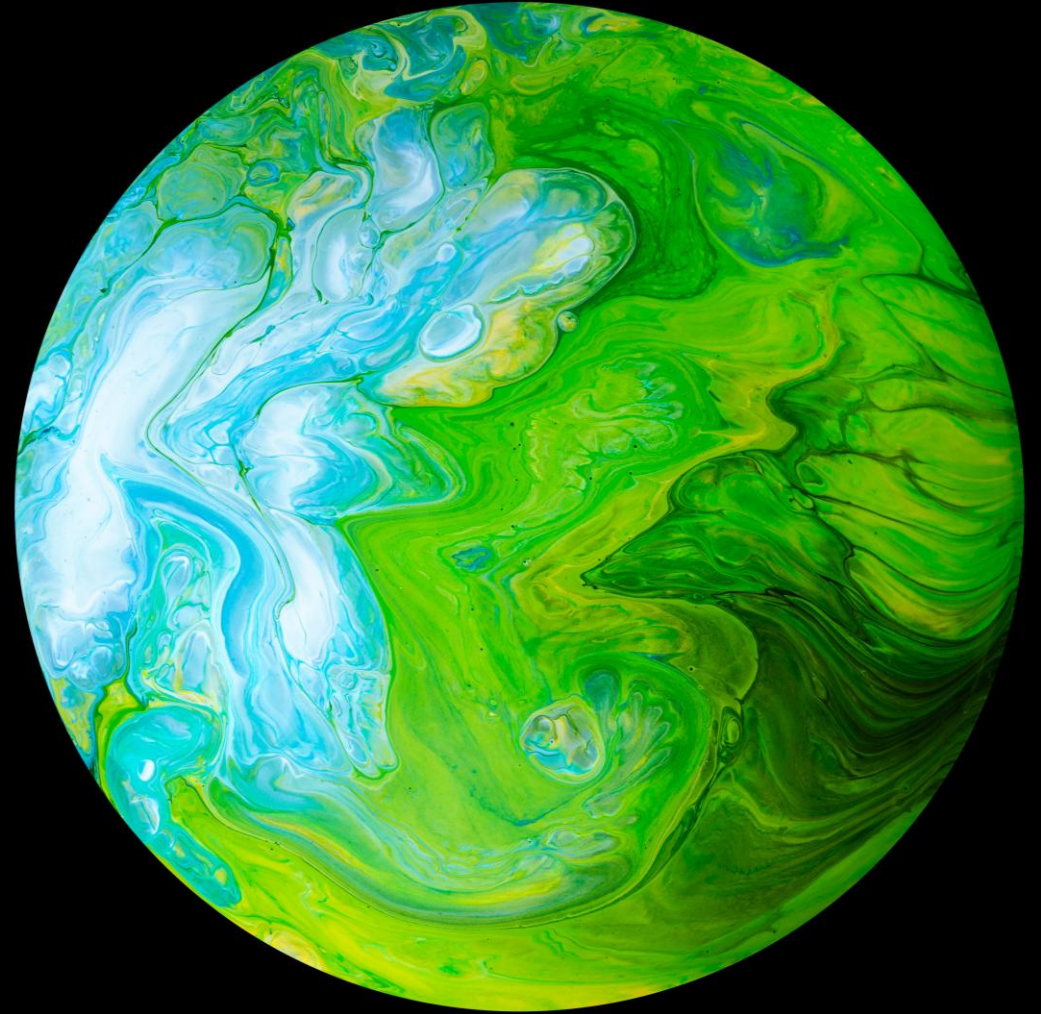


AI enabled Early Warning Systems

5th Risk Management Conference

Athens
October 8, 2026



“The information you have is *not the information you want*.
The information you want is *not the information you need*.
The information you need is *not the information you can obtain*.
The information you can obtain costs *more than you want to pay*.”

