

WHITE PAPER



THE SHIFT TO SMARTER ANALYTICS

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AUGUST 2017

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Breakthroughs in machine learning, big data and predictive analytics are revolutionising how organisations forecast trends, identify new markets and drive revenue. For chief technology officers and IT directors, this changing landscape presents fresh opportunities to maximise the value of information stored across the enterprise.

The problem is that large amounts of unstructured data have traditionally been difficult to analyse. As a result, data sources such as social media streams, text, speech, emotion and facial recognition have been overlooked. Until now.

The rise of machine learning is transforming the way organisations use and analyse unstructured data. Defined as “a technique of data science that helps computers learn from existing data in order to forecast future behaviours, outcomes and trends;”¹ organisations including Uber, AXA and National Australia Bank are leveraging machine learning to build data-driven business models that others seek to follow.

Uber, for example, uses machine learning to:

- Determine supply and demand
- Calculate surge pricing
- Match drivers with users

Why should organisations strive to replicate Uber’s success? Gartner predicts machines will author 20 percent of all business content by 2018. It also claims that half of the world’s fastest growing companies will eventually have fewer employees than smart machines.²

These figures suggest that machine learning is not just a tool for shifting to smarter analytics. When it comes to maintaining a competitive advantage, machine learning is essential.

This white paper will:

- Outline the benefits of embracing machine learning
- Identify and address common barriers to adoption
- Provide practical advice for getting started with machine learning

1. Microsoft. (2017). What is machine learning on Azure? [Online]. Available at: <https://docs.microsoft.com/en-us/azure/machine-learning/machine-learning-what-is-machine-learning>.

2. Gartner. (2015). Top Strategic Predictions for 2016 and Beyond: The Future Is a Digital Thing [Online] Available at: https://www.gartner.com/binaries/content/assets/events/keywords/symposium/sym26/gartner_top_strategic_predictions_2016.pdf.



MACHINE LEARNING AND PREDICTIVE ANALYTICS

Imagine that you work in fraud detection for one of Australia's big four banks. Your job is to crack down on fraudulent transactions that cost the country's finance and insurance sector \$2.2 billion annually.³ Where do you begin?

Before machine learning, banks could not easily analyse records to predict where fraud was likely to occur. There were far too many records for humans to digest. Even with the best analytics tools, teams could only guess future outcomes based on the past. Real-time fraud detection was a significant challenge.

Today, machine learning is one of the most powerful weapons in a bank's anti-fraud arsenal. Trawling through millions of records, machine learning tools interpret data on the fly. Over time, they learn to identify fraudulent transactions as they happen. High risk transactions are blocked immediately, saving banks and their customers millions of dollars each year. As fraudsters get smarter, so do the machine learning tools designed to stop them.

The benefits of machine learning predictive analytics extend beyond minimising risk. Microsoft, for example, has introduced a sports performance platform that predicts injuries and helps to improve player behaviour.⁴ Pharmaceutical giants are looking at ways that machine learning optimise clinical trials, accelerating the journey of potentially life-saving medicine by months or even years.⁵ And outdoor clothing brand The Clymb has increased revenue by 175 percent per thousand emails sent by applying machine learning to customer communications.⁶

It is no surprise, then, that 76 percent of respondents in a recent MIT survey said they are targeting higher sales growth with machine learning.⁷

While machine learning is not new, the ability to apply complex calculations to big data is a recent development. As computer processing power improves and data storage becomes more affordable, every organisation can benefit from using machine learning to:

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3. Australian Financial Review. (2017). Fraud costs financial and insurance sector 22 billion a year [Online]. Available at: <http://www.afr.com/business/legal/fraud-costs-financial-and-insurance-sector-22-billion-a-year-20151217-glq051>.
 4. Engadget. (2017). Microsoft's machine learning can predict injuries in sports [Online]. Available at: <https://www.engadget.com/2017/06/27/microsoft-sports-performance-platform>.
 5. Genetic Engineering and Biotechnology News. (2017). Optimizing clinical trials: Applying machine learning and robotic process automation to plan clinical trials [Online]. Available at: <http://www.genengnews.com/gen-exclusives/optimizing-clinical-trials-with-machine-learning-and-robotic-process-optimization/77900933>
 6. Harvard Business Review. (2016). How companies are using machine learning to get faster and more efficient [Online]. Available at: <https://hbr.org/2016/05/how-companies-are-using-machine-learning-to-get-faster-and-more-efficient>
 7. MIT Sloan Management Review. (2017). Sales gets a machine learning makeover [Online]. Available at: <http://sloanreview.mit.edu/article/sales-gets-a-machine-learning-makeover/>



