

GFT > GET STARTED



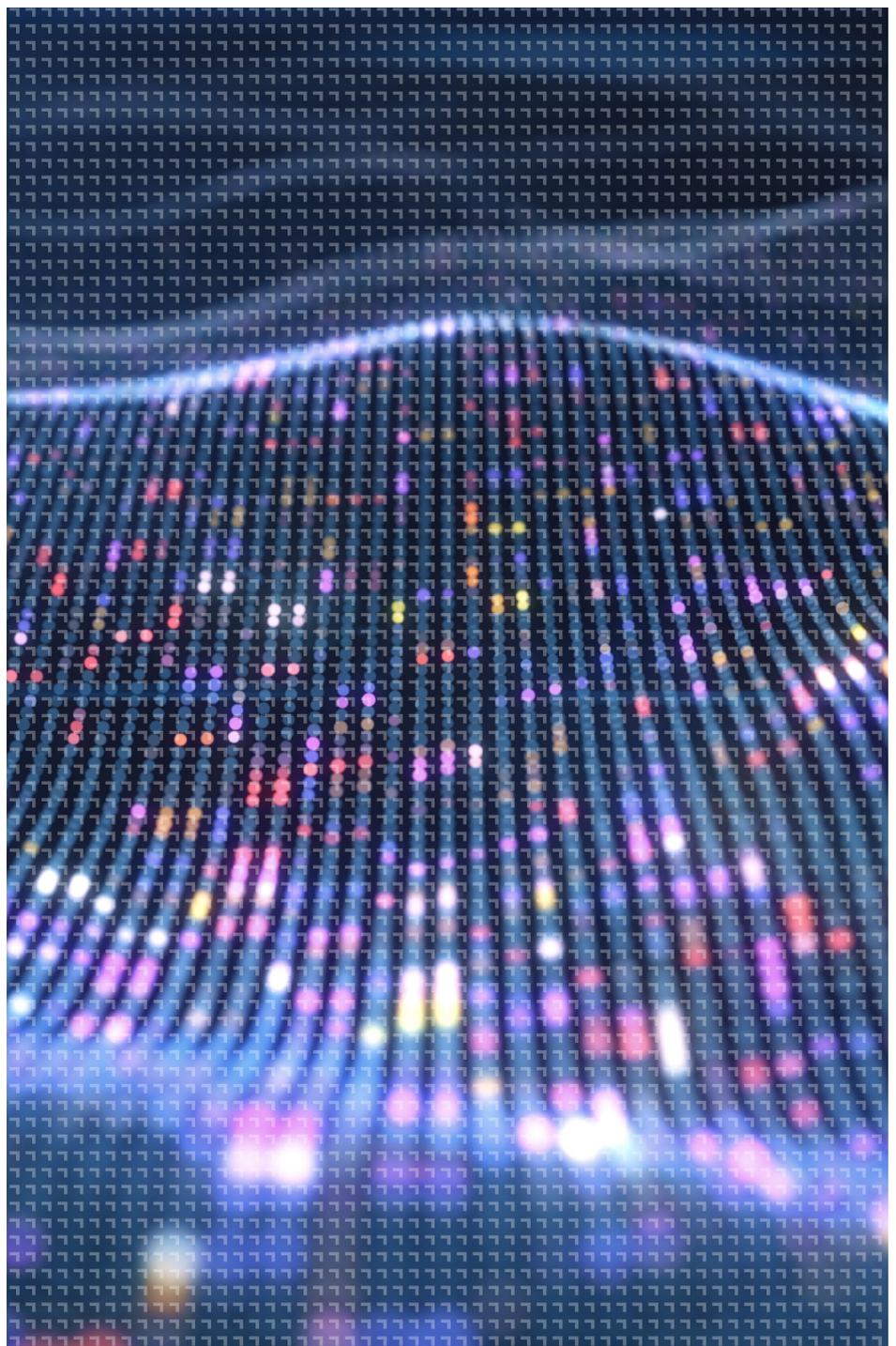
Artificial Intelligence

Is this you?



You have decided to use artificial intelligence (AI) to power your business. You have the buy-in from your executive team and are ready and willing to commit to running a project. However, before you do, you need to understand what AI will deliver; what specialist skills are required; how fast it can be done and what it will cost. If you are struggling to choose the right path... you are not alone.

