

CASE STUDY: AVORA



Avora's business intelligence platform for in-depth, real-time predictive analytics

Partner information:

Partner: Avora

Company size: 11-50

Headquarters: UK

Team size:

Full-stack developers: 5

Mobile developer: 1

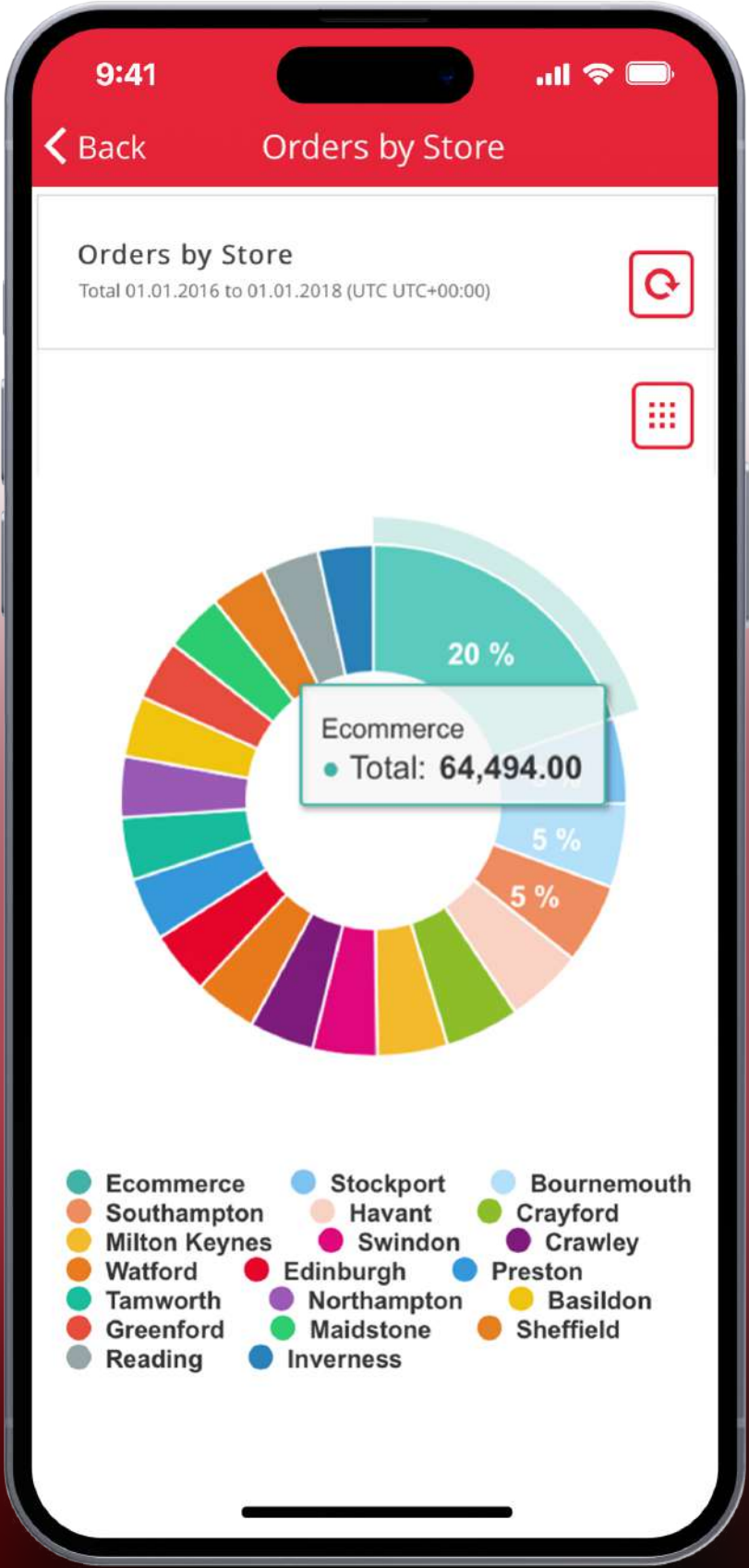
QA engineer: 1



PROJECT OVERVIEW

Avora (formerly Truedash) is a UK-based data intelligence company building a self-service analytics platform for businesses working with complex data. To support teams across industries, including ecommerce, retail, marketing, etc., they aimed to simplify reporting, improve data visibility, and accelerate decision-making without requiring deep technical expertise.

