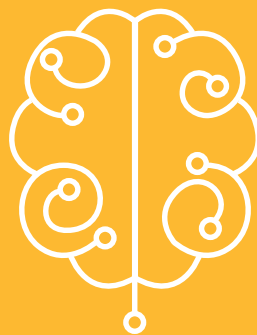




## CHAPTER 1

# EXECUTIVE GUIDE TO MACHINE LEARNING

WHAT YOU NEED  
TO KNOW BEFORE  
YOU START



**ActiveState®**

"Artificial intelligence will, on average, boost rates of profitability by 38% and provide an economic boost of \$14 trillion in additional gross value by 2035"

**Accenture**





## CHAPTER 1

# WHY MACHINE LEARNING?

Once a generation (or so), a game-changing innovation comes along that disrupts businesses across all industries, and changes not only the way we work, but the way we live.

This generation will be defined by the rise of Artificial Intelligence (AI).

AI is driving the creation of systems that can not only learn and adapt, but may at some point even act autonomously. But for now, AI is primarily being used to augment human activity via Machine Learning (ML); where ML is focused on giving machines ac-

cess to data and letting them learn for themselves.

Based on data collected in the enterprise, ML is being used today to enhance decision making, disrupt traditional business models, and redefine the customer experience.

Over the next few years, every innovative application and service will incorporate some level of ML. This trend dovetails nicely with traditional industries that are currently undergoing a digital transformation to become more data driven.

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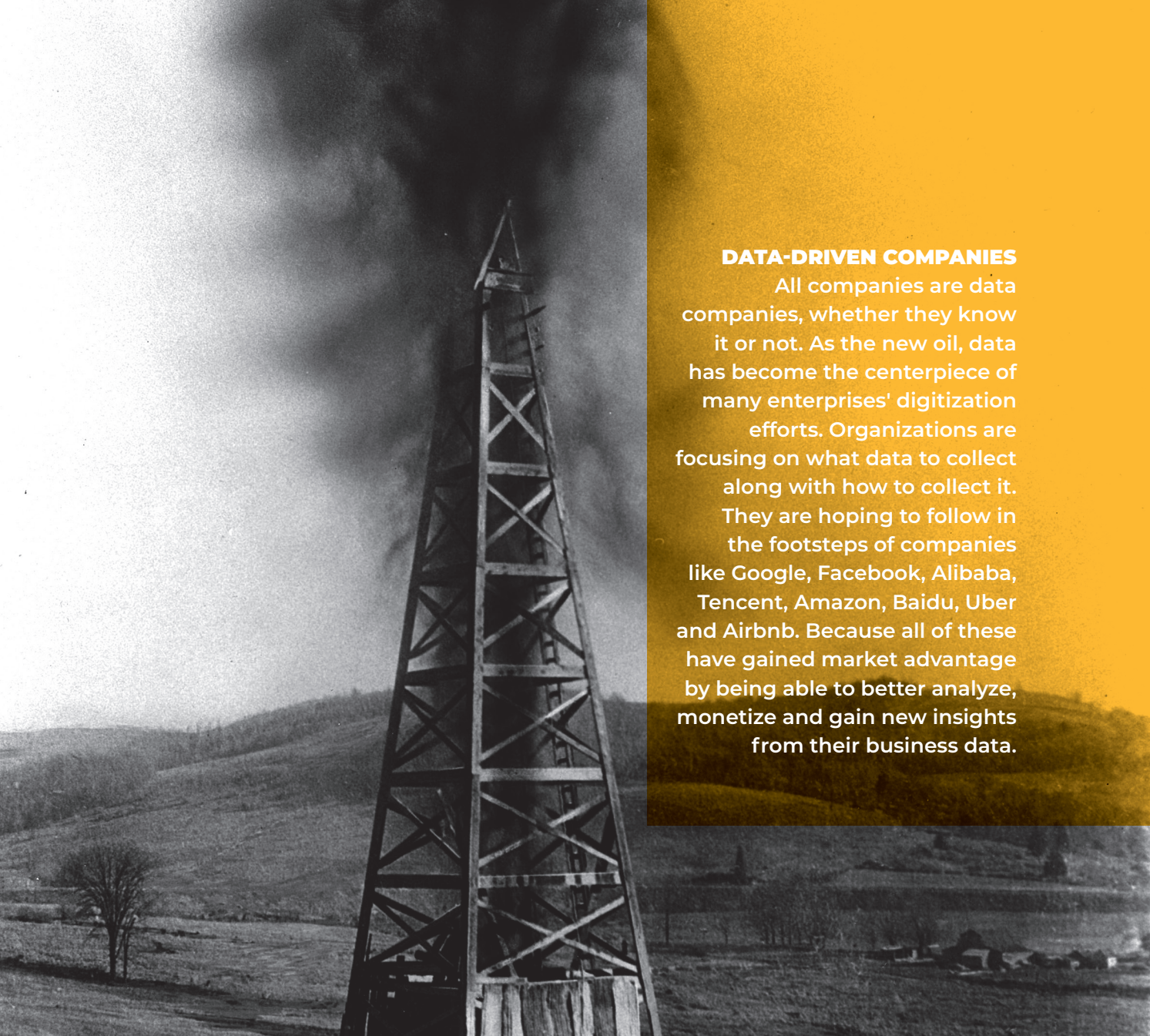
### ML in Postal Services

