

Data Analytics

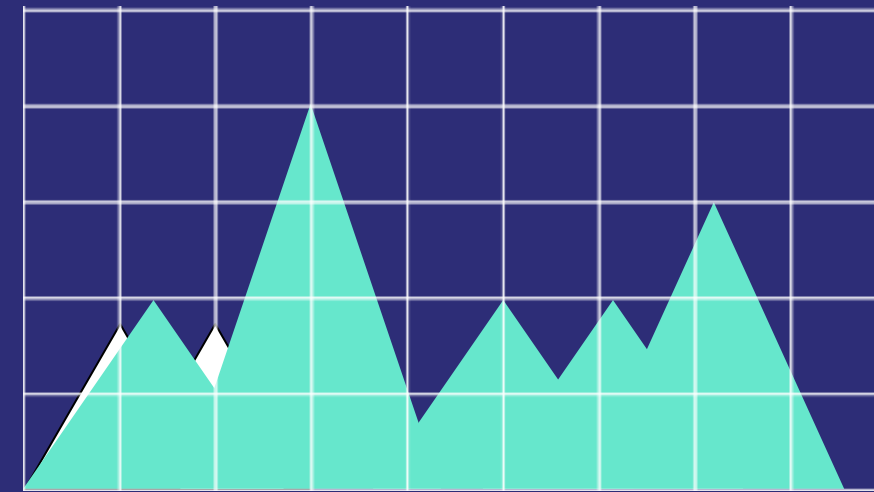
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Today's Agenda

- 01 Today's story: Heartbreak Analytics
- 02 What is Data Analytics?
- 03 Data as "The New Oil"
- 04 Analytics at a Glance
- 05 Typical Analytics Scenarios
- 06 Components of Analytics Projects
- 07 Dealing with Data Problems

