# Data & Al for the Savvy Executive.



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Today, more and more businesses are focused on unlocking the valuable insights found in their data. Wizeline helps companies unlock their data to solve predictive problems with artificial intelligence.

It is estimated that AI has the potential to boost rates of profitability by an average of 38 percent and could boost the economy by \$14 trillion in additional gross value added (GVA) by 2035. Meanwhile, career opportunities in the AI space have accelerated, citing Machine Learning and deep learning as the most common and fastest-growing skill requirements.

The number of jobs that require deep learning capabilities increased 34-fold from 2015 to 2017, according to the latest report from Datamotion. How do we define artificial intelligence? Simply put, AI is a system that mimics some aspects of human intelligence. It's the concept that machines are able to carry out tasks in a smart way.

Machine Learning is an application of Al and the fastest growing area of it. The idea behind Machine Learning is that machines can learn for themselves if we give them the data. And therein lies the challenge, because, often, the data is not in a state where it can provide value.



# **A Brief History of Machine Learning**

Machine Learning is not a new concept or technology. It has been around for decades. The fundamental algorithms being used today, such as neural networks and back propagation—the mechanism used to train neural networks—were invented back in the 1970s.



So why now? Why does it seem like machine learning and AI is all the rage today? There are a number of factors that have enabled the rise of Machine Learning and predictive algorithms.

 We now have tremendous computational power, via services like AWS cloud services.

- We are benefiting from the fastest internet speed in history.
- We are seeing a lower cost of memory.
- We have a more manageable cost of processing power than before.

In short, the algorithms have not changed, the processes around them have changed.

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# Where should companies start?

So what can companies do? Where should you start? Our advice is to walk before you run towards AI. And you can achieve that by focusing on the data. AI becomes impactful when it has access to large amounts of high-quality data and is integrated into automated work processes. You need to commit to a solid foundation of high-quality data and cloud computing before you can benefit from more sophisticated AI technologies.

## Challenge #1 Typically data is stored in massive data centers.

#### Step 1: Get your data out of the dark and into the cloud.

The cloud has become a ubiquitous part of both business and culture, but many businesses have been slow to adopt. It requires a shift in perspective to thinking about cloud spend as an investment and as a growth strategy. The core business value in moving to the cloud is giving focus and agility to the business. How do the benefits outweigh the costs?



#### **Economy for scale**

By aggregating thousands of customers' data in the cloud, providers such as Amazon Web Services can achieve higher economies of scale, which translates into lower pay-as-you-go prices.

## Avoid guessing capacity



Stop estimating infrastructure capacity needs. Organizations can access as much or as little as you need with cloud computing, and scale up and down as required relatively quickly.



### Increase speed and agility

In a cloud computing environment, new IT resources are a click away. You can reduce the time it takes to make those resources available to developers from weeks to just minutes, enabling teams to be agile.



#### **Kill data centers**

Focus on the business, not the infrastructure. Cloud services enable companies to focus on the customer experience, instead of racking, stacking, and powering servers.



# Challenge #2 The data is usually not organized in a way that can be fed to algorithms.

#### Step 2: Clean the data.

Making sure to organize the data into a user-centric approach. For example, you should be able to track and extract if a user has purchased 10 pairs of shoes over the last six months or has renewed their subscription to your service annually. Cleaning or normalizing the data requires removing outliers, big numbers, and inaccurate data points.

Data is your most valuable asset. Having it promptly, accurately, and orderly will allow you to make the right move and will make a positive impact.

To have the right data, you will have to change things from the inside—automated recording, reduce errors and add an abstract layer that controls all that. The difficult, but right way, will lead you to a DevOps transformation that will serve as a foundation to become a data-driven company.

In a couple of cases, we have observed the usage of Machine Learning algorithms trained with limited, unclean data, adjusted without the support of SME, and expected to solve impossible tasks. It's no wonder why so many companies shy away from today's Machine Learning and AI capabilities.

The value of AI is achieved once you prepare the foundations and invest the time and effort, and correct team to implement it.





# **Challenge #3** Most companies lack the specialized skills in data science and Machine Learning to leverage the data once it's ready.

#### Step 3: Assemble the right team or acquire the right resources.

That's usually where our team comes in. Even in Silicon Valley, technical talent is a scarce resource. This scarcity of talent has led more than <u>a third of businesses</u> to invest in engineering resources abroad to bridge the skill gaps in fields like cybersecurity and AI.

Both new startups and long-standing enterprises alike can benefit from technology partners who architect technical solutions and accelerate their engineering operations.

# "Which skills or roles do I need to acquire?"

A data team can include data engineers, data analysts, and data scientists. Data engineers build pipelines and frameworks that transform the data into patterns data scientists can work with. Data science encompasses everything from cleaning or normalizing data, to employing predictive models to gain insights.

