



Revving up retail revenue:  
how to unlock growth with  
*Machine Learning*

# "What is Machine Learning?"

'Machine Learning', 'artificial intelligence', 'chatbots', 'Natural Language Processing' – just some of the terminology you'll be aware of, offering multiple benefits for your business that you might not know about.

Essentially Machine Learning is the science of building computer models to analyze and make predictions from data. The process uses algorithms and statistical modeling in a way that mirrors how humans and machines behave. Crucially, it adapts its approach over time, enhancing the accuracy of its outputs as your business, and the market you operate in, evolves.

Machine Learning will unlock insights and opportunities from the data you already have, making it a very powerful growth lever for retailers and e-commerce providers.

Correctly done, it delivers a great Return on Investment – improving operational efficiencies, highlighting new sales opportunities and helping you maximize existing ones.

But Machine Learning is notoriously difficult to do well without the right team behind you.

**Calligo can help you do it right.**



# Unlocking opportunities through Machine Learning

Your business generates huge amounts of data every day. Sales, shipments, stock holding, production, purchasing – each department has countless data points of targets, objectives and Key Performance Indicators (KPIs) to measure and interpret.

In retail, when the going is good it's all too easy to just keep going.

Do more of the same and growth will follow. Except, of course, that's not the case.



NEW COMPETITORS ENTER THE MARKET.



CUSTOMERS' EXPECTATIONS CHANGE.



PRICES GO UP AND EXISTING COST MODELS NO LONGER FIT.

None of these things happen overnight and looking back through your data will show exactly where things started to shift. But hindsight is not what successful retailers and e-commerce businesses need. You need to see opportunities as they appear. Before they appear. To take advantage of potential before your competitors do.

**Machine Learning is the solution.**



# "Isn't Machine Learning just for the big corporations?"

Every SME and mid-tier business has a wealth of expertise spread across IT, commercial and planning / scheduling departments. Your people know how to do their jobs and they do them very well.

However, for many organizations like yours, the true untapped potential and the real unidentified opportunities lie across and between functions. In data that does not belong to any one department and therefore has nobody looking for it, or into it.

Machine Learning will help your business find all the little wins that together have a big impact. Whatever the size of your organization.



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"In retail, machine learning can be used for data analysis to help businesses make better decisions about inventory and pricing. Personalization will become more common, with retailers using machine learning to recommend products to customers based on their past behavior. Robotics will also become more prevalent, with machine learning being used to automate tasks such as shelf stocking and order picking."

*Richard Ambadipui, Forbes*

# Tackling known pain points

Within retail and e-commerce there are a number of functions where accurate and comprehensive data analysis drives success and confers competitive advantage. Machine Learning solutions will help you tackle known pain points, optimizing performance in:



**Demand forecasting** – driving more efficient shipping, producing higher sales and minimizing inventory losses



**Data anonymization** – adhering to data privacy legislation whilst driving maximum value from utilization or sale of your customer data



**Customer segmentation** – ensuring more effective marketing, profitable range decisions and targeting of expansion opportunities



**Sales trends** – informing decision making around inventory, products, estate expansion or store closures



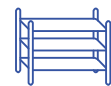
**New product launches** – optimizing sales through detailed insight into changing and future customer demand



**Pricing** – maximizing profits by balancing volume with margins



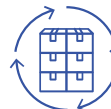
**Store location** – optimizing the location of brick and mortar stores



**Shelf space distribution and position**



**Product targeting** – increasing or decreasing product availability according to geographical demand



**Product life cycles** – align product specific operations with product life spans



**Impact drivers on sales** – understanding seasonal patterns and cultural factors

# "If only there were a cost-effective, easy way to use Machine Learning"

## There is!

We know that introducing Machine Learning into your organization can feel daunting, and you've probably heard about examples of projects going wrong. Research from Gartner predicts that 85% of Artificial Intelligence projects will fail, due to inherent bias in the tools, or inexperience in the teams managing them.

Without expertise comes error.

Asking the wrong questions will deliver incorrect answers.

The experience, headcount and technology required for you to build and maintain the in-house systems to do this, along with the time and costs involved, are just some of the reasons why you may have concluded that this kind of Machine Learning simply doesn't make commercial sense for your business.

Done right, by the right people, it absolutely does.