Adopting an artificial intelligence programme and the related digital transformation projects can be both complex and time-consuming and many projects fail to even get off the ground. According to a recent analyst report, *'over half of IT transformation initiatives stall or are abandoned due to complexity, unfit processes or lack of skills.'* (IDG 2018). But do not let this put you off. In these volatile economic times, executing a comprehensive, robust cloud or digital transformation strategy is now more important than ever. This is where we come in because we can help to analyse your precise requirements to ensure success right from the start. Read on to find out more.





Business value from data science, ML and AI



In these highly unpredictable times, no organisation can afford to make decisions based on gut feelings or hearsay. However, the biggest stumbling block is often getting access to the high-quality data you need to underpin your decision-making processes. Being able to use data as a tool, rather than drowning in a bottomless pit of it, is often the hardest thing to do. GFT can show you how to use the cloud to intelligently drive your business using proven data science expertise, invaluable machine learning and AI capabilities.

Secure, robust, scalable – production ready

Our industry-leading engineering expertise and unrivalled datacentre-as-code (DaC) implementation approach has enabled us to deliver our growing list of AI customers a production-ready environment. We do this by interfacing to your data sources and working with this data at the beginning of each project. By creating fully tested pilot systems which are ready for validation and adoption by business users, this virtually eliminates the need for ‘proof of concepts’ or ‘prototypes’.

Exploiting managed services to deliver true business value

The cloud platforms enable us to provide managed services delivered at hyper-scale. This means the focus of your investment is on the business application and value rather than the technology. And we never leave you with yet another technology for your teams to look after – the cloud provider handles everything on your behalf.

Agility and science, not improvisation and art

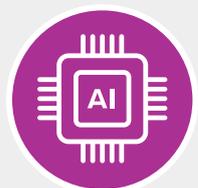
Scientists create a hypothesis and build experiments that can test them rigorously. Unfortunately, in our experience, all too often, data science and machine learning projects degenerate into a performance that shows a ‘magic machine’ and leaves no one any wiser. Our engagements are not just about getting a result or creating an application. Our goal is to implement a process and structure that provides a capability, supports continuous improvement and enables data science, ML and AI artefacts to be discovered, managed and governed.



Date Science (DS)



Machine Learning (ML)



Artificial Intelligence (AI)

Flexible engagement model



We have created a three-step get started approach to this important capability which is tailored to suit your specific requirements, wherever you are on your AI adoption journey. To get you started on the right path, we are happy to arrange an informal, complimentary discussion with our AI team to explore the best approach for your business. If you have already identified what you want to achieve, we have three highly flexible commercial options which will support the delivery of a rapid AI business transformation programme.

SMALL – a high value get started workshop

A day-long structured workshop where we take you through our detailed backbone delivery methodology for AI.

Cost: £5k

- We will show you the tools we use to create a DevOps-style delivery pipeline
- Share case studies that demonstrate how this has exposed value streams in other enterprises
- We will review your data assets to identify where the information and knowledge, that our AI solutions need, currently reside within your existing architecture
- We will work with you to create some yes/no hypotheses that can be resolved by blending your data with our expertise.

MEDIUM – An accelerated process

You already know which data assets can be utilised and have refined the hypothesis that you want to be closed off.

Cost: £20k

- We will quickly stand up a team of AI architects, machine learning engineers, data scientists and data engineers to deploy a robust, secure working area on the cloud infrastructure of your choice
- We ingest your data or securely synthesise a data set to work with, using samples and a data schema
- The next step is to run a two-week discovery sprint that demonstrates the solution to the problems you currently have, and this will also highlight other potential roadblocks.

This approach is already proven to create invaluable insights which then enable us to produce an agreed statement of work that will resolve the problems to your satisfaction.

LARGE – a production-ready pilot project

We normally run a 10 to 12 week delivery engagement programme that produces a reproducible, well-governed, and production-ready AI system. This will provide results with robust quantification and bounds, ready for integration with your business processes. Our production-grade infrastructures are created using GFT's enterprise landing zone technologies, which are typically integrated with your authentication infrastructure and run to comply with enterprise security requirements. This is a pilot project – not a proof of concept. Normally, the results include enterprise-ready dashboards, production-ready deployment and governance/accountability infrastructures; future-proofing your investment ready for an algorithmic audit and transparency regulation.

Cost: £TBAk

By working closely with you, your security and privacy team, and your enterprise architecture group, we will deliver:

- production-ready cloud infrastructure with the guardrails, facilities and security that you need to exploit AI now
- a business case breaking down operational cloud costs, management of the AI solution and balancing that against the benefits of cost reduction and business enablement you can expect to see from the solution
- a validated, documented and reproducible AI solution running on managed infrastructure for your business.

