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Data-driven Decision Making

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Expert in semantic technologies and stream computing

Brander of **stream reasoning**: an approach to master the *velocity* and *variety* dimension of *Big Data*

+20 years experience in innovation and research projects

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Expert in data processing, data integration and data science technologies

~10 years experience in innovation and research projects

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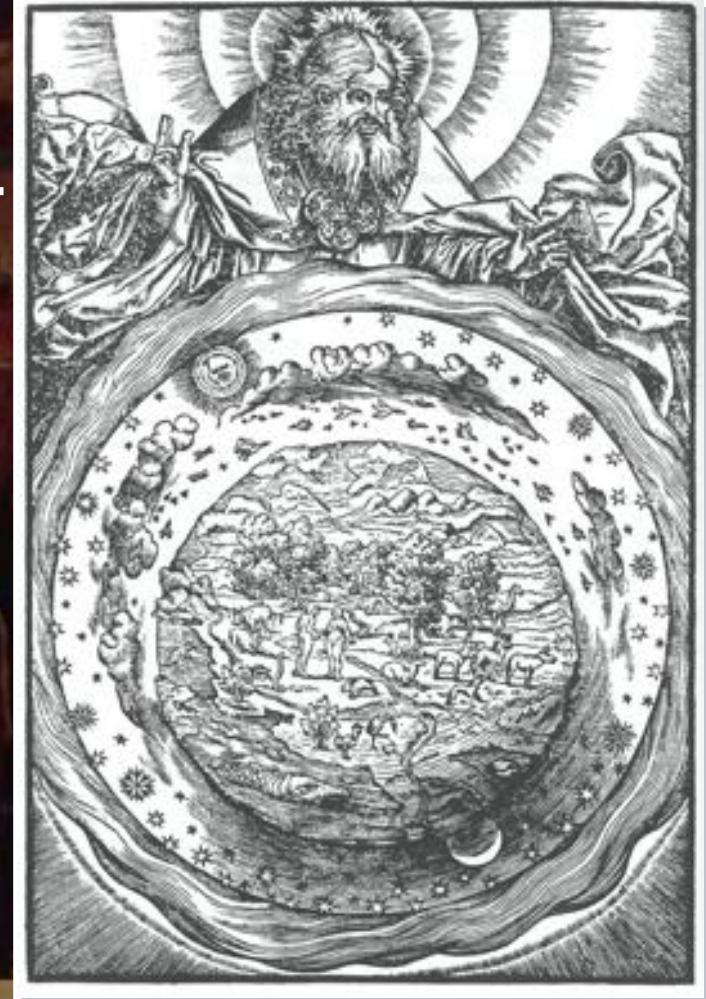
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Taking Decisions

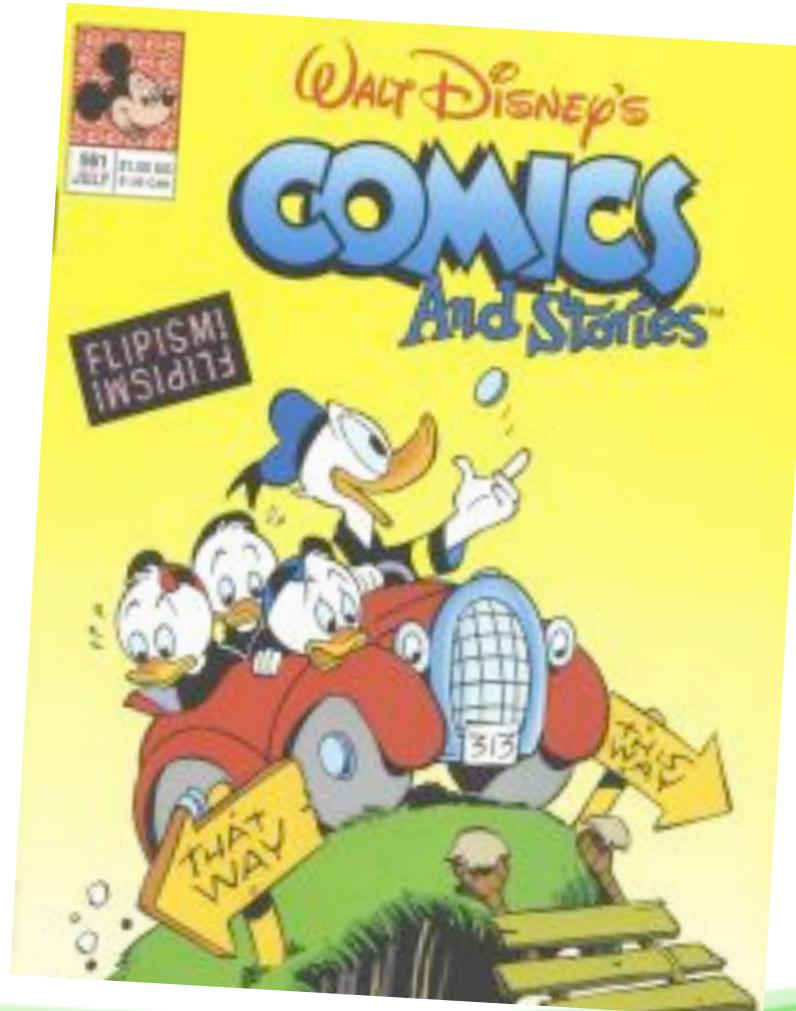
In many organizations decisions are made by "questionable" methodologies such as

