



Recorded Future

UNLOCK THE PREDICTIVE POWER OF THE WEB

Case Study: Technology Horizon Scanning

To mitigate technological surprise, the United States Department of Defense (DOD) mathematically analyzes a range of possible permutations of technology advances. "Technological Horizon Scanning," as it is known, assumes that the greater the distance between any two fields – say, computational quantum mechanics and weather risk indexing – the more unlikely their combination and the larger the impact of a possible fusion.

Using a robust statistical clustering, their methodology helps identify pairs of topical candidates for examination. Each technology is disassembled to its various components and those elements are analyzed "against" one another. Through a series of conjectures, which accounts for their disparate and distance from one another, permutations are evaluated and ranked. With events that are yet, if ever, to occur and such a novel

"We needed a way to determine if a discovery was intentional or accidental – we needed to know not only how to look at the future, but when in the future."

Richard T.
Senior Scientist
US Department of Defense

Summary

- Beyond assessing for today's needs and managing tomorrow's uncertainties, the Department of Defense (DOD) has to anticipate, identify, and prepare for the next decade of technological developments. While trend impact analysis and scenario planning are helpful methodologies for thinking about the future, DOD needed to imagine combinations of technologies before they happened.
- Scientists are leveraging Recorded Future's Public Data Feed API to integrate signals from more than 150,000 real-time sources into existing analytic pipelines & models

methodology, however, DOD struggled with how to test the hypotheses their analysis had generated.

Challenge: Verification of Overlap and Validation of Approach

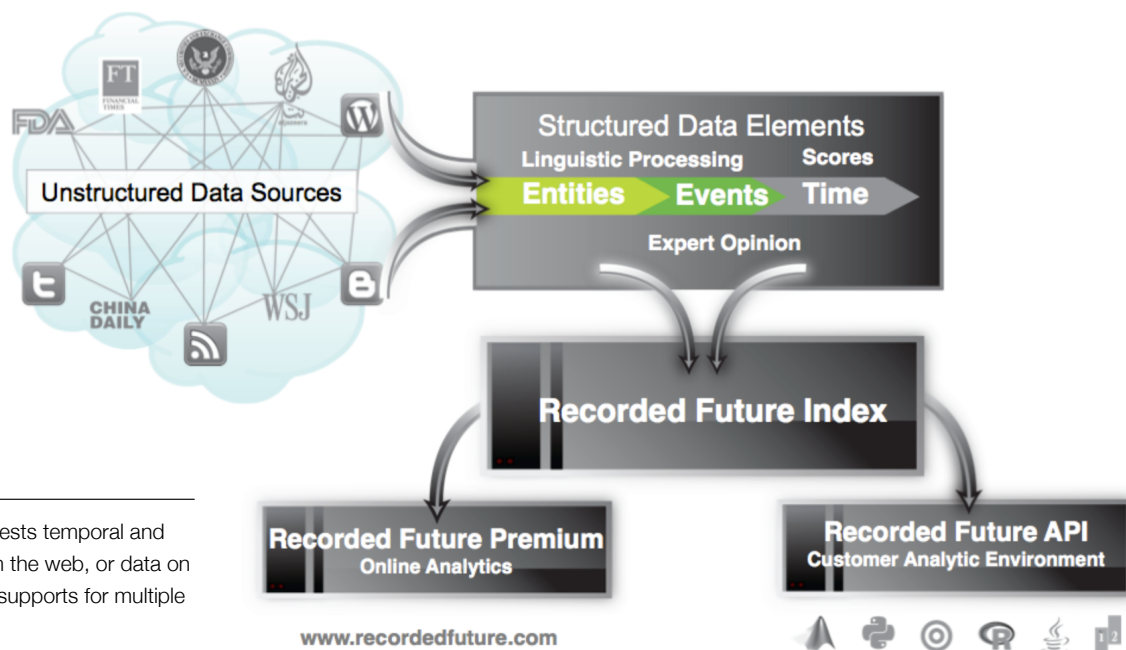
With a series of evidence-based forecasts, DOD ran into a predictable predicament: how to gather evidence about an event that has not happened? Even if two technologies did manage to overlap, how would DOD know if the discovery was accidental or intentional? Simply, how can one "foresee" innovation, invention, and insight?

