

CASE STUDY: MOTIVE RETAIL

An API integration ecosystem for real-time data flow in the US automotive retail sector

Partner information:

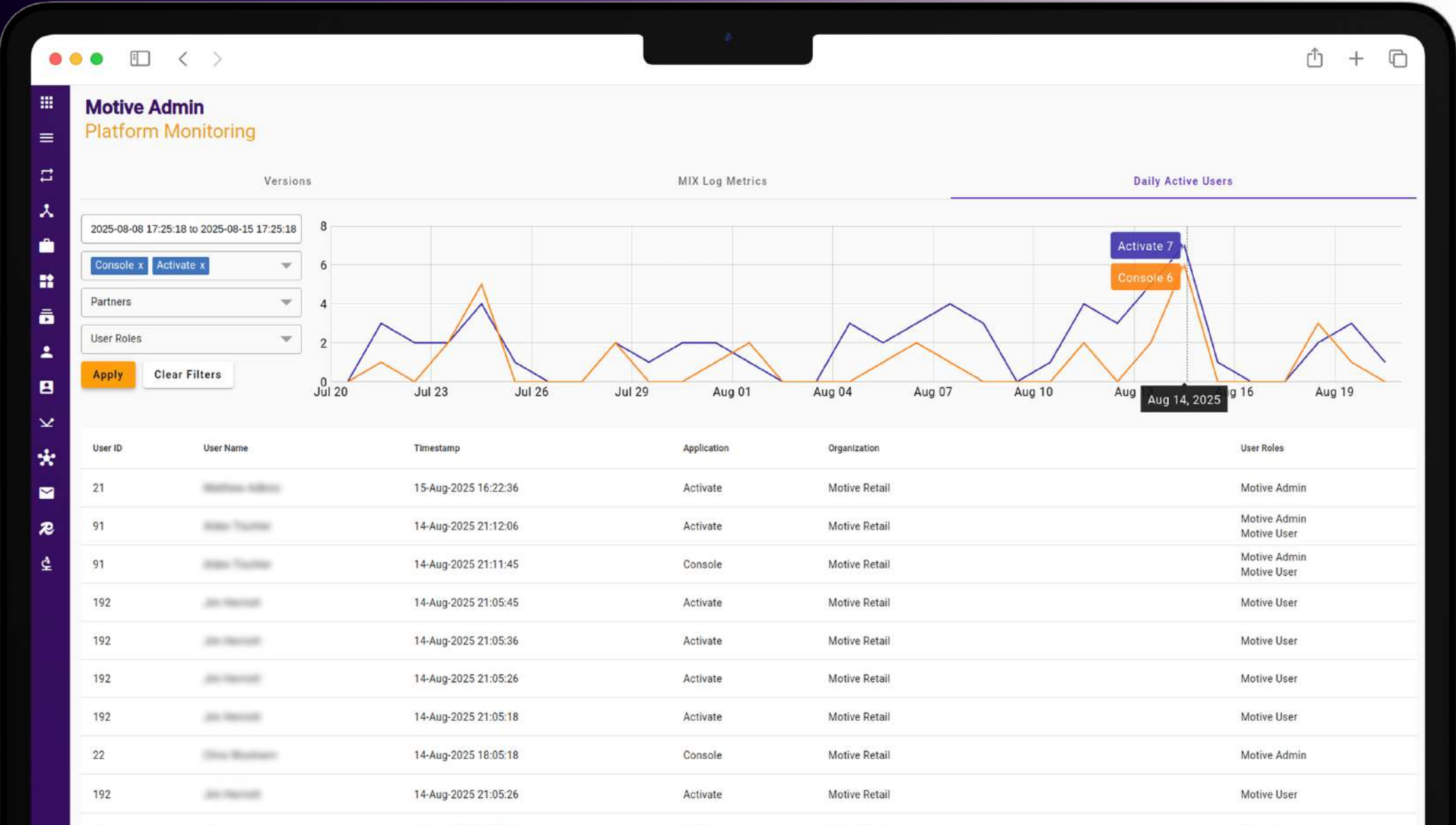
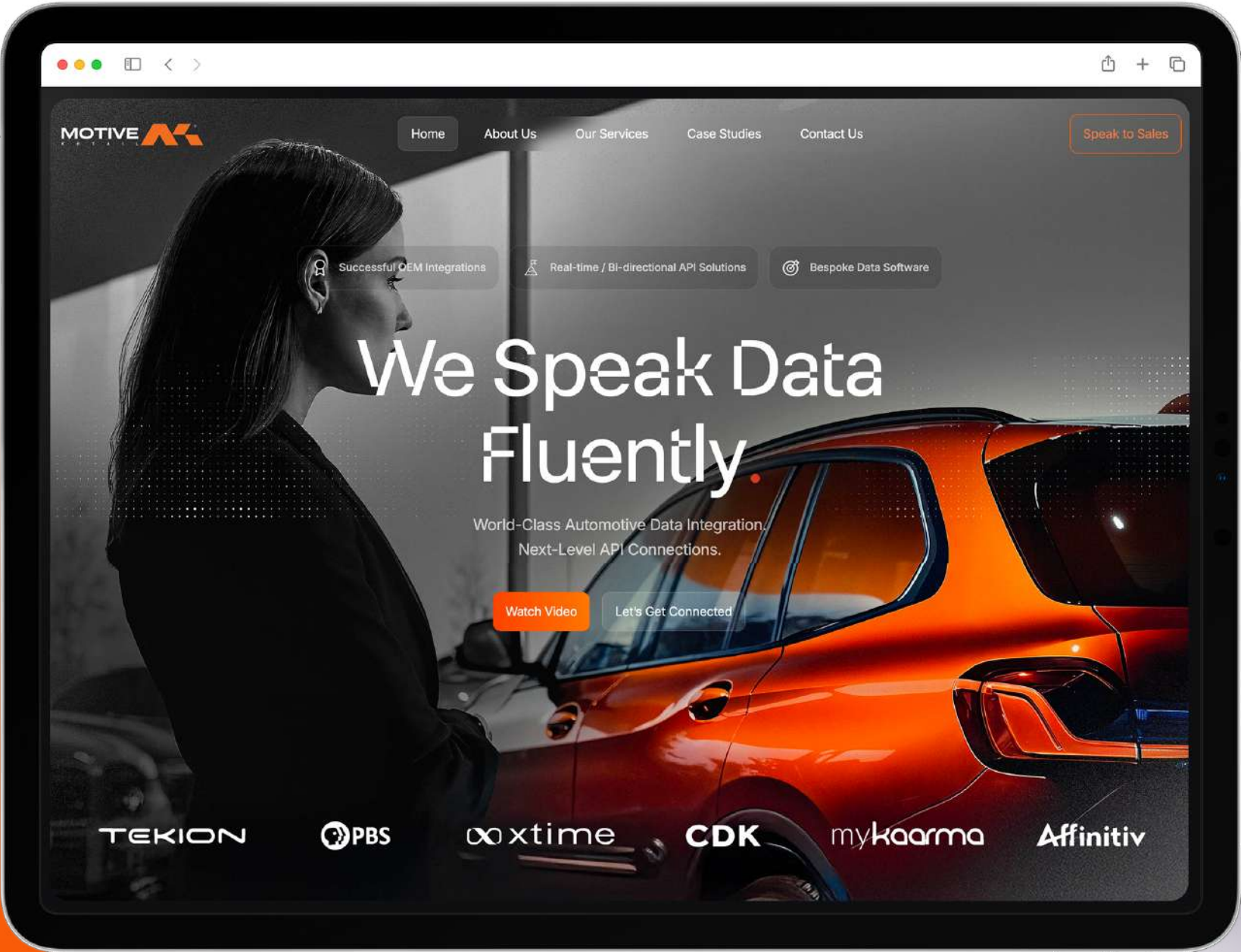
Partner: Motive Retail