— **Peter L. Bernstein, Against the Gods: The Remarkable Story of Risk**

Early Warning System challenges

While specific research questions, data and methodologies are changing over the time drastically, the aim remains the same – spot risks early

Spotting risks early – questions we asked over the years:

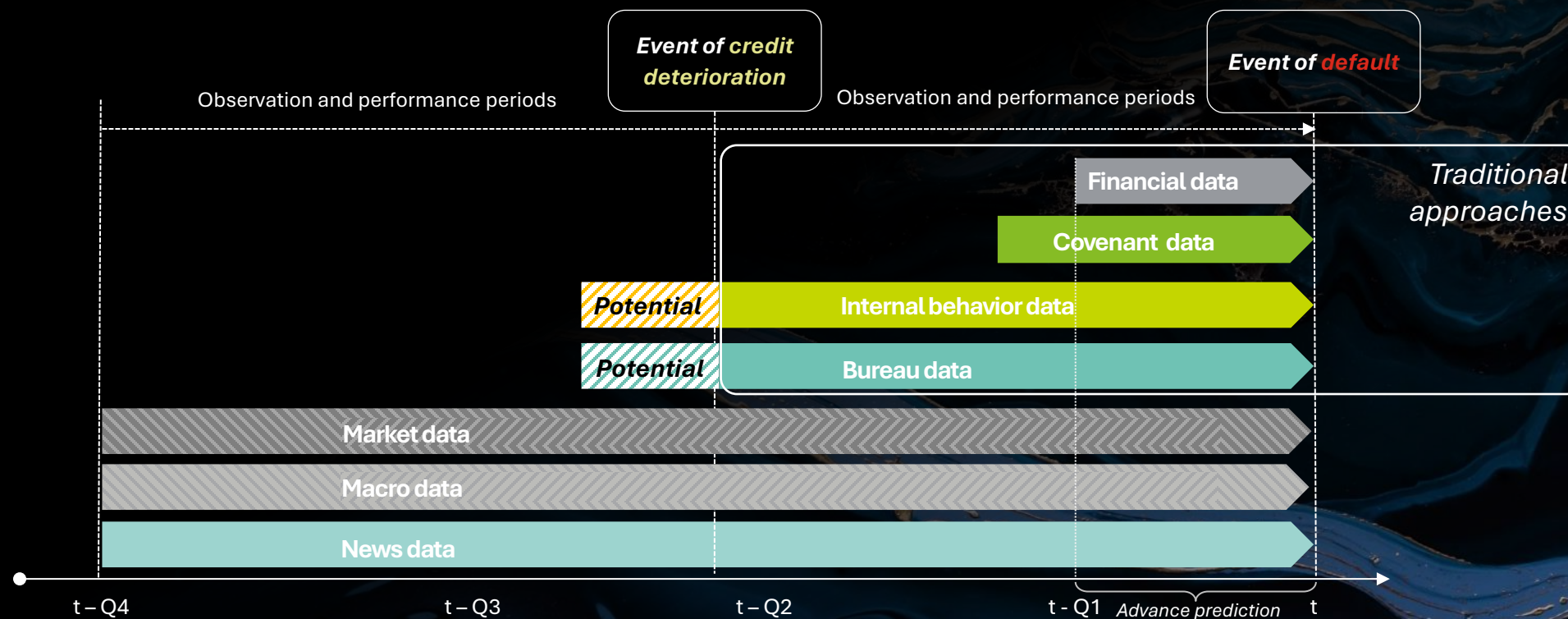
- How do we anticipate **rating downgrade** of a company or a sovereign?
- How do we spot **emerging risks** that are specific to an **industry or a country (e.g., geopolitical)**?
- How do identify impact of **energy crisis** on customer and their **supply chain**?
- How can we define groups of customers that might become vulnerable in case of **interest rate increase or inflation surge**?

The fundamental question we need to answer before getting to any of these is:

***Are we able to
separate signals
from noise?***

Ability of data to spot the risks early

Predicting credit deterioration for early warning requires a fundamentally different approach than predicting default



Credit deterioration

- ✓ Rating downgrade
- ✓ Multiple performance events
- ✓ Observation and performance periods overlap

