

From Big Data to Smart Decisions

Dr. Erich Rüttsche

Technology & IP Leader Europe, IBM Research - Zurich



The World is Our Lab

22 Years of Patent Leadership

More than 3,000 scientists and engineers

IBM invested \$5.3B on R&D in 2014



Mega Data Trends Impacting Society



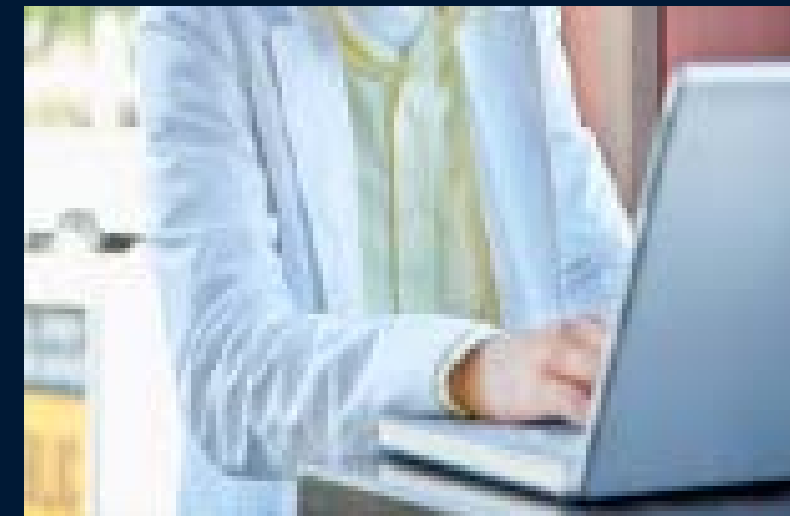
More people in the world have cellphones than running water



85% of software being developed in the cloud, 531,000 app developers in Europe



4x more data than grains of sand on Earth



2 billion daily social connections on the Internet



33% of cyber attacks occur in the amount of time to take to make a cup of coffee

“Big Data is the world’s natural resource for the next century.”