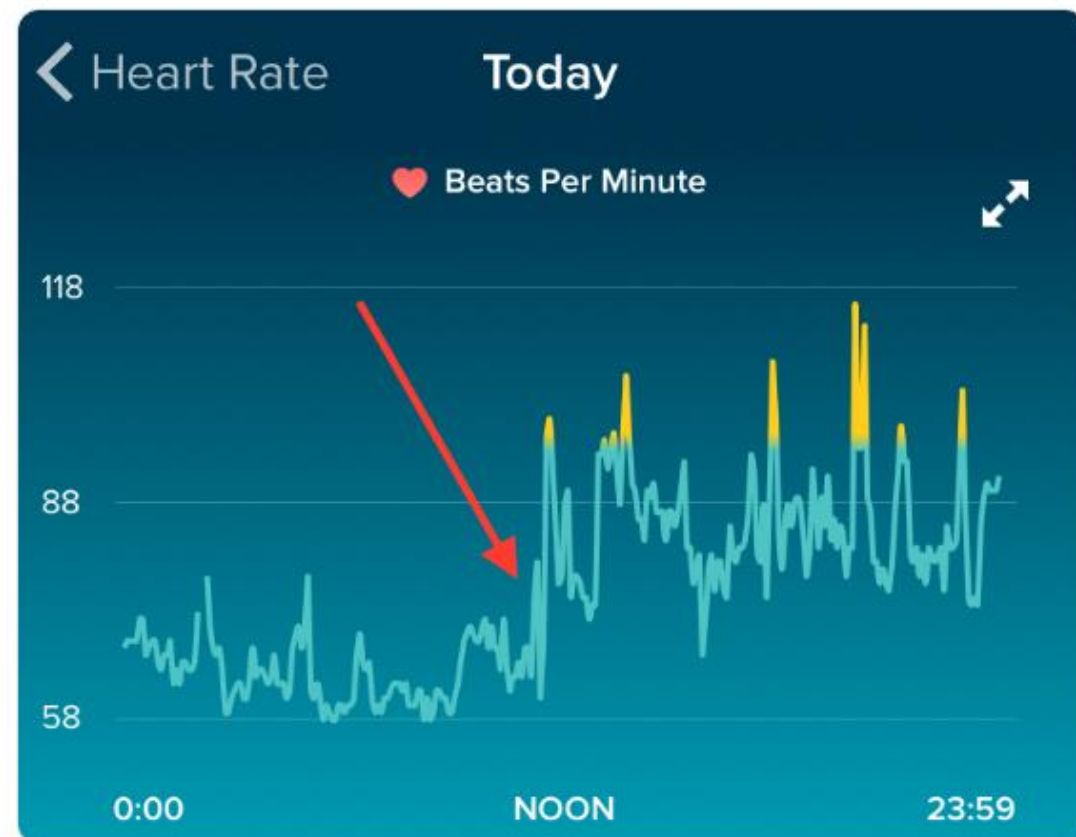




Koby
@iamkoby

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Breakup, as captured by my fitbit. #breakup
#Fitbit



10:55 AM - 19 Jan 2016

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166 2.1K 3.1K

Heartbreak Analytics

A Data Representation of a Heartbreak

"I feel like it's nice to have a log of your confirmation of what you felt. You can tell people you have heartbreak and you feel bad. People become less cynical once you show them the numbers or once you show the data or graphs. Everyone understands heartbreak, right? Everyone's felt it. When you have this, it's interesting — you have something to show." – Koby Soto, Guesty



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What is Data Analytics?

The set of techniques and tools for the transformation of raw data into meaningful and useful information for better decision making.

PROBLEM

What are we
deciding on?

"You can tell people
you have
heartbreak..."

DATA

What are the
facts?

"...log..."

ANALYSIS

What do our
facts say?

"...show the data
or graphs..."