To bring this vision to life, Avora initially partnered with an external development team. But results didn't match expectations: progress was slow, code quality lacked consistency, and the platform remained fragmented and difficult to scale.

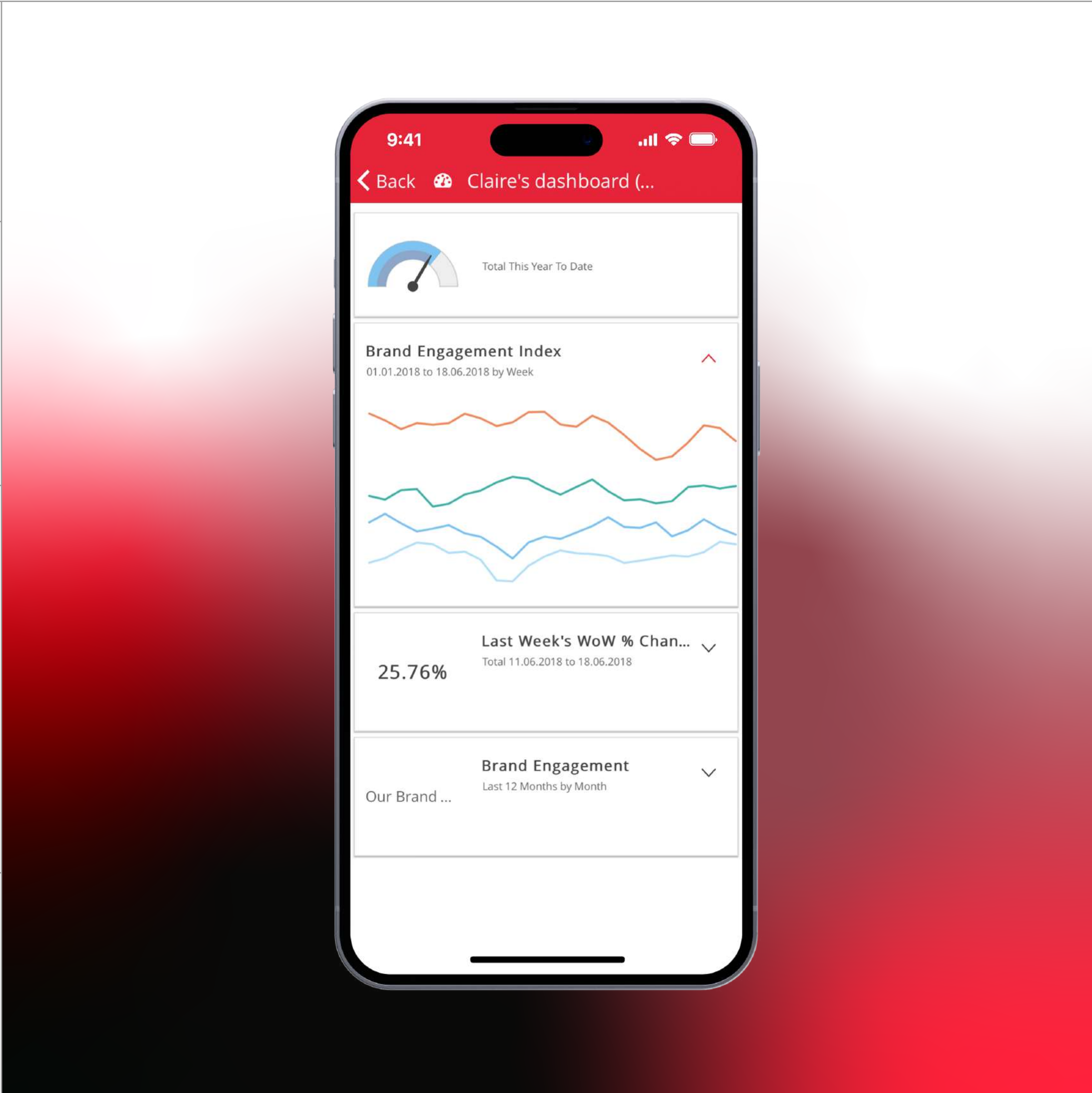


Starting in 2016, our team assumed full-cycle development for both their web platform and mobile app. We rewrote unstable components, optimized data processing, and introduced key capabilities, including a flexible, no-code reporting interface for self-service analytics. Over time, our role expanded beyond implementation to include architecture optimization and technical leadership that aligned engineering decisions with product vision.