Ginni Rometty

IBM CEO

CNBC, 14 May 2014



Big Data Leads to Actionable Insights



Big Data

Information

Knowledge

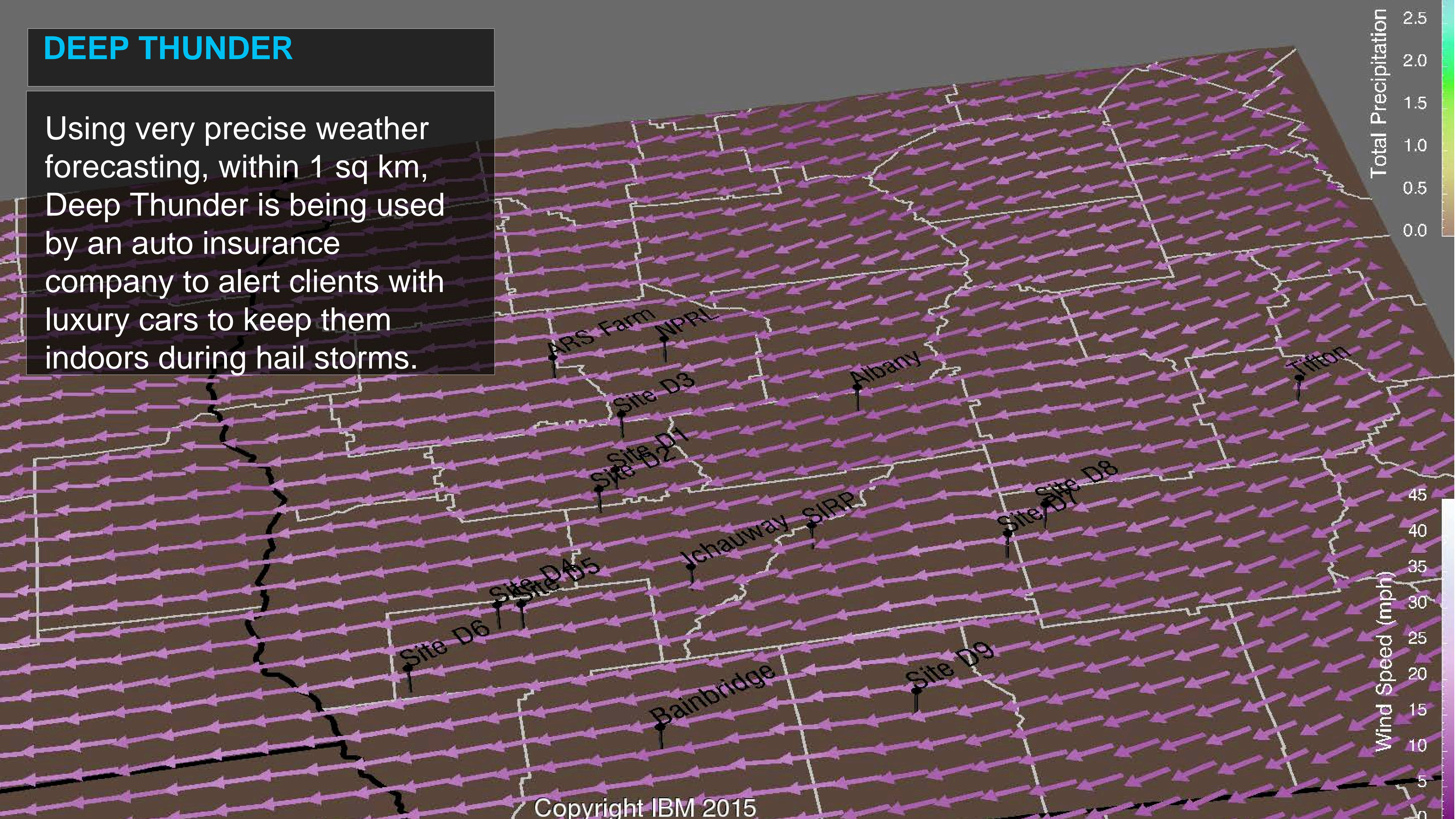
A satellite map of Dublin, Ireland, showing a dense cluster of blue car icons representing smart parked cars. The icons are concentrated in the city center and along major roads. Road labels include R806, R805, R147, R135, R803, R807, R105, R109, R10, R804, R110, R111, R137, R117, R118, R815, R801, and R816. Landmarks like Phoenix Park and Dublin Zoo are visible in the northwest. The River Liffey flows through the city from the north to the south, where it meets the sea. A green 'N40' label is visible on the river.

SMART PARKED CARS

IBM scientists in Dublin are working with the city to test how parked cars fitted with sensors can be used to detect gas leaks before humans, provide more eyes to find Alzheimer's patients, or help catch thieves in action.

DEEP THUNDER

Using very precise weather forecasting, within 1 sq km, Deep Thunder is being used by an auto insurance company to alert clients with luxury cars to keep them indoors during hail storms.





COGNITIVE SELLING

IBM scientists have developed a machine learning algorithm which analyzes terabytes of Big Data from both internal and external sources to provide deeper insights for B2B sales organizations.