Galileo before the Holy Office by Joseph-Nicolas Robert-Fleury



Geocentric model in a Luther Bible (1545)

Taking Decisions: Flipism



Taking Decisions (cont.)

In many organizations decisions are made by "questionable" methodologies such as

- **Highest Paid Person Opinion (HiPPO)**
- **Flipism** (all decisions are made by flipping a coin)

This could have been the **right** approach **in the '70s** ...

- See the "Theory of Bounded Rationality" by Herbert Simons

Taking Decisions (cont.)



Facts do not cease to exist because they are ignored.

— Aldous Huxley —

AZ QUOTES

[source <http://www.azquotes.com/quote/13996>]

Taking Decisions (cont.)

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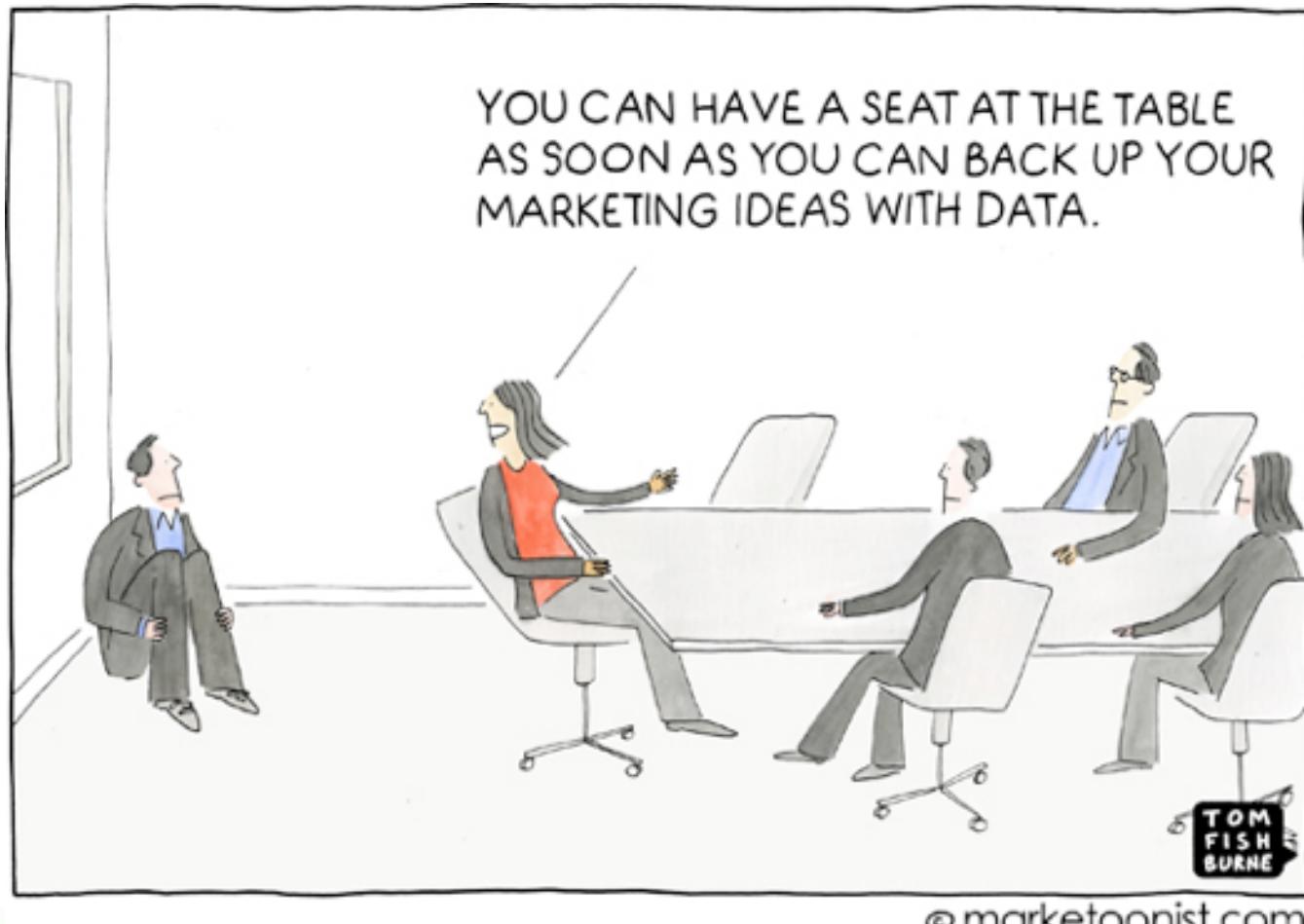
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... but **in the Digital Era** one can dream of
data-driven organization