Together, our team transformed Avora's business intelligence platform into a scalable analytics resource used by major enterprise clients. We helped reduce the time required by teams to extract and act on relevant data from multiple days to minutes, and improved system performance, including faster report generation and dashboard responsiveness by 5 times, propelling our partner to meet market demands during a critical growth phase.

PROVIDED SERVICES & TECHNOLOGY STACK

	Provided services • Frontend & Backend development • Mobile development • Quality Assurance
	Technologies & tools • Platform: Java • Frontend: Angular, AngularJS, Webpack, Babel, Gulp, Pusher, C3.js, D3.js, Highcharts, Leaflet • Backend: Apache Groovy, Grails, Spring, Clover, MongoDB, MySQL, Amazon Redshift, Exasol, Hadoop, Spark, Shark, Apache Hive, Snowflake, ECMAScript 6, Auth0 SDK • Mobile technologies: Apache Cordova, Ionic



REQUIREMENTS & CHALLENGES

Avora came to us with an urgent need to stabilize and scale their real-time analytics platform after a previous partner fell short of expectations. Our first task was to audit and clean up inherited code, then rebuild core functionality to support advanced reporting and machine learning (ML) features.

As development progressed, our role expanded to include platform-wide performance improvements, big data orchestration, backend restructuring and custom analytics tooling. The complexity of data pipelines, the need for self-service reporting, and the demand for real-time accuracy presented both architectural and usability challenges.

To meet our partner’s expectations and prepare the product for future growth, our tasks included:

Cleaning up inherited code and stabilizing delivery

We inherited an unstable codebase from their vendor. It required extensive refactoring, bug fixing, and technical debt cleanup before development could commence.

Unifying and transforming fragmented raw data

The system needed to automatically pull raw data from diverse sources, unify it and present insights in customizable charts and tables. This was a key step towards contextualizing complex data to make insights accessible to users.

Accelerating insights through automation

Manual reporting and data preparation were slowing down customers. Our task was to build features that automated data transformation, anomaly detection and root cause analysis, to reduce time-to-insight from days to minutes.

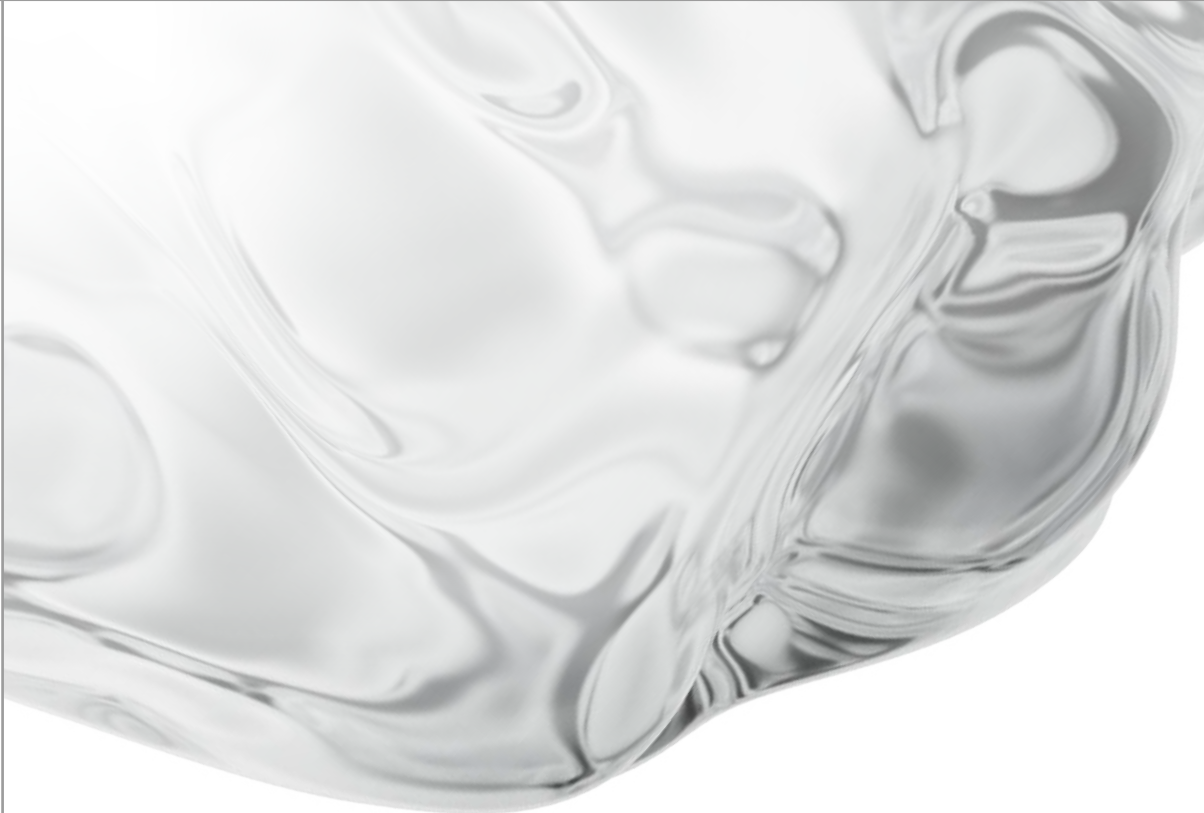
Redesigning backend architecture to support scalable analytics