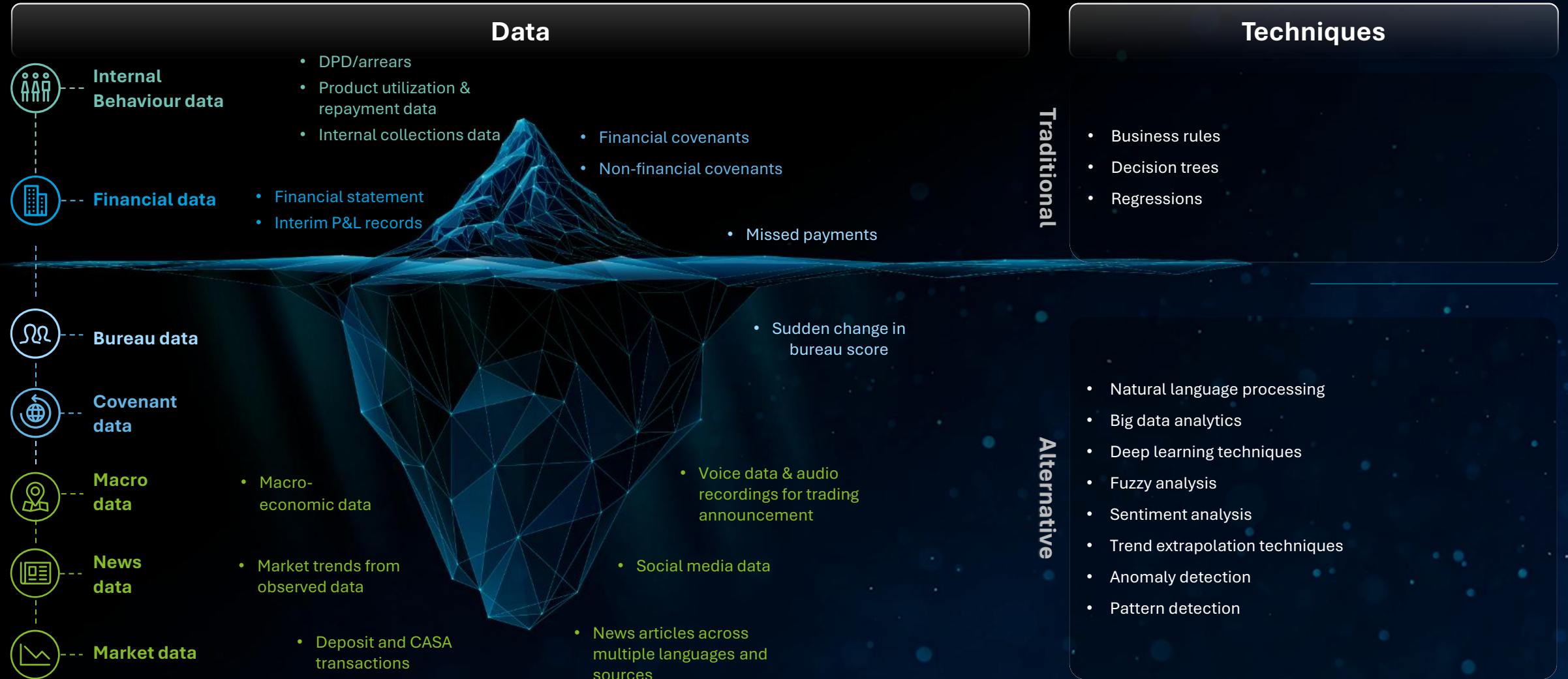
VS

Default

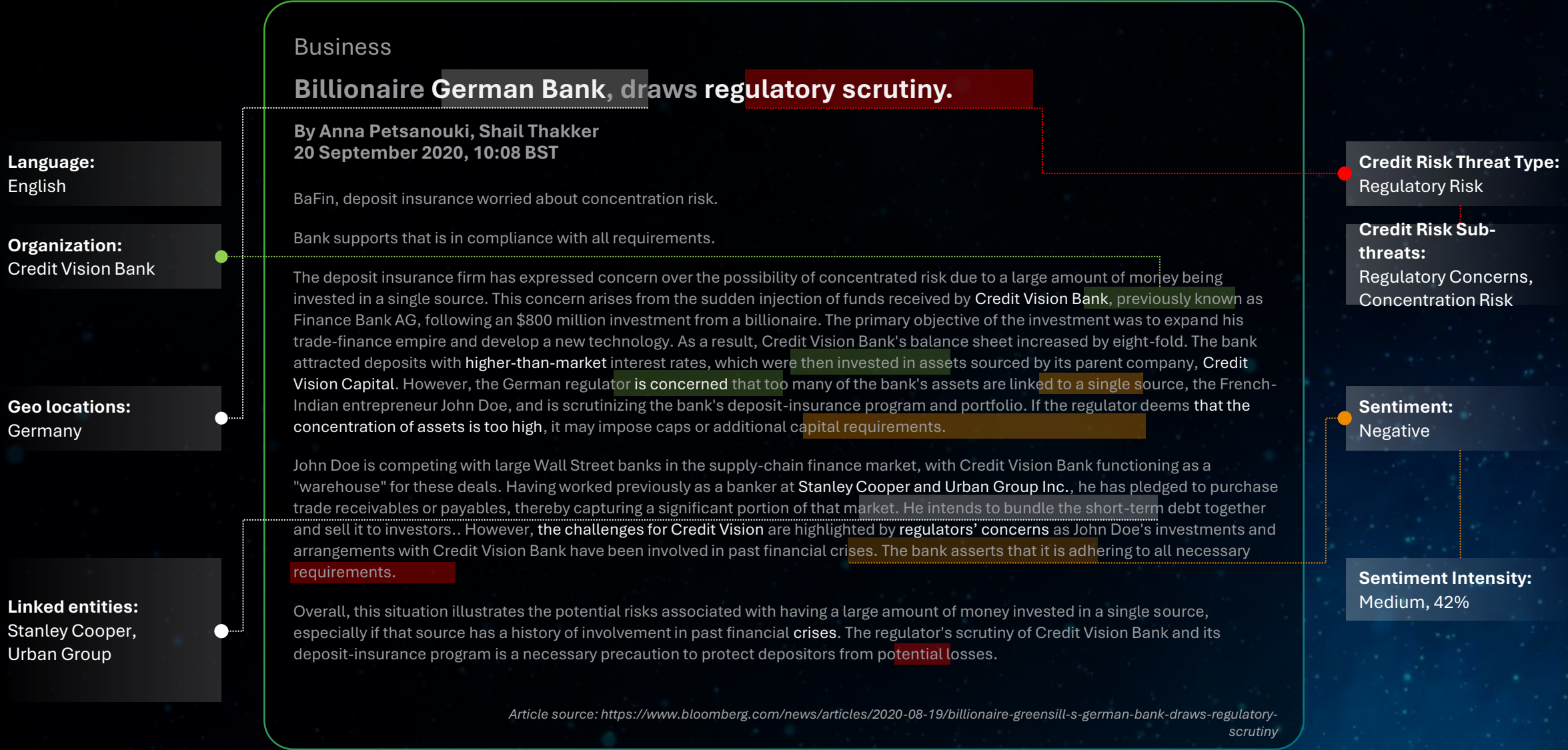
- ✓ 90 days past due
- ✓ Single performance event
- ✓ Observation and performance periods separated

Non-traditional data and alternative techniques do exist

News data can be sourced in near-real time speed providing timely input on a customer's creditworthiness, however large volumes and complexity of data require sophisticated processing mechanism to extract credit risk indicators