- Quickly produce analytical models
- Analyse large, complex data
- Make accurate predictions

Introducing Azure Machine Learning Studio

When it comes to building, deploying and sharing predictive analytics solutions, Antares recommends Microsoft's Azure Machine Learning Studio. This platform provides the essential tools for harnessing predictive analytics in a trusted and secure cloud environment.

Azure Machine Learning Studio is ideal for businesses that wish to:

- Unlock more value from existing Microsoft investments
- Seamlessly integrate machine learning across the entire Microsoft platform
- Deploy predictive models in minutes
- Quickly and easily analyse data from unstructured sources

Importantly, Azure Machine Learning Studio is one of the easiest machine learning platforms to deploy and use. Forget implementation projects that take months or years. With Azure Machine Learning Studio, Antares clients deploy machine learning solutions in a fraction of that time. In addition, Azure Machine Learning Studio is built using familiar Microsoft technologies. This means users do not need a computer science degree to benefit from the insights it provides.

Driving better business outcomes

Global annual big data services spending has reached US\$32.4 billion and continues to rise.⁸ Without a machine learning environment, however, many organisations are failing to unlock the value of their big data investments.

Here's how Azure Machine Learning Studio helps enterprises harness data to drive better business outcomes.

8. Microsoft Internal Analysis, 2014.



Real-time decision making

If you've ever been charged double the usual Uber fare to get from Bondi to Coogee at 7pm on a Friday, you've experienced machine learning's ability to support real-time decision making. By rapidly analysing large data volumes, machine learning helps to predict likely outcomes.

In the Uber example, machine learning tools anticipate when demand will exceed the number of available drivers. When they identify a potential demand surge, prices increase. This allows Uber to capitalise on opportunities as they happen.

Cost savings

The most obvious way that machine learning and predictive analytics cut costs is by reducing fraud. Organisations are also leveraging these technologies to save money, especially when it comes to predicting:

- Expensive software and hardware failures
- Online ad bounce rates – allowing marketers to redirect spend elsewhere
- Which customers are likely to cost the most over time – i.e. by submitting higher insurance claims

Make more informed decisions

Does your organisation make decisions based on all available information? Missing a critical insight – such as social media sentiment or survey findings – could be the difference between releasing a wildly successful product, and releasing a product that falls short of sales expectations.

Azure Machine Learning Studio enables access to insights from data that your organisation may not be currently using. It supports data-driven decision making that is informed by the full picture.

Act quickly

Before Azure Machine Learning Studio, trawling through social feeds to assess customer sentiment was a time-consuming and often fruitless task. But the beauty of Azure Machine



Learning Studio isn't just that it simplifies similar analytical processes. It also does it quickly. Spinning up a new environment takes as little as ten minutes.

With an ability to move fast, Azure Machine Learning Studio helps organisations adapt to new challenges.

Put predictive analytics in the hands of business users

You don't need a team of data scientists to get value from Azure Machine Learning Studio. Technical know-how is required to create models and build APIs that incorporate predictive models into applications. The applications themselves, on the other hand, can be used without specialist knowledge.

Accelerate customer acquisition and retention

Advanced repetitive analytical insights, such as those offered by Azure Machine Learning Studio, open up new strategies for acquiring and retaining customers.

Armed with the knowledge that a customer is likely to change providers, for example, a telco could choose to intervene before it happens. In doing so, they might not only convince the customer to stay, but also to upgrade to a more expensive service.

OVERCOMING BARRIERS TO ADOPTION

Machine learning has enormous potential. However, relatively few organisations are taking advantage of the opportunities it affords. They may be worried that machine learning is too advanced and complicated for their needs, or concerned about security.