**Introducing Calligo's Machine Learning as a Service (MLaaS).**



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**85% of Artificial Intelligence projects will fail**

*Source: Gartner*

# Introducing Machine Learning as a Service (MLaaS)

With Calligo's Machine Learning as a Service, you can essentially hire an entire end-to-end data science team without having to recruit and retain additional experts or fund expensive new IT systems that take months (even years) to build.

Saving you time, money and effort.

Bringing you improved outcomes, lower costs and great value.

Perhaps you've tried an off-the-shelf / out-of-the-box Machine Learning tool before?

MLaaS is not that.

With MLaaS you get a bespoke service that is built around your unique objectives, works alongside existing processes and analyzes exactly the data you specify. You'll get your own dedicated data consultant, who will work closely with your team to ensure your MLaaS model exactly meets the needs of your retail / e-commerce business.

**In short, you'll get all the insight with minimal outlay.**



## CASE STUDY

# E-commerce price optimization with MLaaS

Our client, a leading UK specialist insurer, handles millions of quote requests every week. They recognized that without comprehensive and systematic data analysis, they were missing out on valuable opportunities to develop dynamic pricing and maximize profits.

The company wanted to be able to identify and respond to behavioral shifts and changing trends in the very competitive market in which they operate. Analyzing the huge amounts of data generated was not feasible for the company's in-house team, who did not have the expertise or infrastructure to build and run the Machine Learning systems required.

Calligo's Data Science team worked closely with our client upfront to understand key project objectives and identify potential barriers to success. Using this unique insight, we built a bespoke Machine Learning tool to work alongside the insurer's online quote management system and ensure that their products are always in the top-ranking positions on a leading insurance brokerage website.

### In just four months the MLaaS project delivered:

- Excellent ROI
- Improved operational effectiveness
- GDPR-compliant ML solution
- Bespoke, in-house data analysis
- Fully integrated end-to-end ML solution
- A scaled and future-proof model that can handle over a million quotes a week



# Meet your virtual Machine Learning Operations team

We like to think of MLaaS as a kind of timeshare team – you get access to all the benefits when you need them, but don't have to pay the off-season expenses and running costs.

Successful Machine Learning projects require a large team of experts to design, build and deploy them, which is why Calligo's MLaaS team is comprised of six key skill sets:



**BUSINESS TRANSLATOR**  
frames business needs



**PLATFORM ENGINEER**  
builds and maintains bespoke tools to complement your business' existing processes



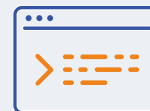
**DATA SCIENTIST**  
analyzes and processes data



**MACHINE LEARNING ARCHITECT**  
develops blueprints and monitors risk



**DATA ENGINEER**  
manages data collection, processing and storage

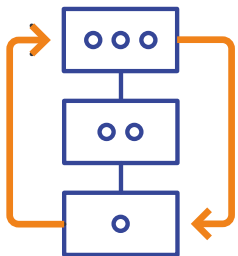


**SOFTWARE DEVELOPER**  
builds the dashboard for your team to use

The cost of recruiting and retaining all these people in-house may well be prohibitive for your business. With MLaaS, you get them all for a fixed monthly subscription.

# MLaaS – a three-stage process

Calligo's approach to embedding bespoke Machine Learning within your organization has three distinct steps:



## DESIGN

Starting with the basics, we explore what data you have, what you need it to tell you, and who needs to see it. We then design a customized methodology and system architecture that perfectly complements the processes, software and systems already in use.



## BUILD

The Machine Learning tools we create are unique to your business. We supply all the required expertise and technology to craft a service that does exactly what you need it to do, reliably and cost effectively.



## DEPLOY

Working closely alongside your team from start to finish means the system we build speaks your language. Our people put a human face on the technological wizardry.



# Design



Every successful Machine Learning tool starts with the hypothesis. A clear, mutual understanding of project objectives de-risks the whole process. Remember that Gartner statistic that 85% of Machine Learning projects fail. Why? Because businesses start with the wrong question. Calligo's team knows the right questions to ask, in order to guarantee the right outcome. Then we design the whole thing around those, letting your data tell its stories and paint the pictures buried beneath the surface.

## CASE STUDY

### Improving retail demand planning

Our client, a major tire manufacturer, was struggling to bring together historic sales data from its two founding (and distinctly separate) companies. They knew that it was critical to generate an accurate demand forecast to minimize lost sales from stock shortages and to optimize inventory demand. Missing both the expertise and the infrastructure required to deliver, our client turned to Calligo for help.