"A good <u>analogy</u> is a race car builder vs a race car driver. The driver gets the excitement of speeding along a track, and thrill of victory in front of a crowd. But the builder gets the joy of tuning engines, experimenting with different exhaust setups, and creating a powerful, robust, machine. If you're the type of person that likes building and tweaking systems, data engineering might be right for you."



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# **Three Practical Business Applications of Al**

What type of applications can companies unlock once they have tackled the three main challenges?

#### Sourcing data to accelerate the product development lifecycle

One of our clients, a popular retailer, has a long development cycle, which meant that by the time its new product hits the market, trends have already changed. This retailer hired us because it wanted to source data from 12 of the most influential design cities—London, Tokyo, New York, etc. The team wanted to source this data from images taken by its employees in these major cities, with the goal to use these images to influence product decisions faster based on these everyday trends.



#### Goal: Predict style trends to influence product decisions faster.

We helped this client unlock its machine learning capabilities to identify what those trends might be. How? By building an algorithm that can look through thousands of pictures over time, across a library of images, to identify stylistic trends and colors. The algorithm can predict color and fashion trends to influence product design earlier in the development cycle.

## Capturing data to predict media risk

A large food and beverage company wanted to reduce its response time to negative media events and trending topics that were impacting its brand. The company's marketing risk division wanted a system that could monitor activity across social media channels.

#### Goal: Reduce response time to negative media events that impact the brand.



We built a predictive algorithm to mine social media data sources. Our team of engineers and data scientists created a dashboard and predictive system capable of checking millions of posts a day. This system saved the client's marketing team over four hours per media event by having proactive information, allowing the company to focus its resources on messaging and develop more robust strategies for high-risk media events.

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## Leveraging data to identify arbitrage opportunities

One of our past clients trades midstream logistics for moving oil and gas from the field to refineries at the most efficient and cost-effective rate. The CEO wanted to build a data engine with a robust dashboard to analyze opportunities for optimal pricing. We were brought in to synthesize several internal and market data sources and build the predictive algorithm.

# Goal: Identify the best combination of price and fastest time for moving oil and gas to refineries



The goal was to identify the best combination of price and the fastest time for moving oil and gas to refineries that would enable it to have an advantage over competitors. Our team built a data engine with a robust dashboard to analyze optimal pricing. The unique intellectual property gave the company a competitive edge and quadrupled its valuation.

#### **Takeaways**

If innovation is an engine, data can best be described as the oil that fuels it. However, like regular oil, data can't create much value in its raw form. It needs to be collected, cleaned, organized, analyzed, and then converted into actionable insights and predictive algorithms.

Al is not a shortcut to these digital foundations, it is an extension of them. The biggest innovation happening right now is around more automatically processing mass amounts of data so that it can be used to solve practical problems across industries.

# **Our Approach to the Data Life Cycle**

At Wizeline, we have experience building enterprise-grade solutions. We are a multidisciplinary team that can see a solution and thinks about how to integrate the data solutions into the whole backend, how to build web apps with analytics, and how to integrate our data team to deliver a more complete or future-proof product or solution.



Analytics workshop. We work to identify your data sources and design business processes, with careful consideration of your business needs, to achieve your organizational or product goals.

# Step 2

Data infrastructure. Now that you know what to expect, it's time to gather the data, sort, and refine it. This is a necessary step before the magic can happen.



Data insights. This step usually doesn't require complex modeling, but can paint a picture of what your future business can look like.

## Step 4

Predictive tools. Some of the data science applications we discussed above come into play and we apply advanced modeling techniques. Here, the data begins to speak for itself, instead of someone having to really understand the intricacies of your business.



"We are a multidisciplinary team that can see a solution and thinks about how to integrate the data solutions into the whole backend."

We have developed a four-step process for a well-rounded approach to data projects.

#### DATA DRIVEN BUSINESS

#### 04. PREDICTIVE TOOLS

#### INTELLIGENT Insights

#### 03. DATA INSIGHTS

- Analyze business outcomes through data.
- Enable data driven decisions across the company.
- Predict business outcomes automate decision making improve data and result using Machine Learning.

#### MONITORING / VISUALIZING

#### 02. DATA INFRASTRUCTURE

- Create, implement and connect data sources.
- Design and build data pipeline and infrastructure.
- Design and create dashboards.
- AWARENESS

#### 01. ANALYTICS WORKSHOP

- Identify data sources.
- Design business processes (AI - First)
- Visualize data through business processes.



If you are interested in getting started on your data strategy, but need support in overcoming the challenges we just reviewed, our team is here to help. Contact us to learn more and talk to one of our data experts. Reach out to <u>consulting@wizeline.com</u> or visit www.wizeline.com/data

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