Company size: 51-100

Headquarters: USA

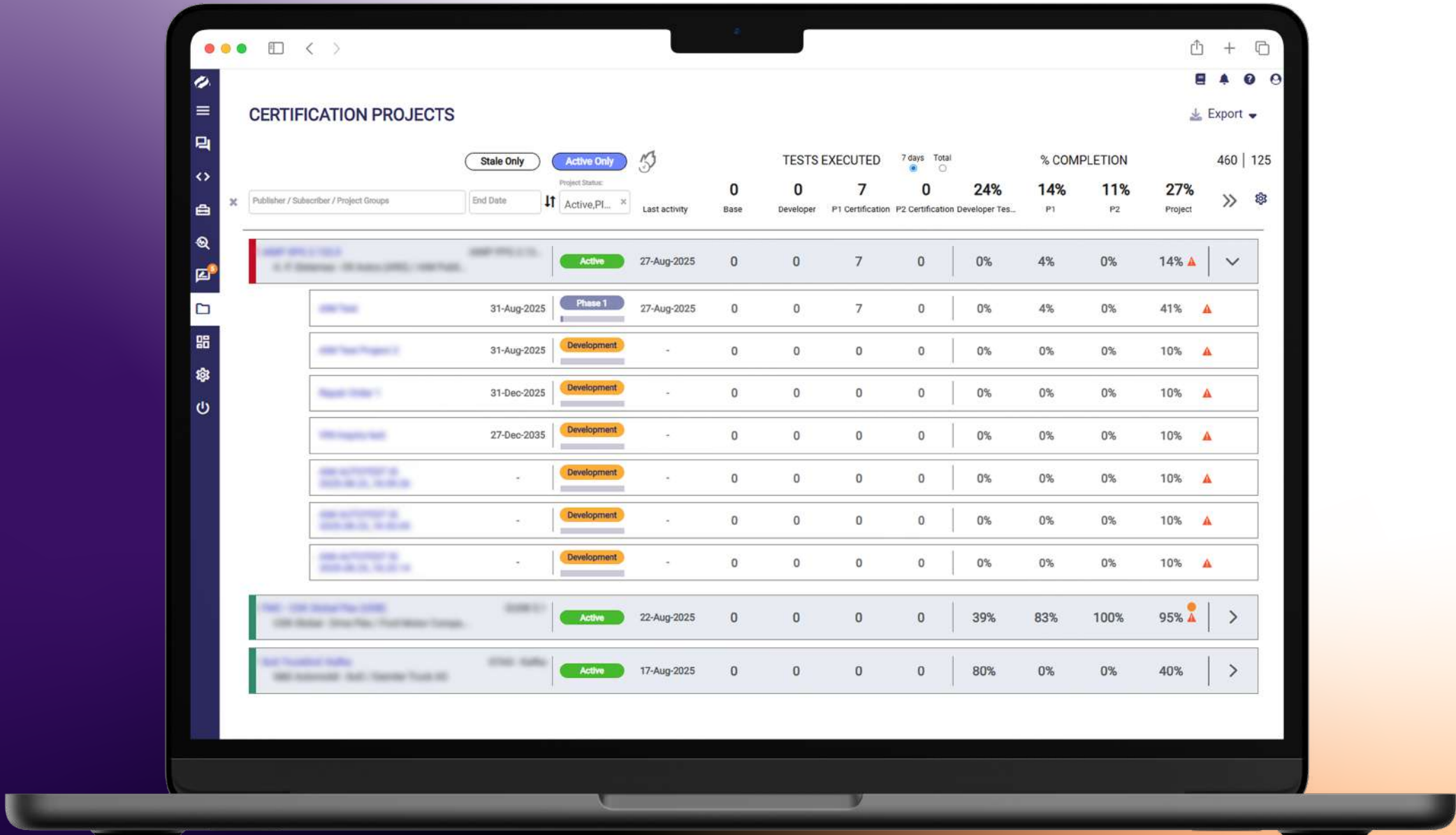
Team size:

Project manager/Scrum master: 1
QA engineers: 2
Full-stack developers: 6



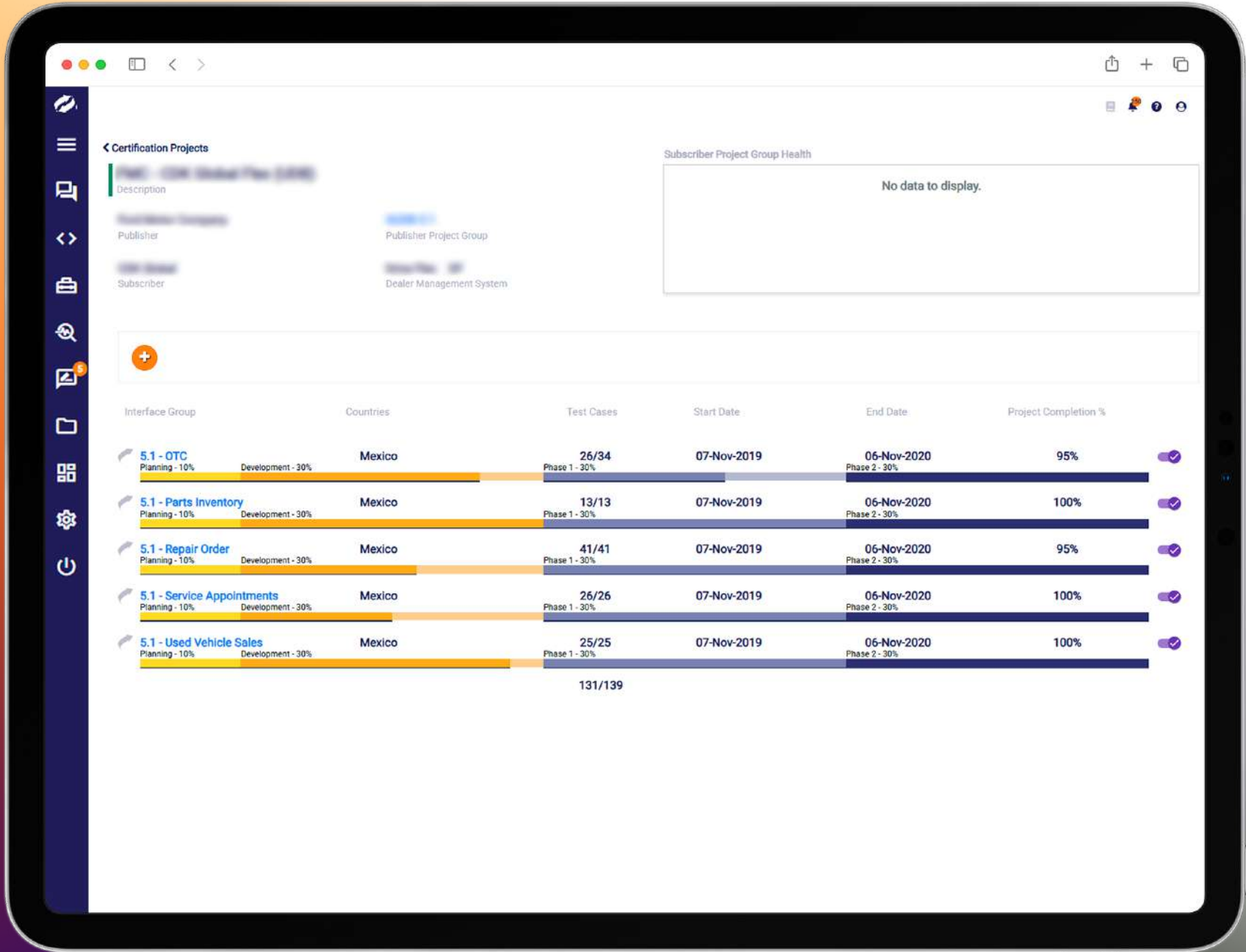
PROJECT OVERVIEW

Since 2008, our team has partnered with Motive Retail, a US-based company connecting major players in the automotive retail sector through APIs. By standardizing data exchange with APIs, Motive Retail ensures consistent information flow between diverse participants in the automotive supply chain and service providers, including OEMs (parts manufacturers), parts suppliers, DMSs (dealer management systems), dealers and insurers. Over the years, we've built and evolved some of their ecosystem's core platforms to support faster and more secure collaboration, reduce manual processes, accelerate onboarding and ensure secure, compliant connectivity. These platforms include:



- **Motive Integrator eXchange (MIX)** is the central API integration platform that governs connections and enables users to exchange data securely. It handles distribution program subscription, data governance and secure data exchange to reduce integration time and ensure reliable connectivity across all parties. Around MIX, we've built supporting tools like
 - **Activate** to govern API subscription approvals and dealer data flows, automating what used to be manual dealer approvals and speeding up the activation of new integrations
 - **Console** to enable real-time analytics and monitoring of API traffic and performance, helping internal teams and partners quickly detect and resolve issues before they affect business operations
 - **Admin Panel** lets Motive Retail configure and manage services like API subscription updates directly through the interface without manual database changes, making updates faster and less error-prone

PROJECT OVERVIEW



• **Certify** is a standalone API certification and onboarding platform that structures dealer, manufacturer, and subscriber integrations into MIX. When participants join MIX, Certify verifies compliance and readiness, ensuring integrations are consistent, tested and production-ready.