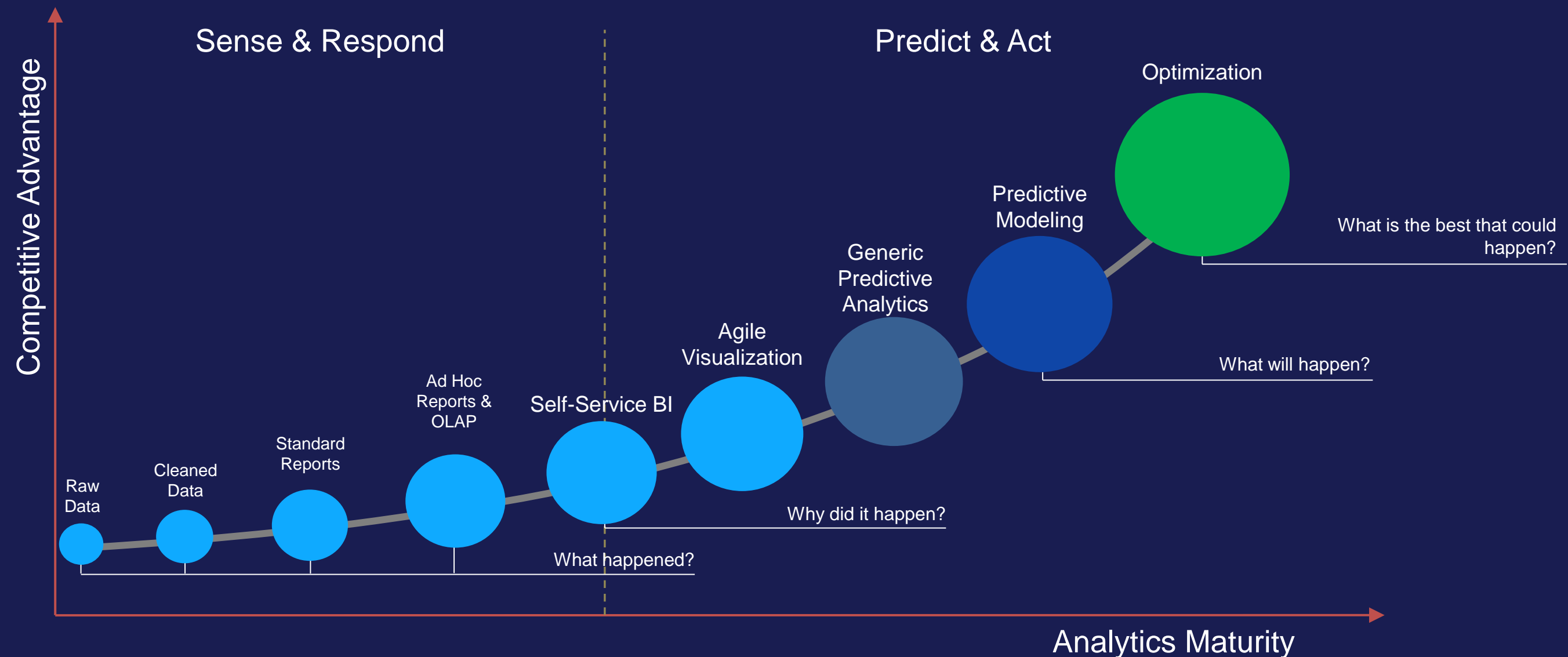
COMMUNICATION

What do we
want to say?

"People become
less cynical."

What is Data Analytics?

To make a better decision, we need to look at historical, current, and predictive view of the problem we are working on.



The key is unlocking data to move decision making from sense & respond to predict & act.

Data is “the new oil” – Clive Humby

The Economist

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Regulating the internet giants

The world’s most valuable resource is no longer oil, but data

The data economy demands a new approach to antitrust rules



May 6th 2017

A NEW commodity spawns a lucrative, fast-growing industry, prompting antitrust regulators to step in to restrain those who control its flow. A century ago, the resource in question was oil. Now similar concerns are being raised by the giants that deal in data, the oil of the digital era. These titans—Alphabet (Google’s parent company), Amazon, Apple, Facebook