Big Data Leads to Actionable Insights



Big Data

Information

Knowledge

Tabulating
Systems Era



THE

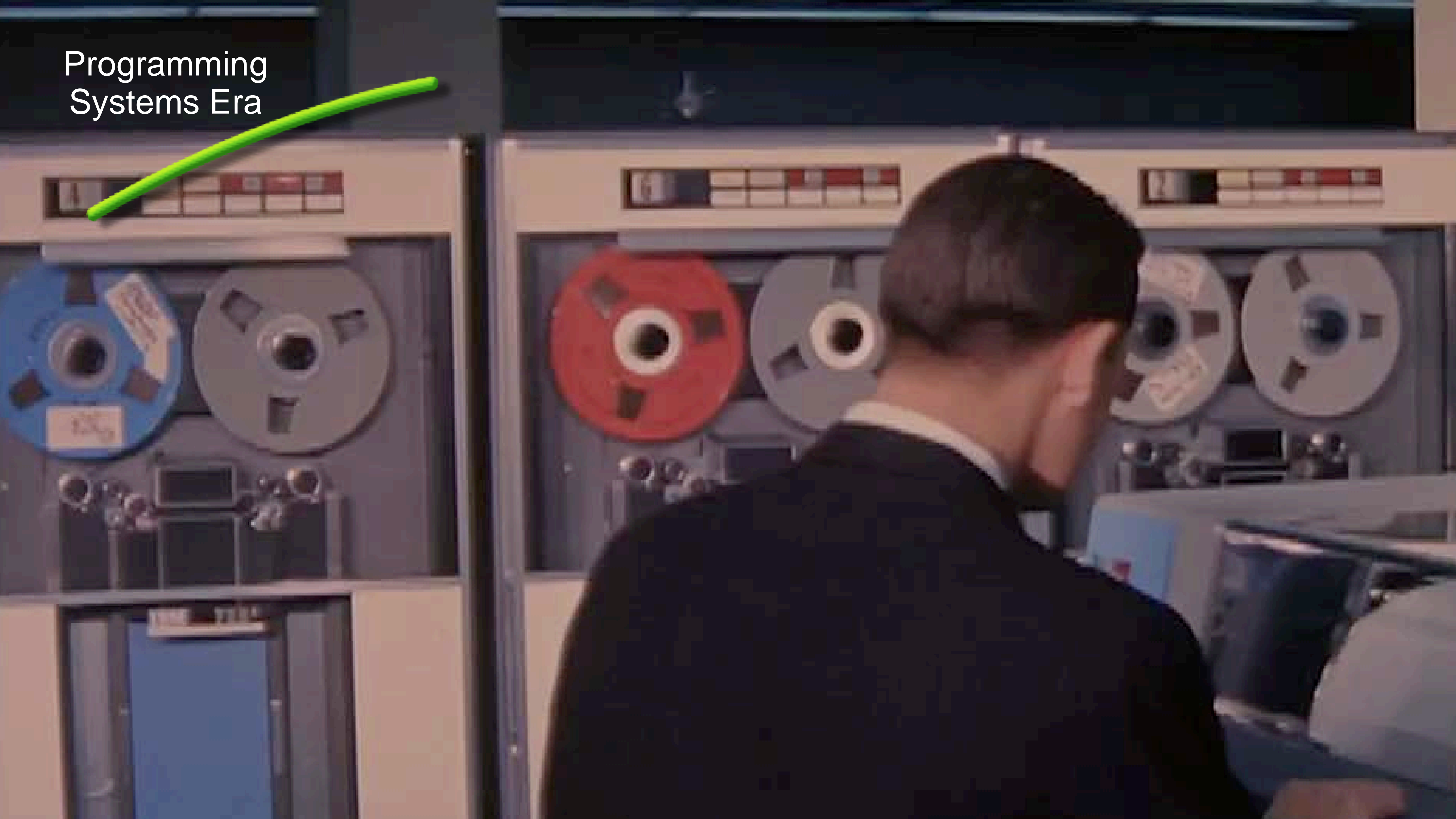
C-T-R-Co.