Our AI credentials



- GFT identified cloud AI as a critical technology for our clients and has built a centre of excellence in Cambridge to support innovation and delivery
- We have developed several open-source components to support rapid delivery
- With more than 325 cloud-certified engineers, we have delivery offices in London, Spain and Poland
- We are the Google Cloud EMEA Breakthrough Partner of the year 2019
- We are a Microsoft 'Gold Cloud Platform' Partner.



Contact details



Get in touch to find out more:

Simon Thompson Head of Data Science

Email: [Simon Thompson](mailto:Simon.Thompson)

About GFT



GFT Technologies SE is a global technology partner focused on digital transformation. Founded in 1987, we have over 6,000 specialists in 15 countries.

[› gft.com](https://www.gft.com)

GFT enables rapid cloud adoption with Tranquility Base to power SAP machine learning capability

Background



Our client, a global supplier in the food and beverage industry, conducted a review of its data and technology strategy and concluded a cloud migration solution would enable them to extract valuable business insights from substantial amounts of available in-house SAP data. However, they recognised that such a migration was a significant undertaking and that their in-house skills were insufficient to stand up the infrastructure in a secure and robust way or to perform the data science analysis required to extract commercial value. Their preferred approach was therefore to engage with a partner to undertake a pilot programme to deliver the required cloud migration and then apply Machine Learning (ML) across the SAP data ingested to the cloud.

In collaboration with the client, and in an aggressive timeframe, GFT stood up a robust, expandable, standardised and secure architecture on Google Cloud Platform (GCP) deployed via their pre-developed Tranquility Base accelerator solution in a matter of days, rather than months. This included establishing a secure machine learning playground and a secure datazone infrastructure optimised for data science activities.

Using advanced Machine Learning algorithms, the data was visualised for easy client consumption which provided the client with the informative business insights which they sought.

This approach of creating a production-ready data architecture that can scale and grow in line with their business needs helped move the client closer to their strategic vision of 'big data architecture'.

The keys to success in the engagement:

- Rapid delivery of a cloud environment achieved via GFT's pre-developed Tranquility Base solution
- Establishment of a repeatable, scalable and secure process to ingest SAP data into the GCP infrastructure
- Robust machine learning framework to analyse key business use cases actioned by GFT's data science specialists.

Client challenge



The client had specifically identified that their current technology infrastructure was a significant inhibitor to business growth. To support their sales and ordering capability, they had implemented a number of independent SAP instances over several years. In addition, the client ran Salesforce and Workday implementations to manage customer interactions and support finance and business management.

The client had large amounts of in-house data within their SAP instances, but did not have the capability to interrogate the data in a way that could provide them with any real valuable business insights.

From a technical perspective, the management team had evaluated that migrating to and storing their data in the cloud, then applying machine learning to it would be the optimal solution to obtain the business value from their data.

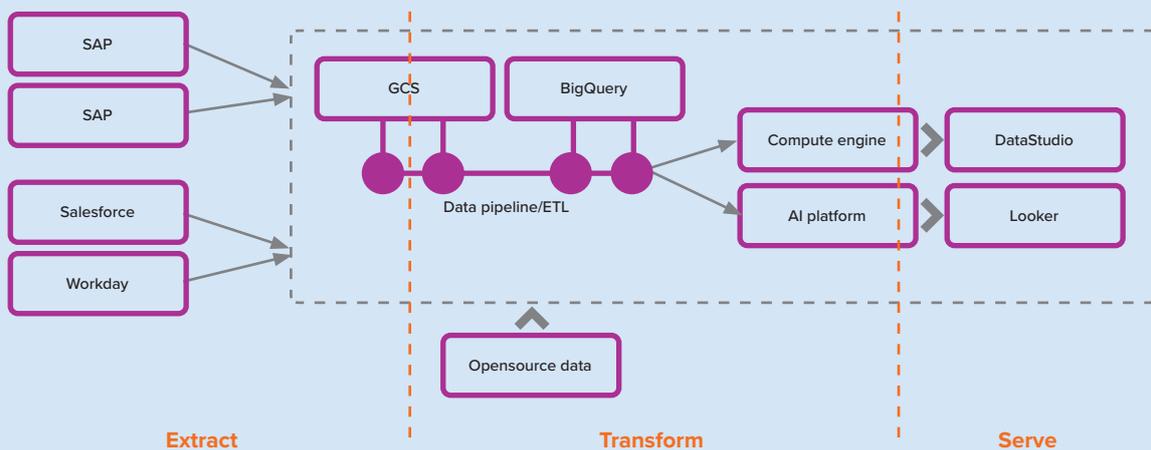
To progress this strategy, the client had defined their end-state big data infrastructure model, but were faced with the large technical challenge of how to implement it. Specifically, they recognised that the migration to the cloud was not a trivial task and that they did not have all the necessary skills in-house. Their preferred approach was therefore to engage with an experienced technical partner to initially undertake a pilot to deliver a cloud migration and then apply machine learning across their data.