The good news is that many common adoption roadblocks are simple to fix. Here are three of the top beliefs that hold back machine learning adoption, and how to overcome them.

Misconception #1: Only enterprises benefit from machine learning

Machine learning isn't just for enterprises. Even small businesses can reap the benefits of machine learning and predictive analytics. What if an SME could forecast trends ahead of their



competitors? Or know what customers want before they do?

As a cloud-based platform, Azure Machine Learning Studio is affordable and easier to use than other machine learning tools. This makes it ideal for both SMEs and larger organisations.

Misconception #2: Machine learning is too complicated to implement

It is true that machine learning is a complex technology. It takes specialist knowledge to build experiments and models. However, with the right implementation partner, getting started is simple. Azure Machine Learning Studio is packed with out of the box features, built-in tutorials and a gallery of experiments that support rapid deployment.

Misconception #3: My data isn't safe in the cloud

As one of the world's leading cloud hosting providers, Microsoft uses its economies of scale to monitor data, manage backups, isolate data, automate operations, maintain a secure network and encrypt data. It does this for millions of Azure clients every day. In fact, Microsoft's cloud security measures exceed what most organisations can deliver in their own environments – for a fraction of the cost.

Still worried about security? Consider implementing a hybrid cloud data solution, which combines the flexibility of the cloud with the stability of on-premises.

STARTING YOUR MACHINE LEARNING JOURNEY

The first step towards using machine learning in your organisation is to choose a trusted implementation partner. Antares, for example, is a Microsoft Gold Partner with deep Azure knowledge and a proven ability to manipulate data environments for clients across industries.

Your chosen partner should:

- Articulate your business challenges before making technology recommendations
- Conduct extensive pre-engagement to understand core problems and opportunities
- Develop practical solutions that deliver tangible business value
- Facilitate ongoing engagement that lasts beyond implementation



We recommend clients begin with a proof of concept (POC) to understand how machine learning and predictive analytics can add business value. Azure Machine Learning is available as a free 30-day trial. Organisations have plenty of time to get familiar with the product before making an investment.

1. Identify data sources that your organisation is not using

As part of the pre-engagement phase, your implementation partner should identify data sources that you are not able to analyse or use. These data sources are an ideal starting point for an Azure Machine Learning Studio POC.

2. Extend infrastructure into the cloud

Azure Machine Learning Studio is only available in the cloud. If you are not already using Microsoft Azure, your partner will guide you through the migration process. Keep in mind that it is possible to move to the cloud at your own pace with a hybrid cloud data solution.

3. Configure Azure HDInsight to manipulate data

In simple terms, Azure HDInsight is a software framework that manages, analyses and reports on big data. It is the engine that powers the machine learning environment.

4. Set up the machine learning environment

Once Azure HDInsight is configured, your implementation partner will set up the machine learning environment to work with your systems and processes. No extra equipment is required – just an internet connection and a web browser.

5. Develop a POC

Your implementation partner will work with you to rapidly deploy a proof of concept experiment. Azure Machine Learning Studio POC experiments can either:

- Demonstrate a specific machine learning technique
- Provide fully developed solutions for complex machine learning problems



The POC should highlight the platform's ease of use, speed of deployment and business value.

WHY ACT NOW?

According to McKinsey, machine learning's potential is just starting to evolve, and will accelerate in the next three years.⁹ While the majority of organisations will eventually shift to smarter analytics with machine learning, businesses that do so now will reap the biggest benefits. Early machine learning adopters are likely to benefit from:

- Cost savings
- More informed decision-making
- Access to real-time predictive analytics
- The ability to use data in new ways

Many common roadblocks, like security concerns, can be easily resolved by working with trusted providers and implementation partners – such as Microsoft and Antares. To find out how Antares can help you harness machine learning to gain a powerful competitive advantage, phone (02) 8275 8811.

ABOUT ANTARES

Antares is a Microsoft Gold Partner that specialises in three practice areas: productivity, data solutions and custom application development. By combining best-of-breed technology with a healthy dose of common sense, Antares has helped clients achieve their full potential for more than a decade. Large enough to deliver the latest solutions but small enough to move quickly, Antares' tailored IT solutions improve the way people work.