To bolster the current methodology, DOD required a tool that could simultaneously challenge the approach while affirming the findings. While back-testing certain technological innovations proved interesting, this method missed a key element -- the initial forecast. Additionally, avoiding confirmation bias -- only considering evidence that verifies the hypothesis -- proved difficult when assessing technological development on decades-long time horizons.

Planning for the future is near impossible when it keeps crashing into the present – by the time analysts had crunched the data, the forward thinking had become the current thinking. Mapping the terrain of academic and scientific fields provided a starting point for understanding inter-disciplinary trends, but there was a gap in harvesting the breakthroughs covered in news, social media, and foreign languages.

Solution: An Adaptive Tool and Complementary Methodology

Testing the hypotheses of technological overlap demanded more data, broader disciplines, and deeper discussions online. The issue of "searching across time" presented an analytic obstacle: simply tracking discoveries was insufficient, when verifying forecasts was required. With Recorded Future's temporal analytics engine, DOD could test the validity of its evidence-based futures.



The world's first temporal analytics engine

By aggregating and visualizing forecasts and drawing from over a 100,000 sources a day, Recorded Future helped DOD quickly narrow the scope of its verification as well as to indicate a necessary adjustment of methodology. Instead of creating possible technological permutations, DOD could compare predictions and track the creation of a new discipline. The process of constructing data-driven forecasts reduced from months to weeks, and allowed DOD to rapidly disaggregate new from changing technology.

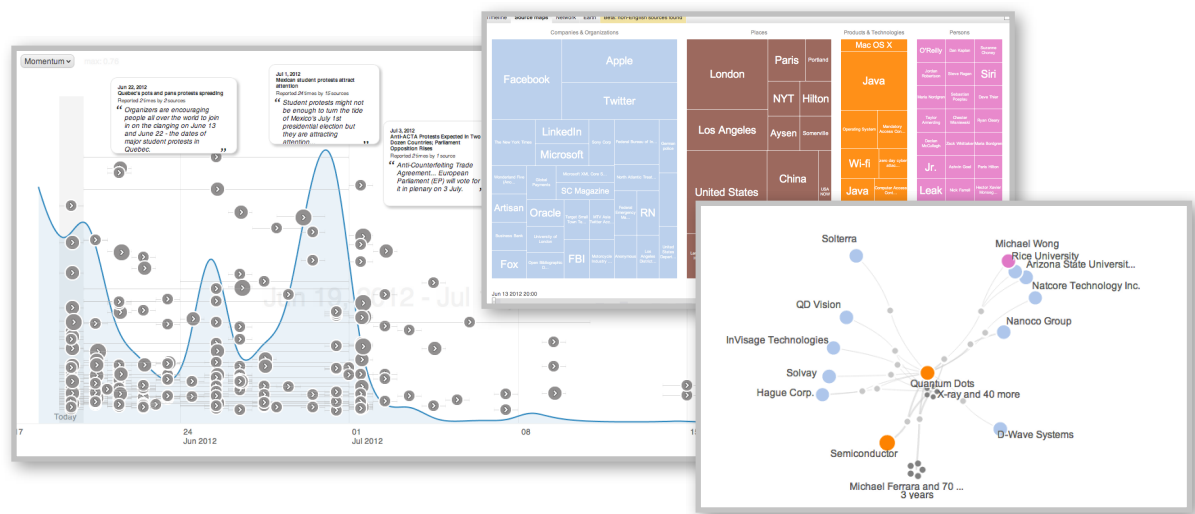
Result: Seamless Transitions from Scanning to Searching

Researching the future is, by its nature, interdisciplinary, covering developments across fields with centuries of research and those ideas conceived just last year. Combining conditions for technological fusion transformed from a well-developed experiment to a verifiable analysis.

Recorded Future's temporal analytics engine provided DOD the ability to structure increasingly untenable amounts of data and provide temporal context for real-world instances of disparate technologies combining. DOD used data visualizations and queries to keep abreast of the edges of various fields without losing complexity.

When required, researchers could delve into the details of a data point, easily classifying it as an outlier or a faint signal of a coming technological shift. Searching across varying time horizons, languages, and media types, analysts could build more robust hypothesis with varied and increased sources.

For DOD, Recorded Future enabled analysts to anticipate, identify, and prepare for beyond-the-horizon advancements. As a result, DOD can more robustly inform strategic thinking, planning, and research efforts to mitigate technological surprise.



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Contact Jason Hines at

jason@recordedfuture.com

or call 703-584-7511.

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