USPS has previewed their "Smart Blue Box" project, which attaches a voice-based interface to any regular mailbox, enabling a mini post office on every street corner. The voice-activated mailbox uses AI to answer consumers' questions, such as "How much will it cost to ship this package?" The package is weighed on the spot and shipped off in half the time, according to the USPS <sup>1</sup>.

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<sup>1</sup> <https://youtu.be/qGOeznUuy-Y>





### **DATA-DRIVEN COMPANIES**

All companies are data companies, whether they know it or not. As the new oil, data has become the centerpiece of many enterprises' digitization efforts. Organizations are focusing on what data to collect along with how to collect it. They are hoping to follow in the footsteps of companies like Google, Facebook, Alibaba, Tencent, Amazon, Baidu, Uber and Airbnb. Because all of these have gained market advantage by being able to better analyze, monetize and gain new insights from their business data.

But data volume and the increase of number of variables collected makes for another set of challenges. It's either impossible or impractical to explore

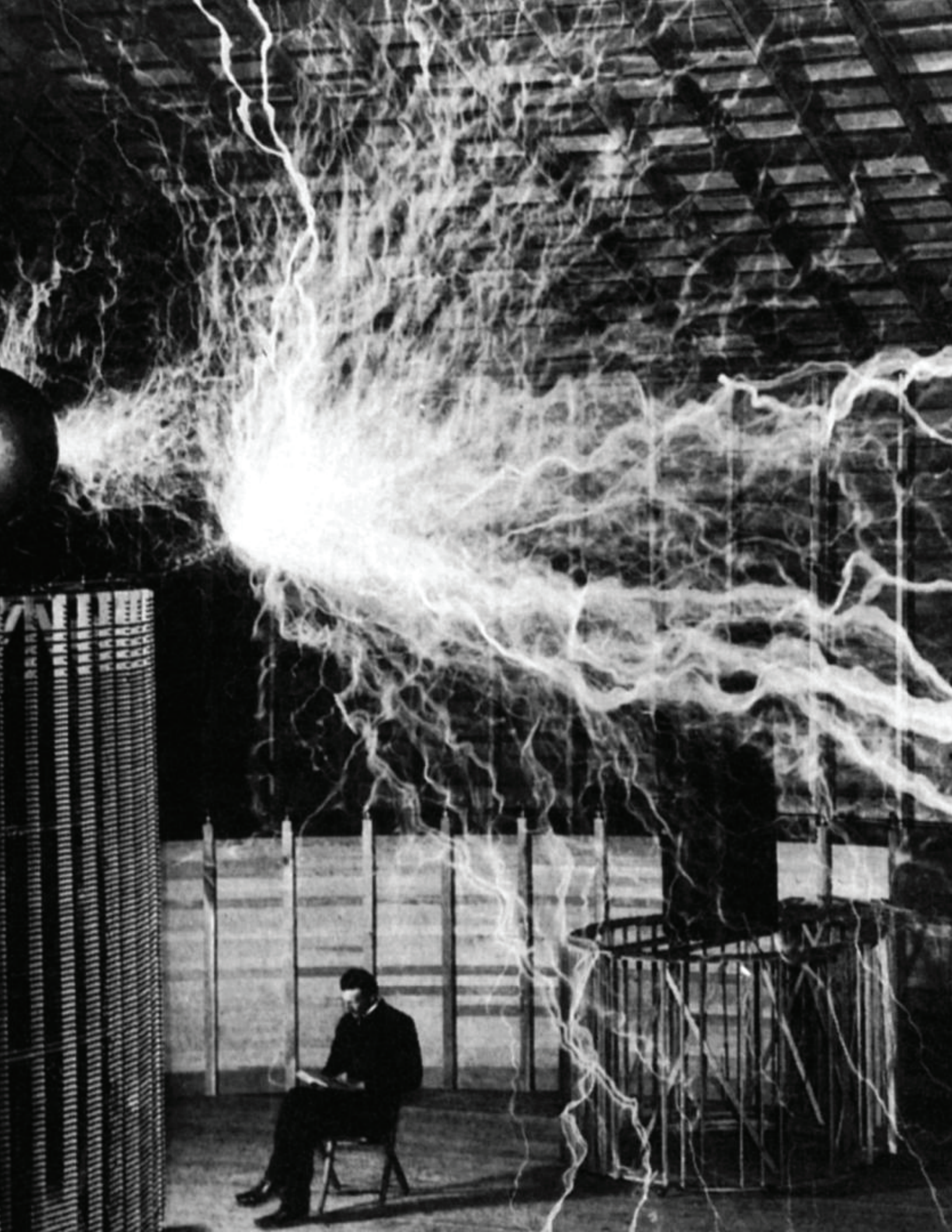
every possible pattern and determine whether the findings are relevant and actionable with current visual-based data discovery tools. Enter ML.

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### **ML in Finance**

A JPMorgan Chase program, called Contract Intelligence (aka COIN), does the mind-numbing job of interpreting 12,000 commercial-loan agreements in seconds compared to the 360,000 hours of work previously required each year by lawyers and loan officers. The result is not only speed, but also a decrease in loan servicing errors.