Taking Decisions: data-driven organization



Data-Driven Decisions

Decisions no longer have to be made in the dark or based on gut instinct; they can be **based on evidence, experiments and more accurate forecasts.**

-- McKinsey

Data-driven organizations

perform better

- The data shows where they can streamline their processes

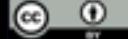
are operationally more predictable

- Data insights fuel current and future decision making

are more profitable

- Constant improvements and better predictions help to outsmart the competition and improve innovation.

It's a streaming world ...

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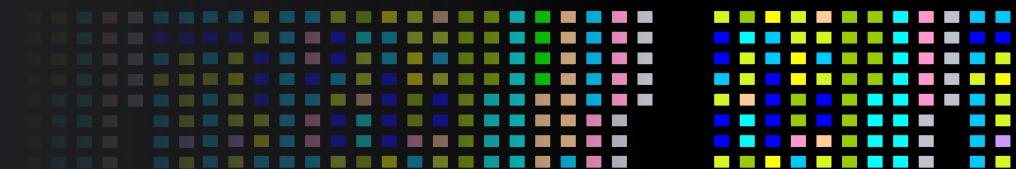
Off-shore oil operations

Smart Cities

Global Contact Center

Social networks

Generate **data streams** and **events!**



... looking for historical analysis ...

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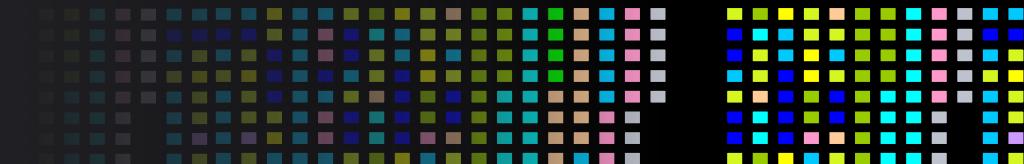
What is the average time to failure
for the different brands of turbine in use?

What is the average delay of
the public transport per city district?

What is the distribution of skills among
the agents in our contact centres?

Which content features are correlated
to high impact posts?

**Requiring the ability to store massive timeseries
and process them in a scalable way**



... struggling with reactive answers

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What is the expected time to failure when that turbine starts to vibrate as detected in the last 10 minutes?

Is public transportation where the people are?