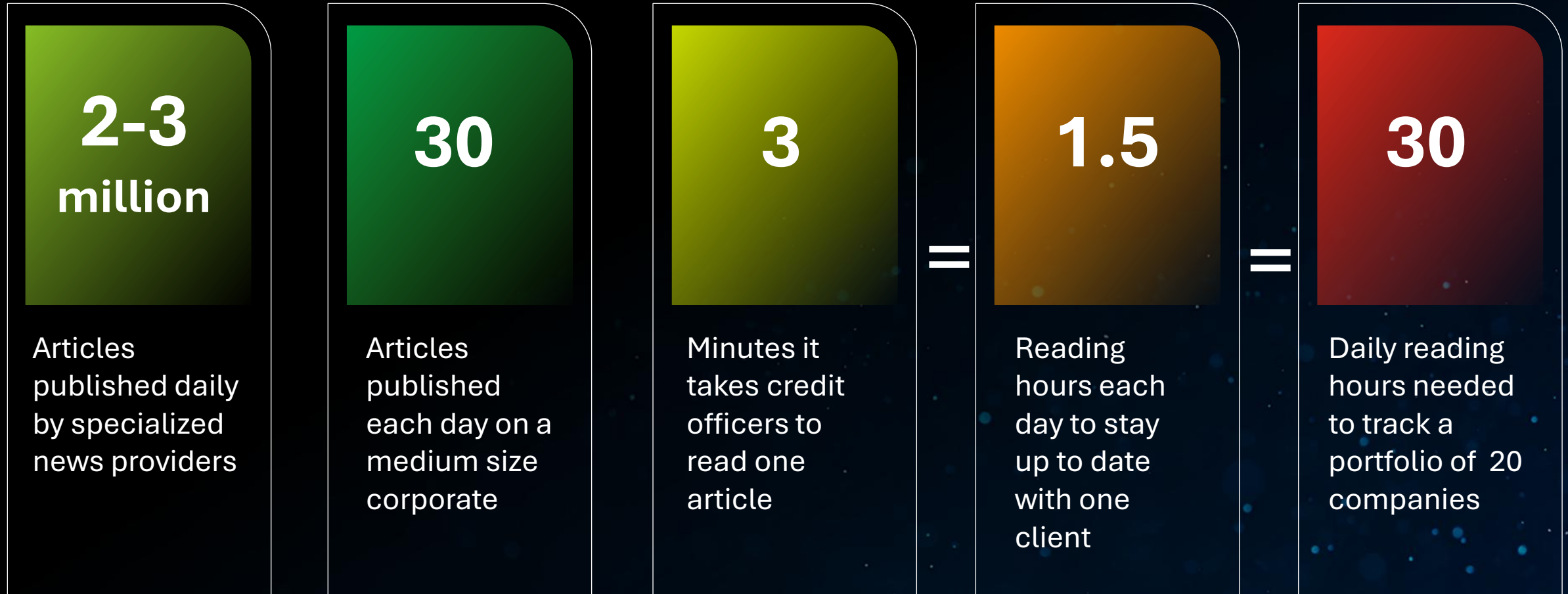


Understanding Language: NLP process



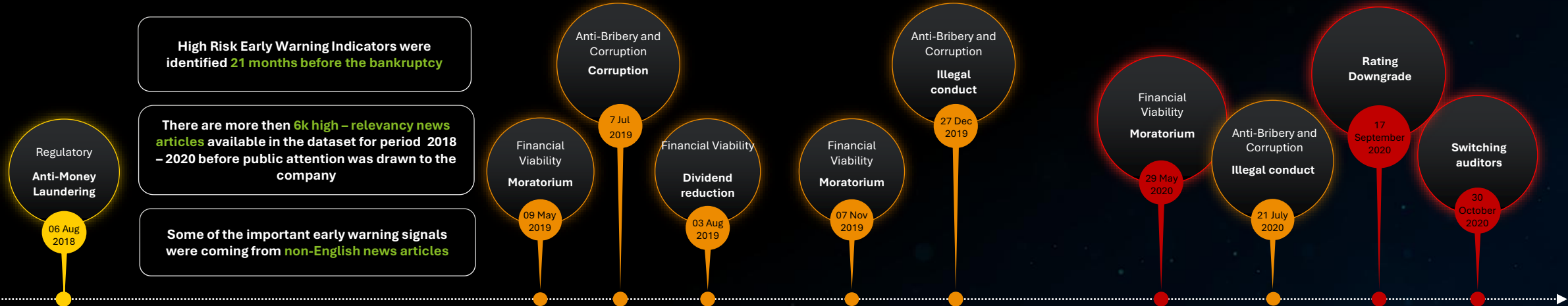
Crunching the numbers: Credit officers need technology

The amount of time that a credit officer needs to effectively process all the data on their clients is un-achievable without technology.



Case Study

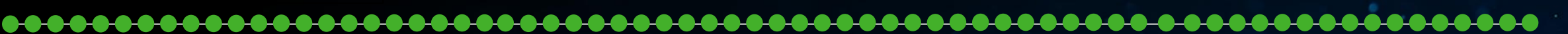
The firm eventually became insolvent, however early warnings were identified 21 months in advance of that event