and Microsoft—look unstoppable. They are the five most valuable listed firms in the world. Their profits are surging: they collectively racked up over \$25bn in net profit in the first quarter of 2017. Amazon captures half of all dollars spent online in America. Google and Facebook accounted for almost all the revenue growth in digital advertising in America last year.

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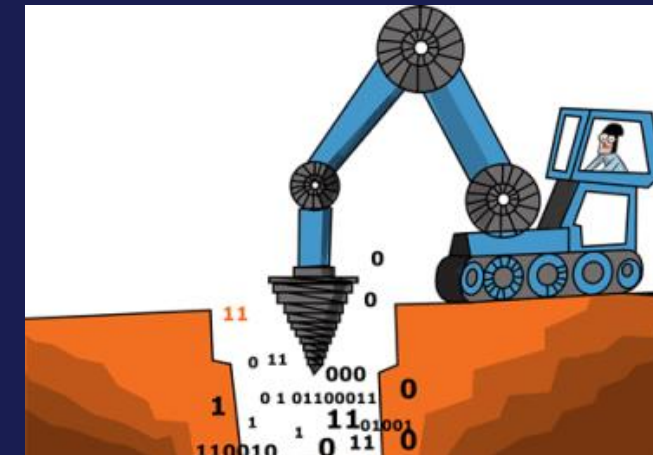
Analytics at a Glance



DATA-DRIVEN
DECISION MAKING



DESCRIPTIVE ANALYTICS



PREDICTIVE ANALYTICS

Data-driven Decision Making

The practice of basing decisions on the analysis of data, rather than purely on intuition





**AFFINITY
POSITIONING**



CROSS-SELLING



CHURN



**CREDIT
SCORING**



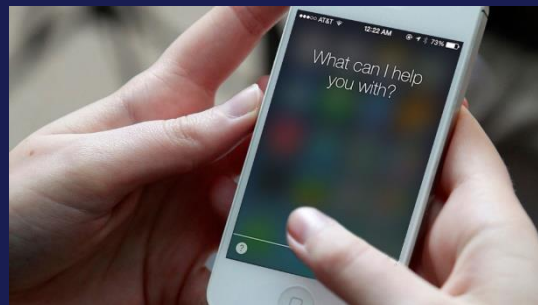
**FRAUD
DETECTION**

Analytics in Business

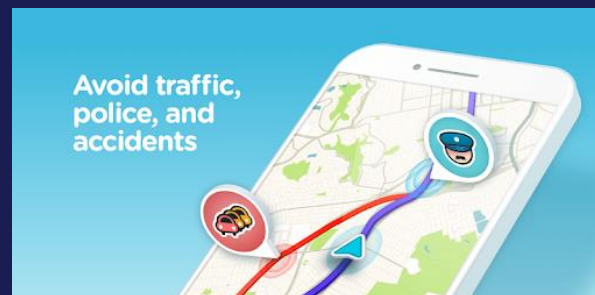
Applications of Data Analytics in a Business/Corporate Setting