GFT proposed an end-to-end SAP data analytics solution to deploy business data rapidly and securely to the Google Cloud Platform infrastructure. This would allow the full range of GCP tools (data extraction, transformation, machine learning and visualisation) to be deployed in order to address their requirements and deliver real business value.

Engagement overview



GFT worked with the client's IT group and Google to articulate a simple 'extract, transform, serve' message, communicating how data would be used in a cloud system. For each step in the process, GFT agreed the business hypothesis that would have to be proven to demonstrate the feasibility of the approach.



Working with client stakeholders, GFT structured a pilot project to validate their hypothesis. A robust delivery structure was necessary since the client was working to a tight schedule and needed the project's results to underpin a larger investment decision. The resulting structure consisted of a set-up phase (sprint 0) and three subsequent sprints, each of which had distinct deliverables:



Sprint 0
Workshop and planning

Workshops

- Identity management
- Access management
- Networking
- Resource management
- Security/compliance/monitoring/logging
- Cost control/billing



Sprint 1
Deploy the landing zone

Mission control – Landing Zone

- Preparation of TB deployment
- Launching of the GCP landing zone
- Post deployment configuration



Sprint 2
Ingest client data

Data engineering, AI modelling

- Ingestion of the data from the client source into the cloud architecture
- Review of the proposed ML architecture design
- Implementation and integration of the secure DS (Datazone) activator
- Data transformation and segregation
- business problem discovery



Sprint 3
Complete the business solution

AI modelling, visualisation and evaluation

- Quality assurance and exploratory data analysis
- Model prototype
- Preliminary model evaluation
- Visualisation design
- Visualisation build and evaluations
- Serving of results

Sprint 1: Quickly deliver a secure, robust and compliant 'landing zone/ GCP foundation' upon which to build and scale a 'big data architecture' that would facilitate a seamless transition from 'pilot' to 'production'

Sprint 2: Support the extraction, ingestion and transformation of data into Big Query

Sprint 3: Model the combined client data using advanced Artificial Intelligence (AI) and Machine Learning (ML) algorithms, then visualise the outputs using Data Studio, Looker and PowerBI for easy client consumption.

GFT's SAP analytics solution

Based on detailed client consultation and requirements gathering, GFT proposed an analytics solution that was implemented as part of an end-to-end delivery solution, involving the rapid establishment of a functional and secure Google Cloud infrastructure and the ingestion of client data in a secure datazone.

The key elements of the solution were:

- Given the limited in-house client skills (and specifically in GCP), GFT proposed the use of its 'Tranquility Base' accelerator to enable the rapid stand-up of a production-ready cloud landing zone, based on pre-vetted and best practice blueprints. This meant less time spent discussing base platform design, allowing the client to quickly move to platform implementation and on to big data infrastructure design early in the engagement¹.
- Engineer a secure datazone and machine learning playground to provide a robust and secure solution for big data and machine learning analysis.

- Establish a standard data ingestion method in collaboration with the client team so that large amounts of data can be ingested reliably and effortlessly from the client source system (SAP) in a repeatable manner. As part of this process, relevant SAP applications with appropriate licensing are deployed in the GCP infrastructure.
- Transform client data by combining it with relevant third-party data (e.g. newsfeeds, weather data) and move it securely to Big Query in order that data analysis and machine learning work could commence.
- A specialised GFT team of data scientists are deployed to help analyse the ingested data and provide business insights in order to meet pre-agreed use cases (revenue prediction and customer churn). This consisted of six phases:

1. Perform data quality assurance and exploratory data analysis
2. Produce model prototype
3. Perform preliminary model evaluation
4. Visualisation design
5. Visualisation build and evaluation
6. Production of results: presented in dashboards using Google and third party tooling (Data Studio, Looker, Power BI)

- GFT also provided learning sessions to share best practice in the use of agile methods, since the client had no experience of these essential tools, but wanted to bring these into their business process.