The design stage was critical – we worked closely with their in-house team to ensure that the bespoke Machine Learning model we created met the project's key objectives of accurate, real-time inventory management and demand predictions.

#### **MLaaS delivered:**

- 95% average forecast accuracy
- Increased sales, as a result of better product availability
- Improved forecasting along the entire supply chain

# Build



You can buy Machine Learning programs off the shelf, but that's when it's most likely to fail. It's not designed with your objectives in mind. It hasn't been crafted to dovetail perfectly with your existing business systems. User interfaces are standardized and are not intuitive as a result. In short, it's one size that far from fitting all, actually fits very few.

In contrast, MLaaS is bespoke built. It fits you perfectly. And it's incredibly cost effective, as you essentially hire the entire service, end-to-end. No need to build your own solution with people and infrastructure that you don't have.

## CASE STUDY

### Accurate prediction of customer buying patterns

Our client, a large US supermarket chain, had very few insights into their customers' product and brand buying behaviors. As a result, they estimated they were losing significant sales value through poor product availability and lack of targeted marketing. They did not want to recruit a whole team of data scientists to deliver this insight, they simply needed to unlock it from their data.

Calligo built an MLaaS model to characterize customers according to their buying frequency and habitual nature. Customers were defined as either regular or low-frequency buyers, with regular buyers further classified as either highly habitual or non-habitual.

A customer's brand and product affinity could then be quantified to represent their alignment to brands and / or products.

#### **MLaaS facilitated:**

- Precision purchasing contracts with suppliers, reducing waste
- Targeted marketing communication, driving sales

# Deploy



Many off-the-shelf Machine Learning solutions will get you a model. But that's all.

How do you maintain it when your in-house team doesn't have the experience or expertise?

Because without them, there is a significant risk of data drift – slowly but surely analysis drops off, trends go unspotted and opportunities are missed.

It's not enough to produce reports and charts if nobody within your organization knows what the data is telling you. With MLaaS you get a team of data scientists and consultants managing outputs and adjusting the model's interface with your own systems as required.

Ongoing support and input that ensure you get the most out of your data, month in, month out.

## CASE STUDY

### Driving sales through product recommendation

Like all retailers, our leading grocery client loses sales when products are scarce or displayed in sub-optimal positions in-store. They asked us to design, build and manage a model that would recommend product substitutes that might not be immediately obvious.

Our data scientists developed an algorithm to analyze historic cart data and make informed recommendations when products were unavailable. Deploying the model in a user-friendly way was key, so we designed a clear and easy-to-navigate dashboard. The best model in the world is useless if it doesn't get used.

#### **MLaaS gave the client:**

- Better understanding of which products are bought together most, allowing for their placement together in-store
- Insight into the best product substitutions when stock levels are low

# Calligo's MLaaS, at least **72% cheaper** than alternative Machine Learning solutions

Successful implementation of any kind of Machine Learning into your retail or e-commerce business requires breadth and depth in six key skills:

BUSINESS TRANSLATOR

PLATFORM ENGINEER

DATA SCIENTIST

MACHINE LEARNING ARCHITECT

DATA ENGINEER

SOFTWARE DEVELOPER

When adopting an ML program, risk is measured based on the resourcing you commit to. Costs can be saved by not deploying the full range of expertise, but ultimately this increases the risk of project failure. Calligo's MLaaS gives you unlimited access to experts from all six fields and **delivers costs savings of up to 90%** as a result, with far lower risk.



# Machine Learning as a Service – unlocking your business' full potential and **saving you up to 90%\***

Calligo's MLaaS will help your retail / e-commerce business:

- ✓ REDUCE COSTS
- ✓ OPTIMIZE BUSINESS EFFICIENCIES
- ✓ LEVERAGE CUSTOMER DATA
- ✓ INCREASE REVENUE
- ✓ INCREASE MARKET FOOTPRINT
- ✓ MANAGE SUPPLY CHAINS

You'll get a managed, bespoke and customizable Machine Learning solution that brings all these benefits without the complexity and cost of recruiting data science teams and building infrastructure.

You'll always have access to our experts with every one of the recommended six skill sets, and the full cost of all technology and resourcing is included in your subscription.

**No upfront costs, no nasty surprises, no risk.**

So, if you want to make the most of your data, don't buy out-of-the-box.

Think out of the box with MLaaS from Calligo – the potential value to your business is limitless.

## Talk to us



\*Compared with average ML subscription and salary costs



[www.calligo.io](http://www.calligo.io)