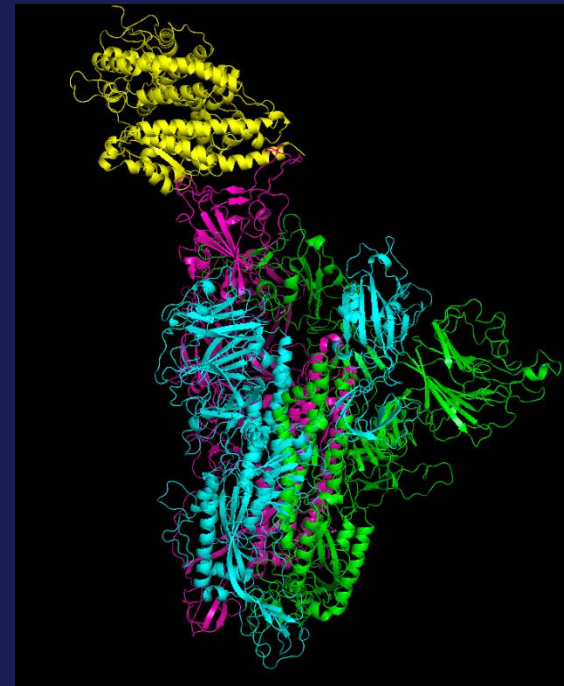
MUSIC SEARCH



VOICE-ACTIVATED CONTROLS



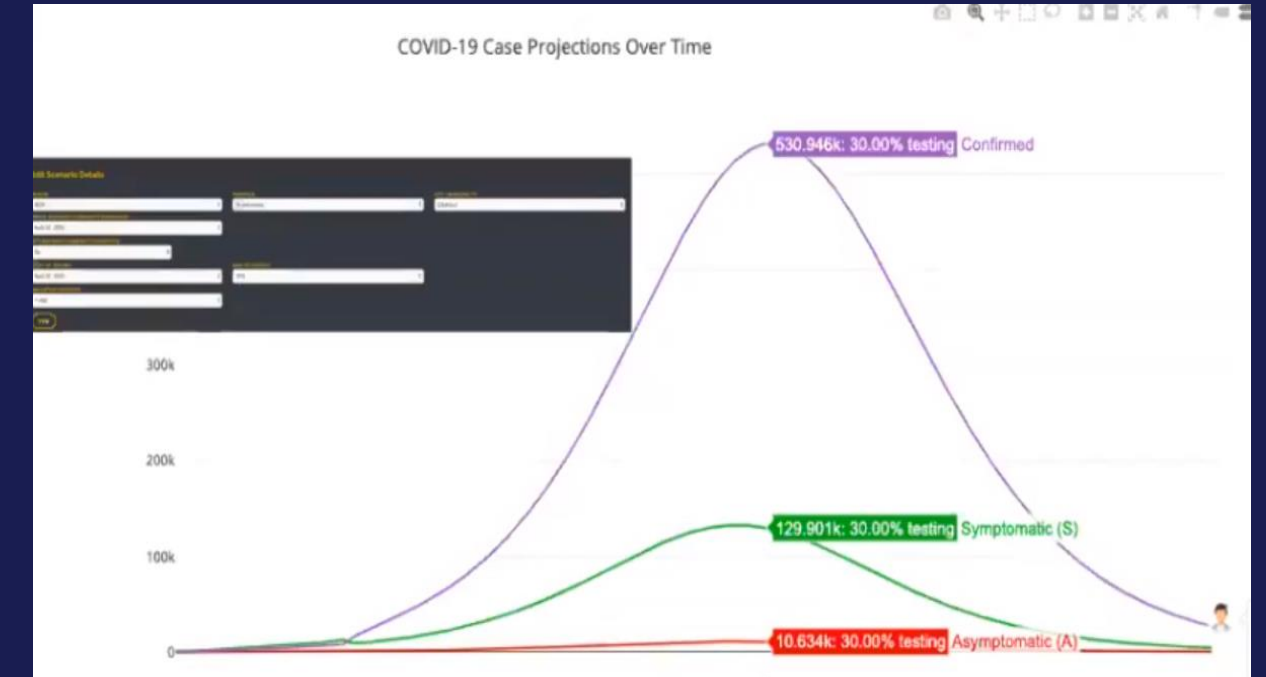
ROUTING RECOMMENDATION



BIOINFORMATICS



CRIME PATTERN DETECTION



EPIDEMIOLOGY



IMAGE RECOGNITION

Analytics in Non-Corporate

Anything with data that is *not for profit*



Mark Zuckerberg

November 5 at 12:10 AM · 🌐



Impressive advance in biological imaging technology. With support from the Chan Zuckerberg Initiative, researchers developed new technology to capture the brightest x-ray ever to show how lung vessels change in response to Covid. In the future, researchers could use AI on clinical scans like CT and MRI to diagnose diseases quicker.