To improve performance and build advanced analytics features, like predictive modeling and anomaly detection, we migrated from Spark to Amazon Redshift and redesigned backend logic. It lets process raw data efficiently and generate reports in real time.

Implementing an ETL (Extract, Transform, Load) pipeline

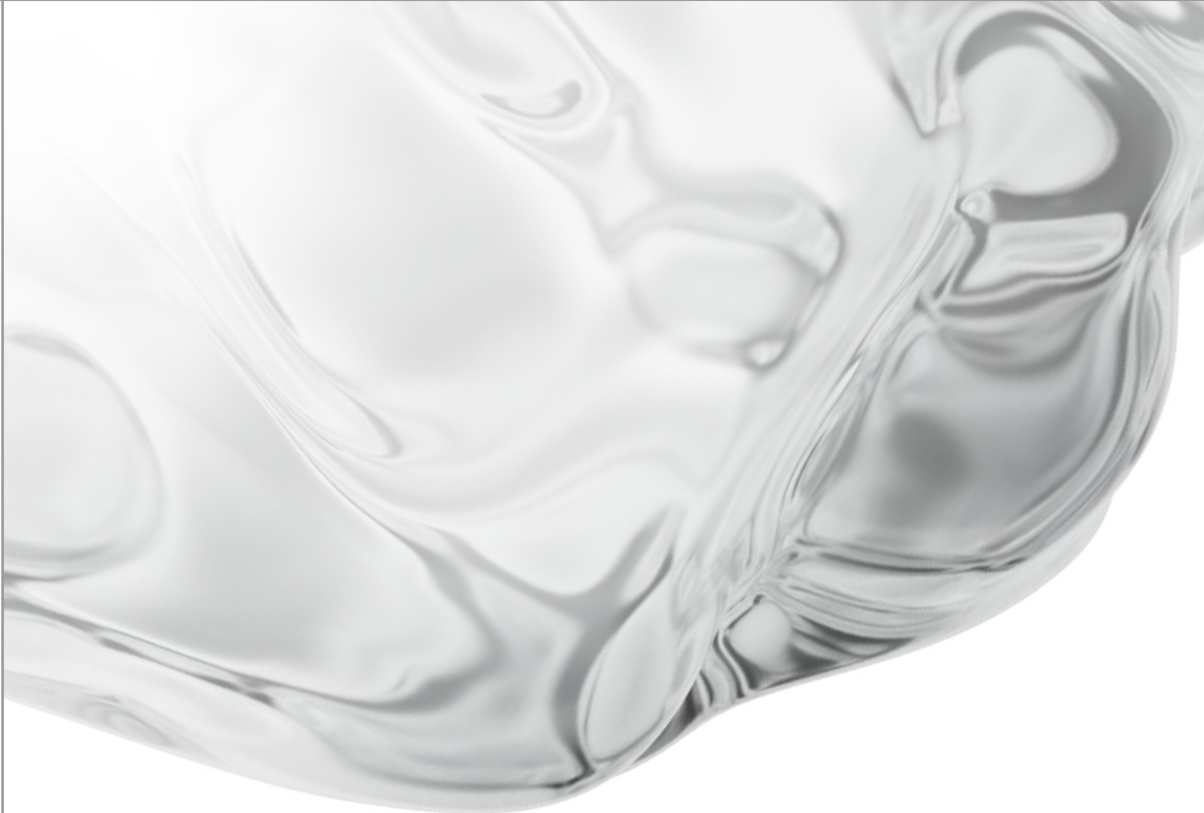
To support dynamic analytics, Avora required an internal data warehouse that could extract, transform and load information from a variety of sources. The system had to perform custom calculations, adapt to increasing complexity, and handle multiple storage layers like MySQL, Hadoop, Redshift and Exasol. We simplified the data pipeline for both developers and non-technical users by creating pre-built connectors and automating complex data handling processes.