COMPUTING-TABULATING

RECORDING - COMPANY

50 BROAD STREET, NEW YORK

Programming
Systems Era

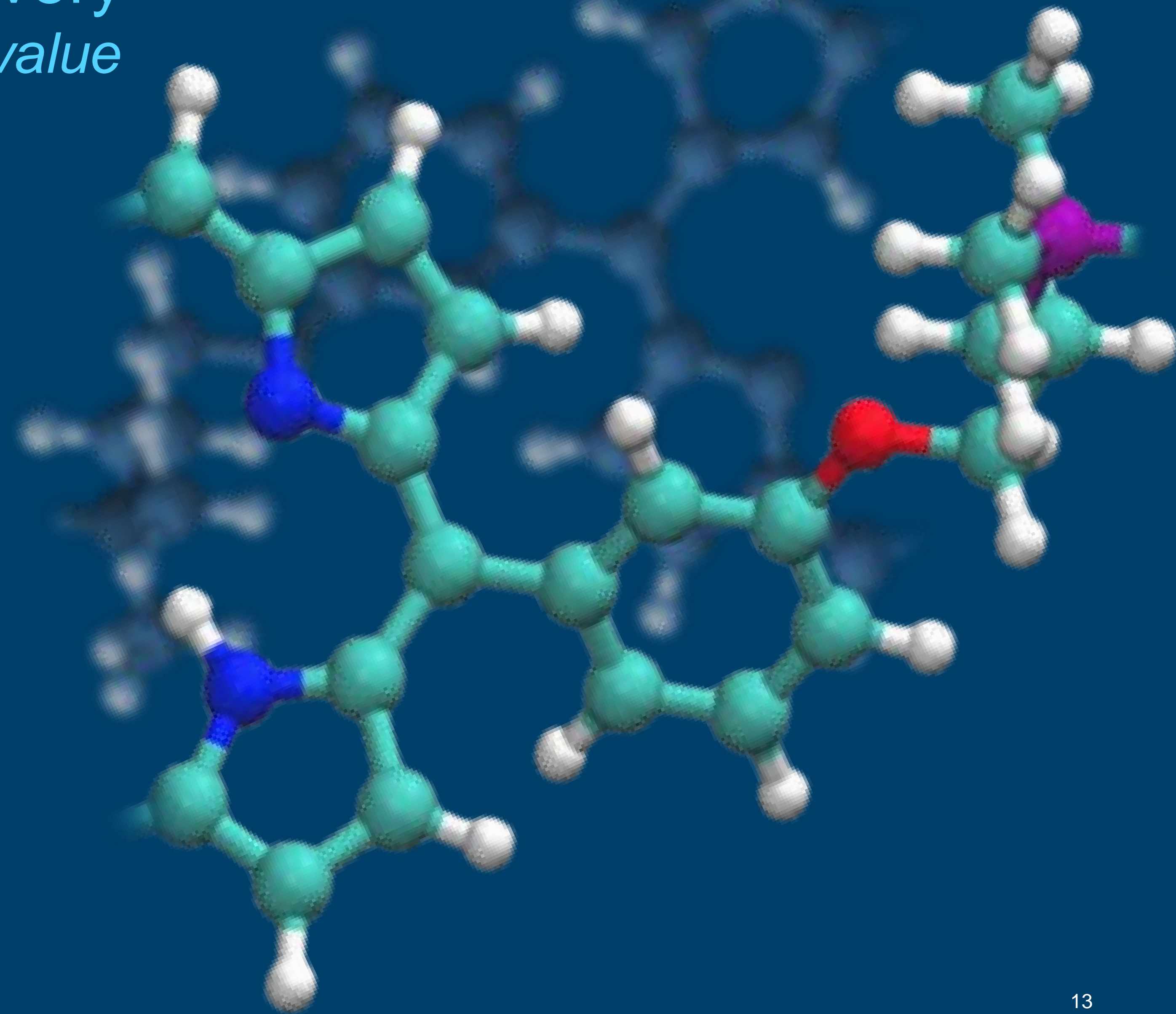


Cognitive
Systems Era



Cognitive computing – Discovery

Create new insights and find new value



Treatment Options to Consider



WATSON:

Treatment options are listed based on the information available.

Request Pre-auth

TREATMENT ADVISOR

In close collaboration with Memorial Sloan Kettering, Watson is being trained to assist doctors spanning from reviewing tests to treatment options to patient preferences and pre-authorization.

| Treatment Plan | Confidence | Patient Preferences Match | EVIDENCE |
|---|------------|--|----------|
| <p>Treatment plan 1 Systemic Chemo: Cisplatin, Pemetrexed, Bevacizumab</p> | <p>95%</p> | <p>Acceptable match with patient preferences</p> | |
| <p>Treatment plan 2 Systemic Chemo: Carboplatin, Paclitaxel, Bevacizumab</p> | <p>45%</p> | <p>Unacceptable match with patient preferences</p> | |
| <p>Treatment plan 3 Systemic Chemo: Erlotinib</p> | <p>8%</p> | <p>Preferred match with patient preferences</p> | |
| <p>Radiation and Surgery are unlikely to be appropriate.</p> | | | |

DISCOVERY ADVISOR

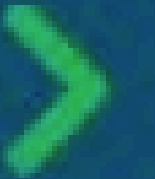
We are using Watson with an industrial client to discover new materials based on more 100 years of patents, scientific papers, internal documents and external data.