The cloud infrastructure delivered via Tranquility Base, together with the extraction, transformation and modelling process, is highly repeatable and scalable and was able to generate business value from scratch within six weeks of the engagement commencing. The powerful business case provided by the GFT process supported the client's infrastructure and technology strategy of moving data (and ultimately SAP itself) into the cloud. In addition, as the pilot phase delivered a production-ready infrastructure, this was able to transition seamlessly into Phase 1 of the client strategy.

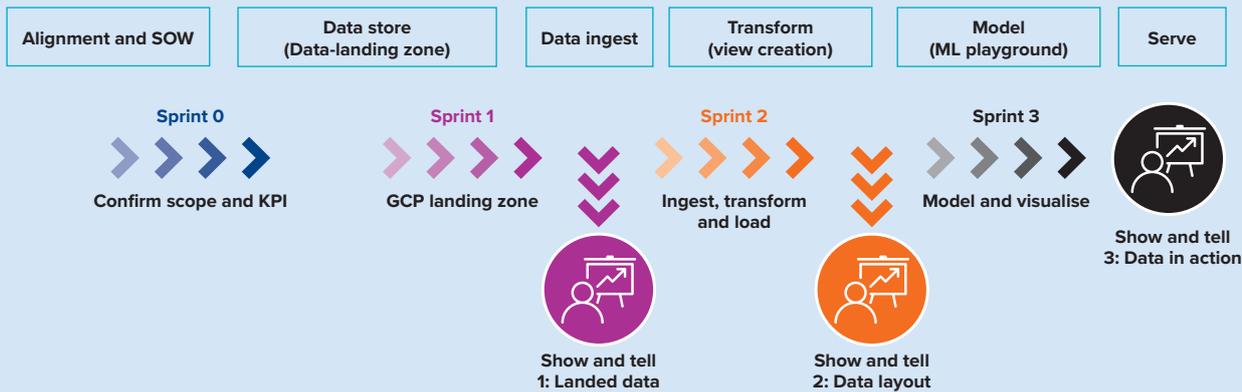
¹ This process is outlined in detail in the supplementary case study summary for Tranquility Base. For more information on Tranquility Base and the GCP infrastructure stand-up, please see accompanying document Tranquility Base Case Study.

GFT project delivery approach



GFT adopted a time boxed 'agile' approach for the project, working through a backlog of features and 'stories' that were defined and prioritised in collaboration with the client. Following an agile methodology, work was organised into two-week 'sprints', the scope of which was defined and agreed in advance by GFT and the client. Acceptance criteria were also agreed in detail in advance of each sprint.

The delivery output of each sprint adhered to a clear 'definition of done' as agreed by both parties. Acceptance was confirmed via fortnightly demonstrations to the business stakeholders, held to showcase the delivered features.



Sprint 0: Project set-up and design discovery

There were two objectives for Sprint 0:

1. Create the governance to execute the project
2. Define the design that would enable the implementation of the Tranquility Base Landing Zone

Project governance

1. The project approach, team structures, decision-making and escalation protocols and key agile ceremonies e.g. sprint planning, daily scrum, backlog refinement, sprint review and sprint retrospective
2. The alignment of client and GFT resources into a single project team
3. Stakeholders, roles, responsibilities and accountabilities
4. Key artefacts:
 - Initial project concept and approach (choice of procedures to be used)
 - RAID log
 - Product backlog
 - Communication plan
 - Project plan
 - Technologies (agree languages, libraries, environments, data formats...)
 - Project team design and roles agreement (including client roles – business contacts)
 - Design document confirming assumptions and dependencies
 - Project success criteria and objectives

Sprint 0: Alignment

GCP cloud infrastructure set-up: landing zone design and integration

Through a series of half-day workshops utilising the client's key subject matter experts, a discovery stage was undertaken to fully understand the client's organisational structure and technology landscape, and to identify the steps necessary to install the target GCP infrastructure. GFT's pre-developed accelerator was selected with the aim of reducing set-up time to a matter of days².

In addition to the design workshops, meetings were undertaken to ensure there was full understanding and alignment between the client and GFT.

SAP data ingest process discovery

Specifically, on the issue of ingesting SAP into the proposed GCP structure, initial meetings with relevant client stakeholders were established to ascertain the key underlying technology landscape in order to facilitate planning. The objective was to identify a repeatable, scalable and secure process to extract SAP data into the GCP architecture.