STEP-BY-STEP PROJECT FLOW



Stage 1: Improving the legacy codebase

Our first priorities were to assess and refactor the inherited code, identify bottlenecks, understand the TA’s needs and challenges, and build the foundation for a stable, scalable analytics platform. We worked closely with our partner to understand their use cases and user pain points before proceeding with deeper changes.



Stage 2: Reengineering data processing and platform architecture

With a clearer understanding of their product and vision, we optimized the backend architecture by redesigning the ETL pipeline, transitioning from Spark to Amazon Redshift and improving data query efficiency. At this stage, we also implemented a warehousing system capable of supporting hundreds of external data sources with real-time data synchronization.



Stage 3: Building core functionality for smart analytics and reporting

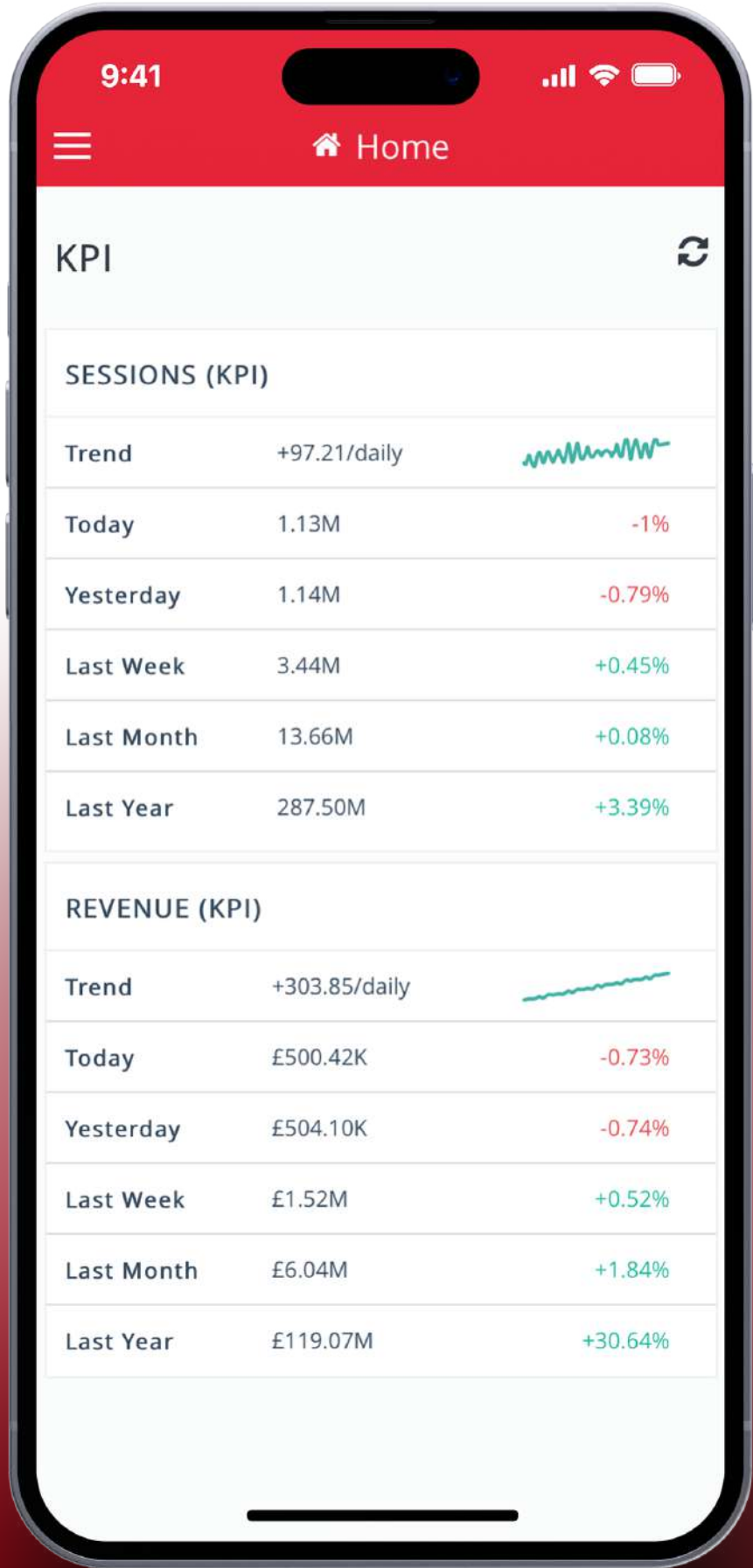
We developed the majority of the platform’s core features, including the Card Builder for flexible reports, anomaly detection, root cause analysis and predictive analytics. These tools let end users, especially non-technical ones, identify performance trends, detect problem areas and forecast business outcomes in real time.