# THE ML-DRIVEN COMPANY

If data is the new oil, then ML is the new electricity.

The next-generation of data insight tools now feature ML at their core.

In this context, ML automation augments human intelligence and contextual awareness. It removes human bias from the equation and identifies patterns not obvious to the naked eye.

The output will optimize the decisions and actions of all employees from HR to finance to sales, marketing, customer service, procurement and asset management, no matter the industry.

## SO HOW DO YOU GET STARTED?

The good news is that the Big Data initiative your company started a dec-

ade ago is finally going to pay off. The bad news is that the ML experts and data scientists you need to make that happen are scarce resources.

If you find yourself in the planning stages for ML but not ready to implement, you're not alone. Gartner estimates that only about 12% of their customers have either implemented data science and ML, or are implementing it right now <sup>2</sup>.

This guide is intended to help clarify your options as you evolve toward an ML-driven company.

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## ML in Transportation

Lufthansa Industry Solutions is applying ML to reduce flight delays by predicting everything from whether a passenger will show up for the flight to optimizing refueling times to predicting the arrival time of an aircraft at the moment of departure. <sup>3</sup>

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<sup>2</sup> Market Guide for Data Science and Machine Learning Service Providers, 31 October 2017

<sup>3</sup> <http://dataconomy.com/2017/10/structuring-it-at-lufthansa/>



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