- Creation of a new installation of the ingestion application (SAP Data Services) within GCP
- Setting connectivity between GCP and the client's data source system via Classic VPN with static routing

- Configuring the export of client data from the ingestion application (SAP Data Services) to Google Big Query

Sprint 1: Create GCP organisation, Tranquility Base Landing Zone and connectivity

The objectives of this sprint were to create the GCP organisation, create the landing zone, set up the network connectivity and set up billing. To achieve this, several tasks had to be completed in a defined sequential manner.

- Prepare for Tranquility Base deployment
- Launch the GCP landing zone
- Post deployment configuration

Sprint 2: Completion of business solution – ingest client data and foundational data science work

The objectives of this sprint were to ingest data from the client source system and establish the machine learning architecture (secure data science datazone and the ML playground) to allow the client to derive commercial value from the ingested data in Sprint 3.

This work performed in Sprint 2 was performed by the data ingest and data science teams and built on the Tranquility Base architecture established in Sprint 1.

To achieve this, several tasks were completed in sequence:

- Obtain and activate SAP Data Services

² These workshops are described in the Landing Zone Introduction Framework Session.ppt document (available on request)

licenses and install the SAP Business Objects application

- Development of a repeatable and scalable process to ingest data from client source into the cloud architecture
- Review and critique the proposed machine learning architecture design
- Implement and integrate secure DS (datazone) activator
- Data transformation and segregation
 - Identify transformations required for data science
 - Demonstrate masking, sampling and mapping functionality to preserve privacy and security and manage data loss prevention
- Business problem discovery in advance of Sprint 3:
 - Undertake discovery workshop and investigation
 - Identify and map stakeholders
 - Map impacts to organisational chart
 - Map impacts to business priorities (i.e. increased revenue, lower costs, growth of market)
 - Description of mechanism to use developed models or inferences (will pick next person to call, will test selected line, will train targeted employee)
 - Identify factors that will negate mechanism of use

GFT's solution could ingest the client's data at scale, as well as the capability of GCP technology to process large volumes of data.

Sprint 3: Completion of the business solution – business use case modelling and serving to client stakeholders

Once the machine learning architecture was in place, the objective of Sprint 3 was to:

1. Build and test several model prototypes to meet the agreed business problems using a variety of machine learning techniques
2. Develop appropriate visualisations using GCP and third party tooling.

Outcomes were to be shown to client stakeholders via a comprehensive demonstration of the prototype of the data science techniques, machine learning modelling and data visualisation. GFT's data science team employed its in-house innovation framework in addressing this challenge. This permitted the rapid development and evaluation of innovative solutions within an organised, transparent managed structure.

The main steps were:

1. Build a shared history and understanding of the data set with the client
2. Survey the data for quality, and use exploratory data analysis to understand it
3. Construct robust data pipelines to support machine learning engineering
4. Produce model prototypes and validate the concepts with the customer
5. Design, validate and build appropriate dashboards (Looker, Data Studio, Power-BI)
6. Create and evaluate robust models using machine learning
7. Implement a service to support the use of the model in the dashboard or other applications.

GFT worked with the client's business stakeholders to conceptualise, engineer and demonstrate two AI applications:

Revenue prediction: models that could predict revenues by product line, product family and geographic region based on both trend analysis and propensity versus economic conditions (GDP, unemployment, population growth).

Sprint 2 successfully demonstrated how

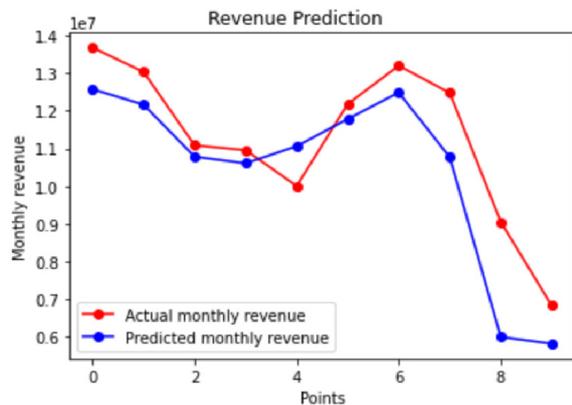


Figure 1. Revenue predictions: product revenue predictions based on learnings from economic and demand features

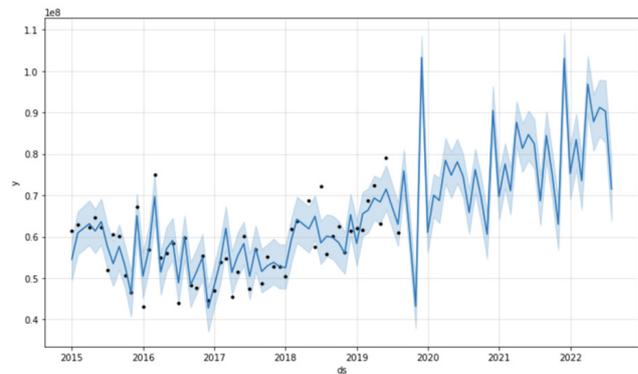


Figure 2. Revenue predictions: product family based on trend extrapolation.