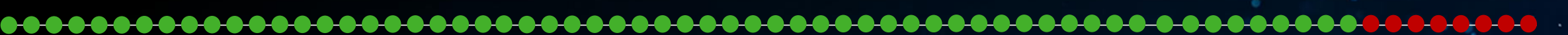
Company news sentiments



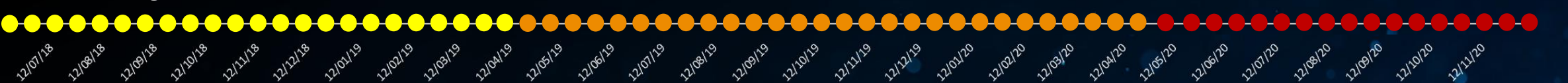
Financial Data



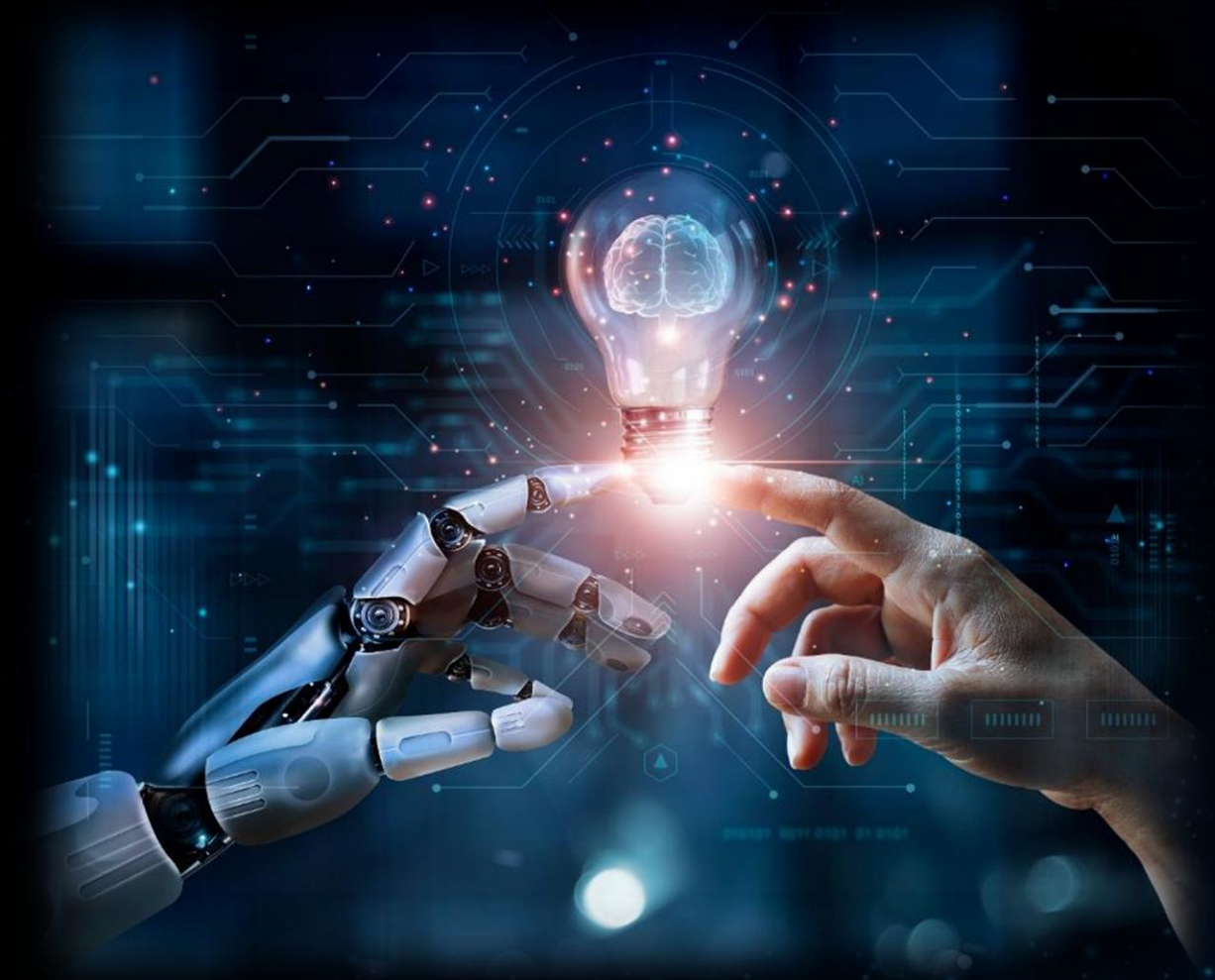
Internal Data



Forward Looking News



Conclusions



Human annotation vs machine annotation

✓ **95%** of threats verified “**confirmation annotation**” (human annotator reviews article and confirm/rejects the assigned by ML threat), which is an exceptionally high accuracy. For reference, historical studies show that **human annotations are typically only 80% accurate over large data sets.**

✓ A separate exercise called “**blind annotation**” (ML process manually reproduced by humans without knowing ML-assigned threat to compare results and measure perception bias) was performed.

✓ **The weighted average of the annotator-to-annotator precision is 66%, and **model-to-annotator precision is 73% for 799 articles.****



Thank you.



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