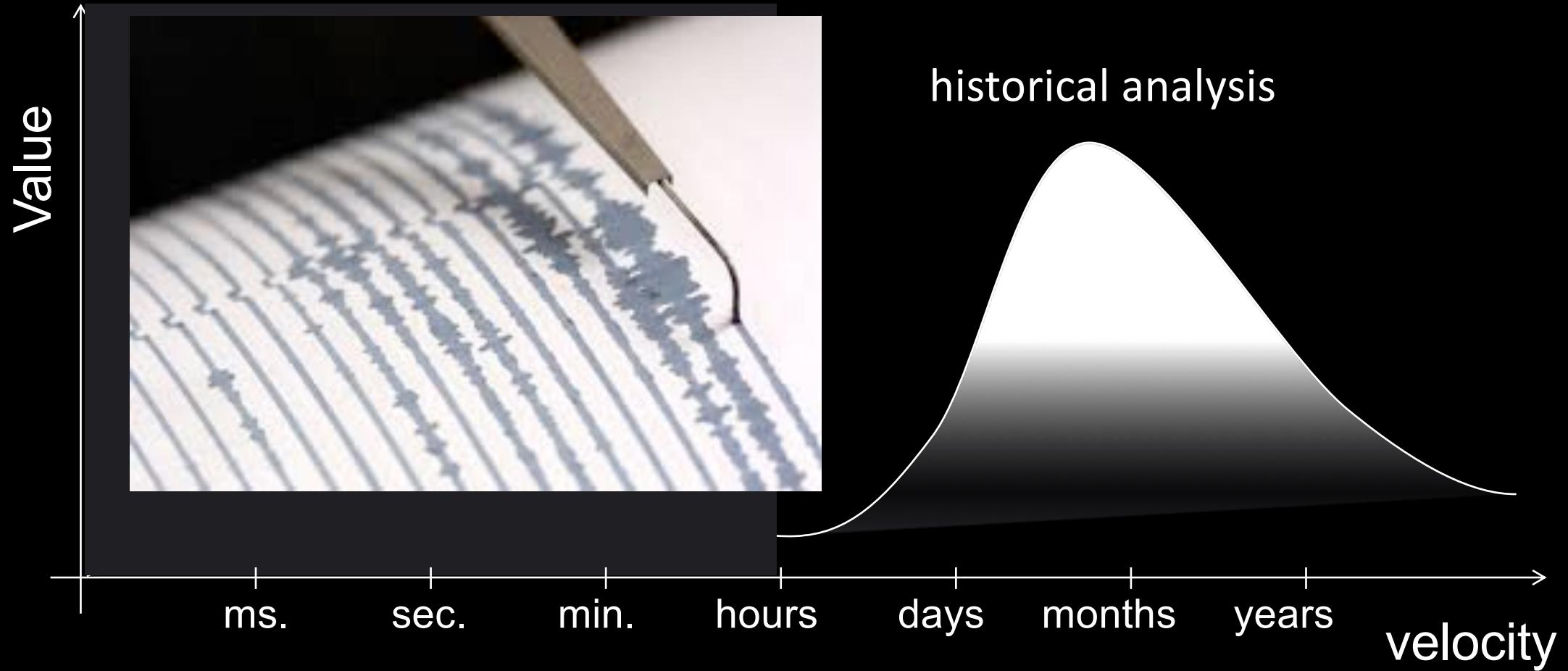
Who are the best available agents to route all these contacts about the tariff plan launched yesterday?

Who is driving the discussion about the top 10 emerging topics?