Stage 4: Expanding their digital ecosystem with mobile analytics

To support on-the-go decision-making, our team built a cross-platform mobile app that expands the platform’s core functionality. Users can view dashboards, receive alerts and monitor key KPIs in real time. This mobile app helped position Avora as a flexible, enterprise-ready solution for teams across departments and industries.

DELIVERED PRODUCTS & FUNCTIONALITY



- **Custom reporting with Card Builder (web):** Our team developed a flexible, no-code interface that lets users build custom reports by assembling Cards — modular visual blocks that combine charts, tables, and formulas. These Cards can be grouped into dashboards, formatted for clarity, and cloned for reuse or collaboration.
- **Secure and scalable ETL pipeline (web):** We built an ETL pipeline that extracts, transforms and loads data from a wide range of external sources using pre-built connectors. And to support large-scale analytics, our team optimized the backend with warehousing solutions like Redshift and Exasol.
- **Root cause analysis for business anomalies (web):** ML-driven root cause analysis tools let users pinpoint why specific trends occur, explaining a sudden sales spike or a performance drop. By analyzing variables like time, geography or product category, the system highlights contributing factors to reduce guesswork in high-stakes decisions.
- **Predictive analytics and trend forecasting (web):** To support forward-looking decision-making, we developed predictive models based on historical data and user-defined parameters. The platform visualizes potential outcomes in interactive charts, helping end clients confidently plan pricing, promotions and resource allocation.
- **Real-time KPI monitoring and insights (mobile):** We delivered a mobile app that lets users access KPI cards, dashboards and filtered insights on the go. Mobile users can track performance, scan charts and tables, monitor trends and receive smart alerts about progress; all while staying in sync with the larger system and their desktop-equipped counterparts.
- **Smart alerts and anomaly detection (web & mobile):** A smart alert system uses machine learning (ML) to monitor data for irregularities and instantly notify users of unexpected changes. Alerts can be configured manually or generated automatically based on statistical thresholds. Notifications are delivered across web dashboards and mobile devices to support timely, data-driven decisions.

PROJECT OUTCOMES

Transformed Avora’s system into a high-performance analytics platform	Sped up time-to-insight with predictive analytics and automation
We increased report generation efficiency and dashboard responsiveness 5X by optimizing backend queries and migrating to more efficient databases like Amazon Redshift. Faster and more efficient access to data and analytics improved overall usability and user experience across the platform.	We reduced the time required for data preparation and discovery processes from days to minutes, and empowered non-technical users to generate insights independently. With ML-driven features like anomaly detection, root cause analysis and smart alerts, users can now access the insights for more accurate decision-making.
Simplified complex reporting with a visual, no-code builder	Delivered scalable ETL architecture for high-volume data ingestion
The created Card Builder reduces manual reporting, accelerates time-to-insights, and gives non-tech users the autonomy to build comprehensive analytics reports. Using drag-and-drop components, linked tables, and custom formulas, users can now work directly with complex datasets without relying on technical teams.	To help Avora scale analytics, we improved the ETL pipeline with flexible transformation logic and pre-built connectors for commonly used data sources. Our work laid the foundation for secure, efficient ingestion from a growing number of systems, letting the platform support real-time insights and evolving enterprise demands.
Extended data visibility and alerting to mobile devices	Positioned Avora for market growth
The cross-platform app gives end users access to dashboards, alerts and KPIs, in real time and on the go. This keeps executives and team leads informed, helps spot anomalies early, and lets them monitor changes, compile reports, and access insights from anywhere, whether in the office or on the move.	Our technical leadership helped transform Avora into a scalable analytics platform with broad market appeal. By improving system performance, simplifying self-service analytics, and supporting comprehensive features, our partner reaches new customer segments and meets enterprise expectations. Now, Avora can compete more confidently in data-heavy industries to further expand their market presence.



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