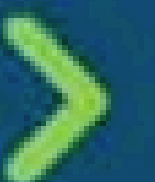
IBM Debating Technologies

Topics

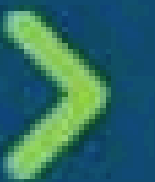
The sale of violent video games to minors should be banned



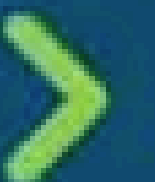
The US and EU should re-engage with Myanmar



The Keystone XL pipeline should be constructed



Europe should weaken its austerity measures to guarantee greater social support for its citizens

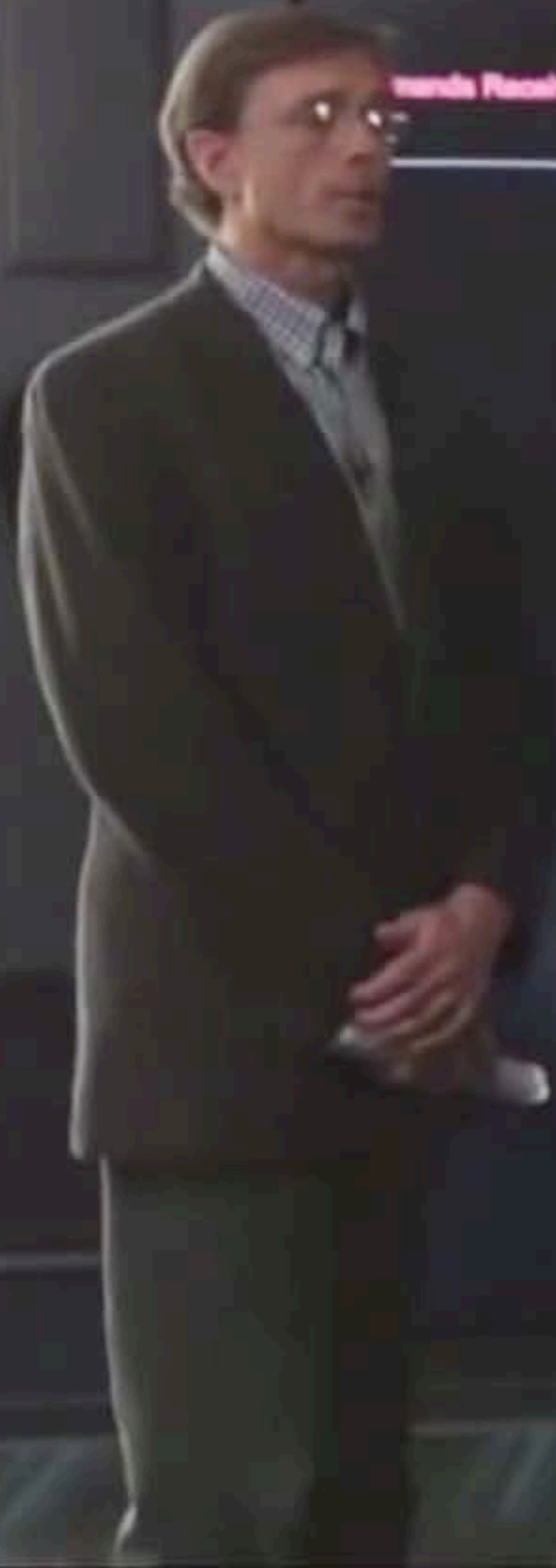


Live Transcript

you William read the graph

William: I'm looking at the graph
if you don't mind I have an overall view
if you don't
William: show the companies with revenue between 500 million and 1 billion primarily to analyze
the market
William: show the companies with revenue between 100 million and 500 million primarily to
analyze
William: I want to see the companies

commands Received



Q&A

IBM