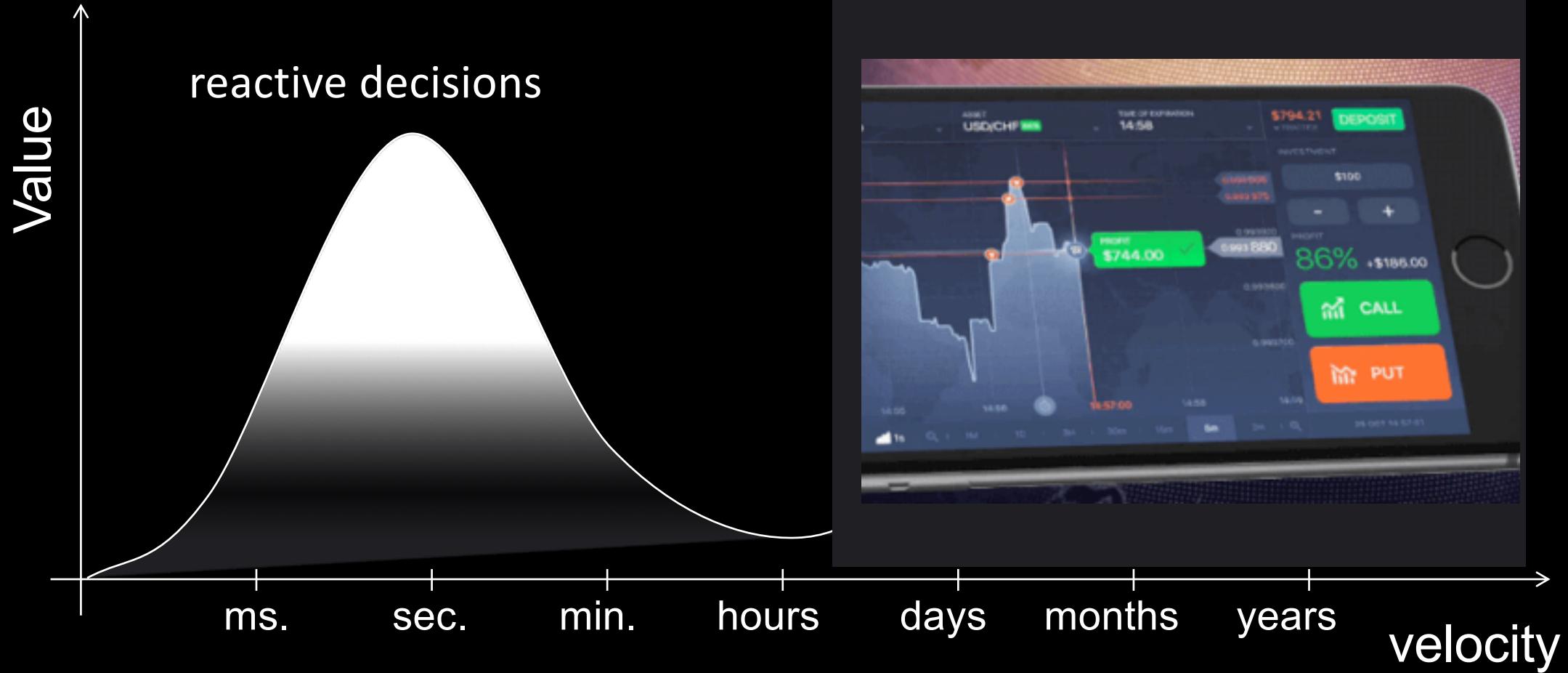
Requiring continuous processing and reactive answers



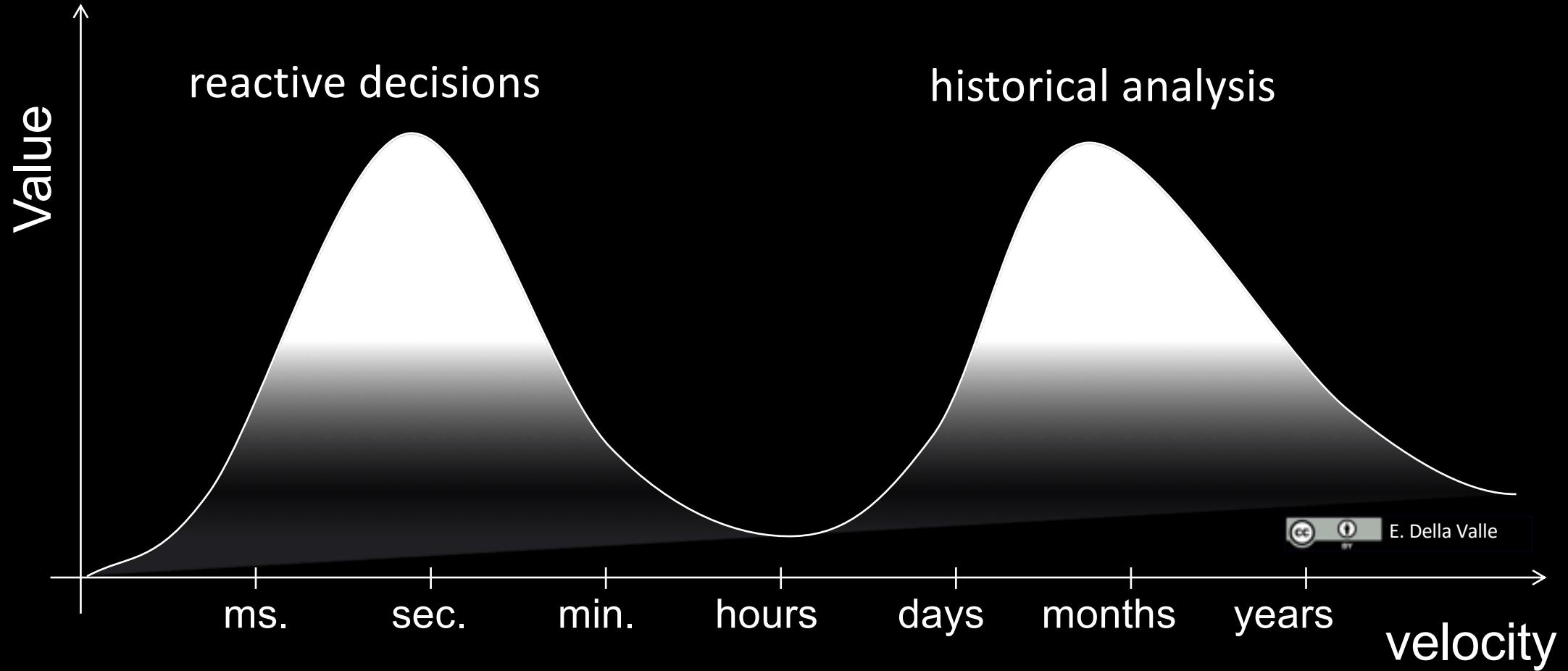
Because there are two moments to extract value from data