Customer churn: identification of high-risk wholesale customers for intervention and remediation.

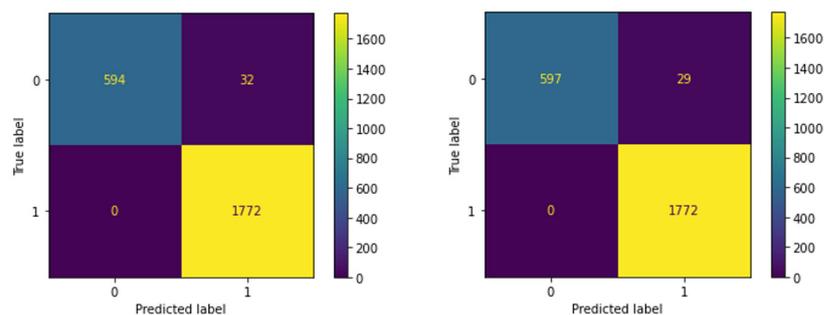


Figure 2. Prediction results for customer churn using two different ML models; the data was reweighted to compensate for the low level of customer churn in the original picture and 70% of the test data was churning customers. These were readily identified by the learned classifier.

Both models were used to populate dashboards for easy consumption by non-technical stakeholders.

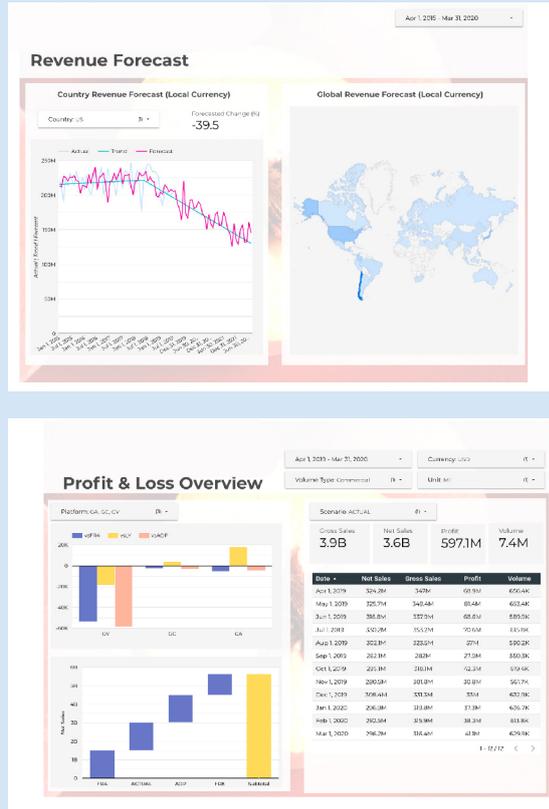
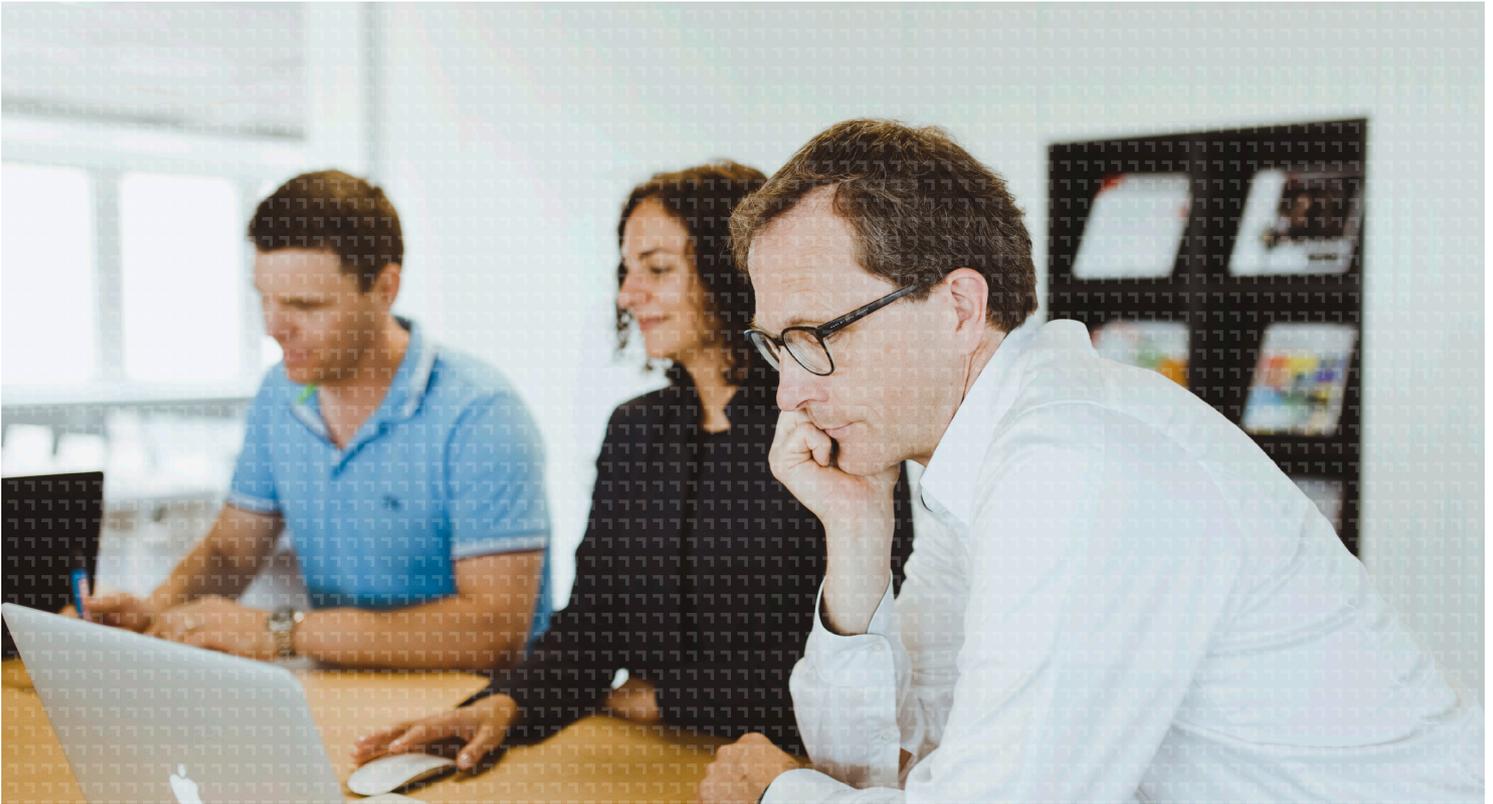


Figure 3. Dashboards developed in Data Studio to 'serve' the model predictions.



Client outcome summary



Overall, the pilot programme delivered tangible results against the specified client challenges, goals and objectives

Client challenge, goals and objectives	Delivery outcome
Rapid delivery of a pilot cloud environment	<p>Automated, standardised rapid data infrastructure build with timescales reduced from months to minutes.</p> <p>A secure, robust and compliant landing zone / GCP foundation on which to build and scale the clients' 'big data architecture' using a flexible and robust GCP recommended approach (10,000+ customers).</p> <p>A GCP foundation that allowed the client to move seamlessly from 'pilot' into 'production'</p>
Data ingested into the cloud environment	Live production data ingested and demonstrated from a variety of agreed client sources
Machine learning capability delivered	Machine learning playground and secure datazone infrastructure delivered along with solution of pilot use cases
Business insights and value obtained	Solution of business use cases using a variety of ML techniques, together with realised visualisation tools to serve the results
Validate feasibility of end-to-end solution	A full demonstration of the end-to-end capability was provided to showcase the capability of the solution – from data ingestion to modelling and serving results through concrete visualisations
Meet the client target 'big data architecture' vision	<p>Creation of a production-ready data architecture that can scale and grow with the business needs, moving the client closer to their vision of 'big data architecture'</p> <p>This allowed the client to adopt AI practices as part of their future operating practices and develop the ability to become more self-sufficient in the post-pilot phase</p>



About GFT



-  blog.gft.com
-  twitter.com/gft_en
-  linkedin.com/company/gft-group
-  facebook.com/GFTGroup
-  gft.com