Components of an Analytics Project



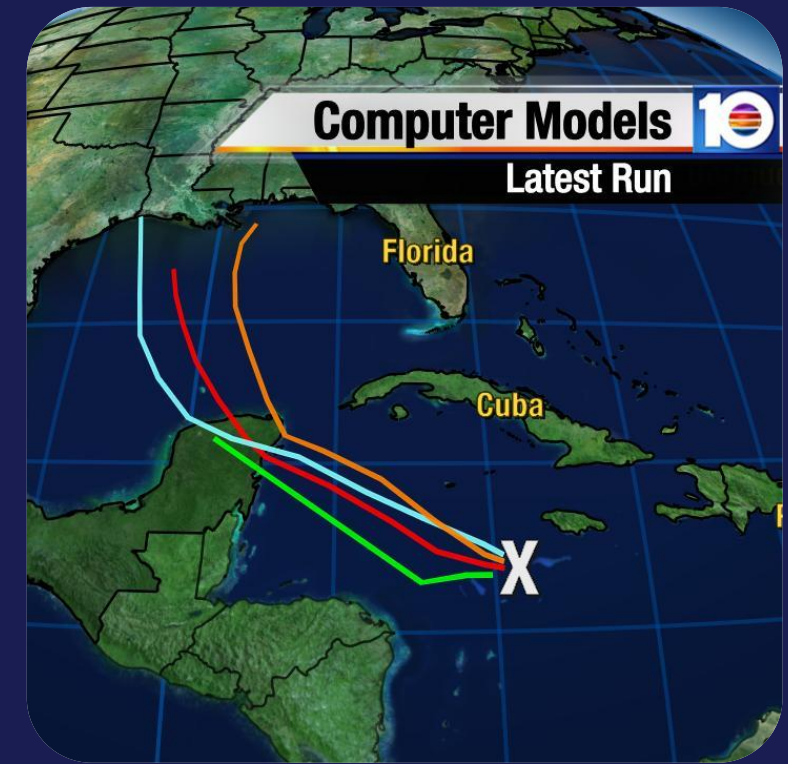
PROBLEM

- Hypothesis testing
- Knowledge discovery



DATA

- Structured Data
- Unstructured Data



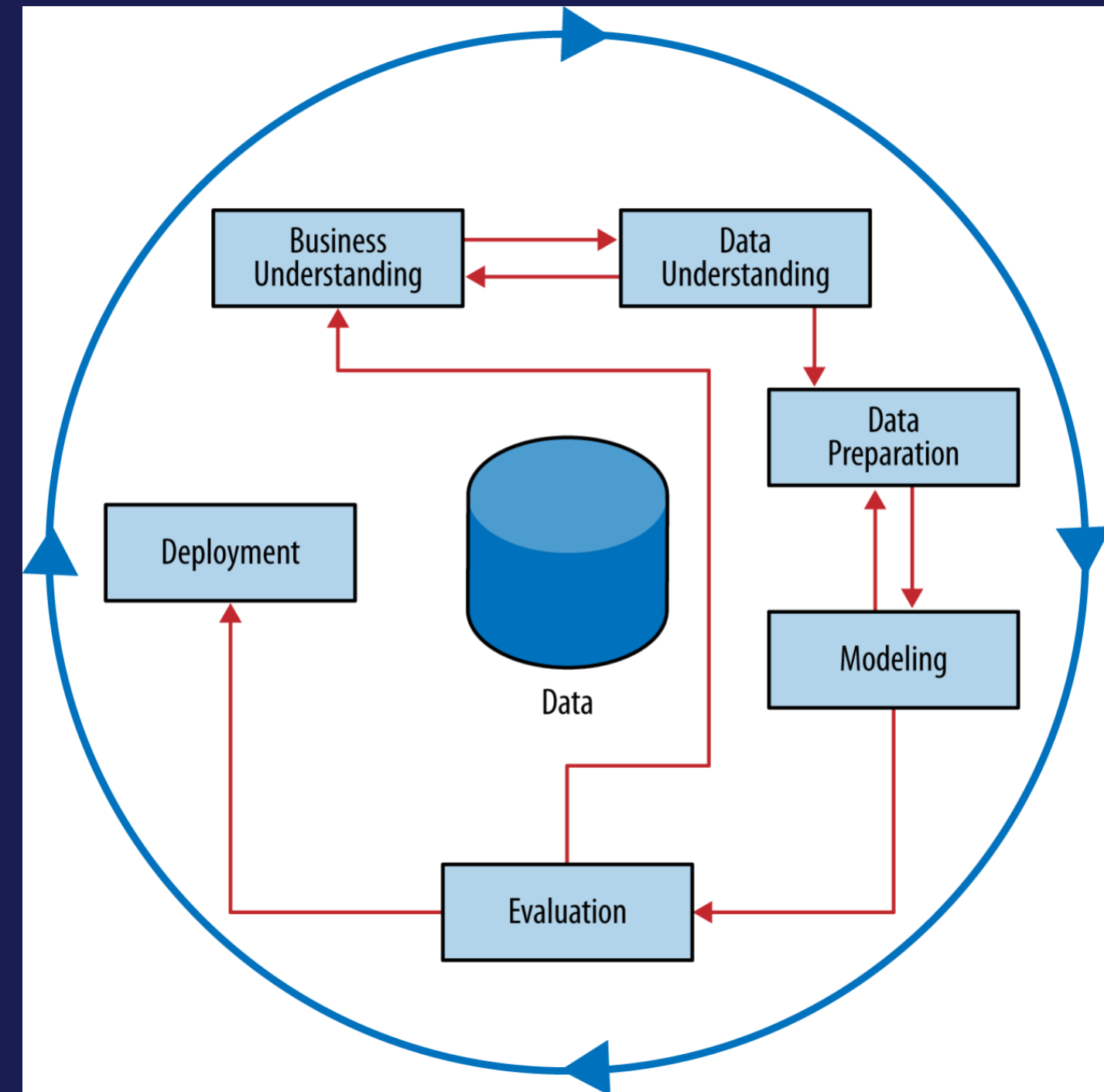
MODELS

- Mathematical Models
- Agent-based Simulation
- Computer Simulations

Dealing with Data Problems

Cross Industry Standard Process for Data Mining (CRISP-DM)

Extracting useful knowledge from data to solve problems can be treated systematically by following a process with reasonably-defined steps.



Summary of today's class



Definition of Analytics

Extraction, analysis, and communication of insights for better decision making

RECAP →



Dealing with Data

CRISP-DM is a systematic way of extracting useful knowledge to solve problems

RECAP →



When to do Analytics

Anytime! Also, anything that has data!

RECAP →



Analytics as Collaboration

Analytics can be applied on various fields such as bioinformatics, environment, and disaster response.

RECAP →