• **Validation API** is a high-load internal service that offloads and automates XML (Extensible Markup Language) file validation from Certify, making API certification flows faster.

• **A custom-branded certification portal** for one of Motive Retail’s manufacturing partners is based on Certify’s core architecture and workflows, but expanded with additional dashboards, reporting and incident management tools to meet their partner’s operational requirements. We also added a file transmission service that lets internal teams upload large assets, catalogs and documentation, for secure distribution to authorized third parties.

We’ve been Motive Retail’s long-term technical partner for over 17 years. From redesigning legacy products to building out capacity to handle hundreds of thousands of requests daily with zero deployment failures, we have contributed to every stage of their platform’s evolution.

Today, our team continues to work closely with theirs to implement new features, improve platform usability, and support the smooth rollout of upgrades and new features across their digital ecosystem.

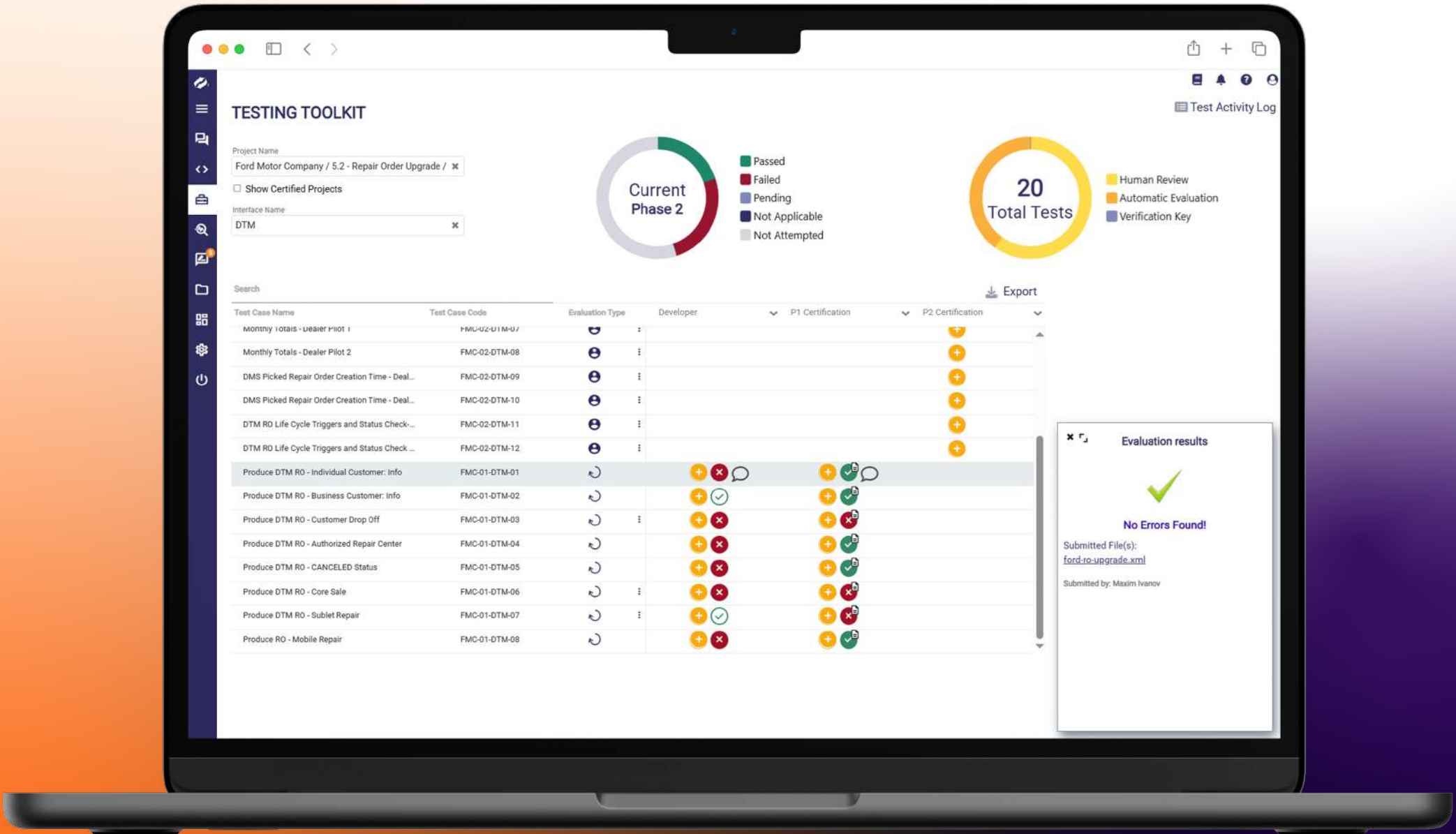
SERVICES & TECHNOLOGY STACK

Provided services

- Web development
- QA & software testing
- Project management

Technologies & tools

- **Platform:** Java, Node.js
- **Frontend:** Angular 19, TypeScript, AMCharts.js, NgRx, Webpack, Material-UI
- **Backend:** Java, Kotlin, Spring Framework, MySQL, PostgreSQL, Redis, Maven, Amazon SQS, Amazon S3
- **QA tools:** Selenium WebDriver, Postman, Swagger
- **Third-party tools:** Auth0, Mailgun, MetaDefender, Amazon CloudWatch
- **Additional tools:** Git, npm, TSLint, BitBucket Pipelines



REQUIREMENTS & CHALLENGES

	When Motive Retail first approached us, they had two key solutions in place: Motive Integrator (later rebranded as MIX), which connected automotive partners via APIs, and a desktop app for managing certification workflows (which would later become Certify). But both systems had to evolve to handle the scale, flexibility and user experience Motive Retail envisioned. We faced two major challenges: One was rethinking the API certification process so integrations could be tested and approved before going live. We would need to carry out a full rewrite to create the platform now known as Certify. The other was expanding Motive Integrator to meet growing business needs. An early transition from a desktop app to a Liferay-based web portal solved accessibility at first, but soon revealed new problems: performance bottlenecks, hefty maintenance requirements, and increasing misalignment with growth goals.	