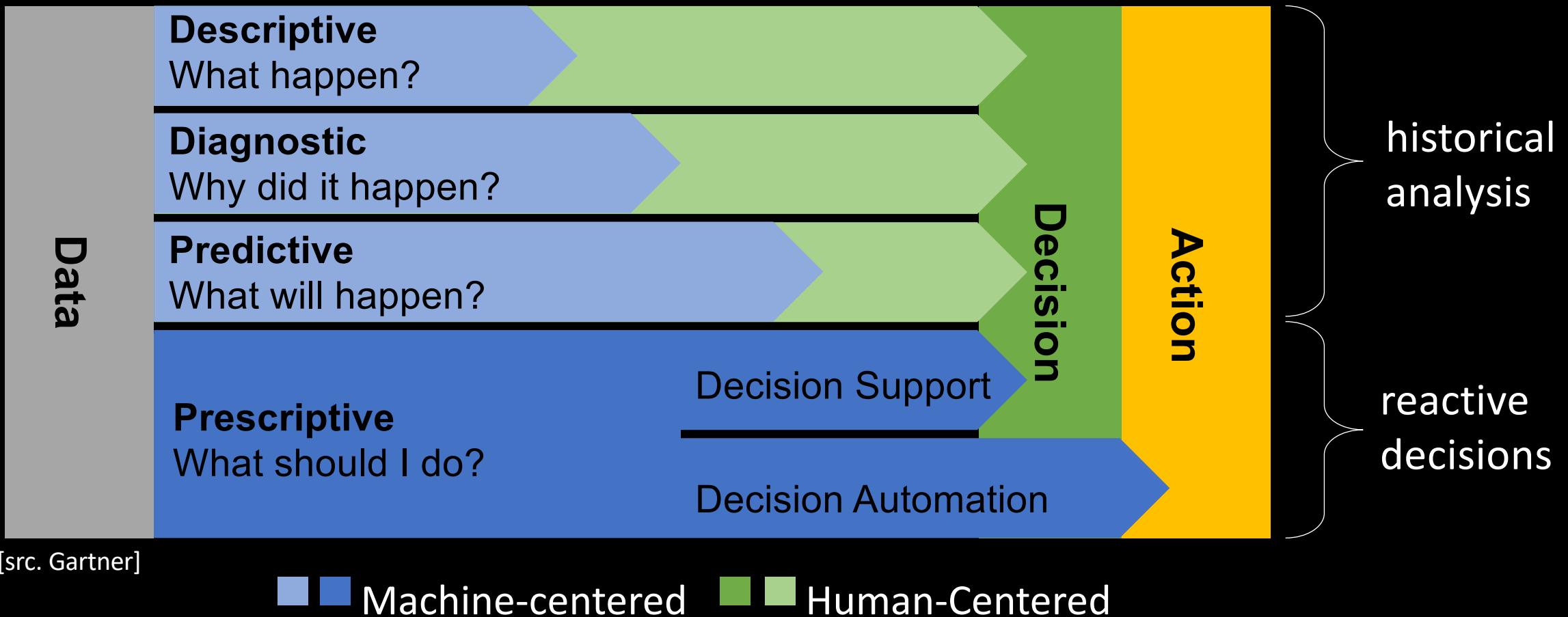
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Because there are two moments to extract value from data



Data-driven decision





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