To address these issues, we evolved Motive Integrator into MIX. Certain functions, like secure subscription approvals and dealer data governance, needed to be separated into dedicated services (Activate, Admin panel) so that each could evolve independently and scale better. We also needed to add a new tool, namely Console, for real-time usage analytics of API traffic to give manufacturers and internal teams visibility into request errors and performance patterns. Here, our main challenge was building new features to strengthen architecture, stability and performance, so MIX could handle a growing network of integrations. It meant tackling architectural complexity, keeping performance stable under high load, and coordinating interactions between various user roles across interconnected systems. This combination of strategic and technical involvement defined the key requirements and challenges we tackled:



REQUIREMENTS & CHALLENGES

Modernizing legacy architecture Their original tech, including the Liferay-based portal, outdated frontend components, and older Java modules were increasingly hard to maintain and scale, driving up long-term maintenance costs. Over the years, many features had evolved organically without consistent design patterns or architecture. Updating and refactoring these components required careful planning to avoid regressions and maintain platform uptime.	Supporting a multi-role ecosystem The ecosystem serves a wide variety of users, manufacturers, subscribers, dealers and internal admins, each with unique workflows and permissions. This meant ensuring stability across several independent tools (Certify, Activate, Console, Admin) while guaranteeing smooth communication between them with open endpoints and shared logic.
Maintaining high performance With hundreds of thousands of requests passing through Activate daily, and thousands of certification requests handled by Certify, performance and infrastructure design became critical. We needed to introduce best practices like asynchronous processing (with AWS SQS), multithreading, caching and request optimization for consistent speed and reliability across both certification and subscription activation.	Delivering new features alongside maintenance With increasing user needs and pressure to surpass competitors, our team was often tasked with introducing new functionality, like building automated billing and dealer approval flows, while keeping production systems stable and responsive. This required strategic feature release planning to deliver improvements quickly without disrupting ongoing operations or user workflows.
Building internal tooling to reduce system load As certification requests increased, Certify had to validate a growing number of XML files. Each had structured data that needed to be checked against manufacturer-defined rules, a computationally heavy process that slowed Certify during peak usage. To reduce Certify's workload, improve user processing speed and keep performance predictable, we needed to design and implement a Validation API.	Coordinating long-term development across a growing ecosystem Continuous delivery while building out multiple interconnected systems required close coordination across parallel teams, careful version management, and maintaining stability for hundreds of thousands of daily requests in live production.

COLLABORATION APPROACH & PROCESS

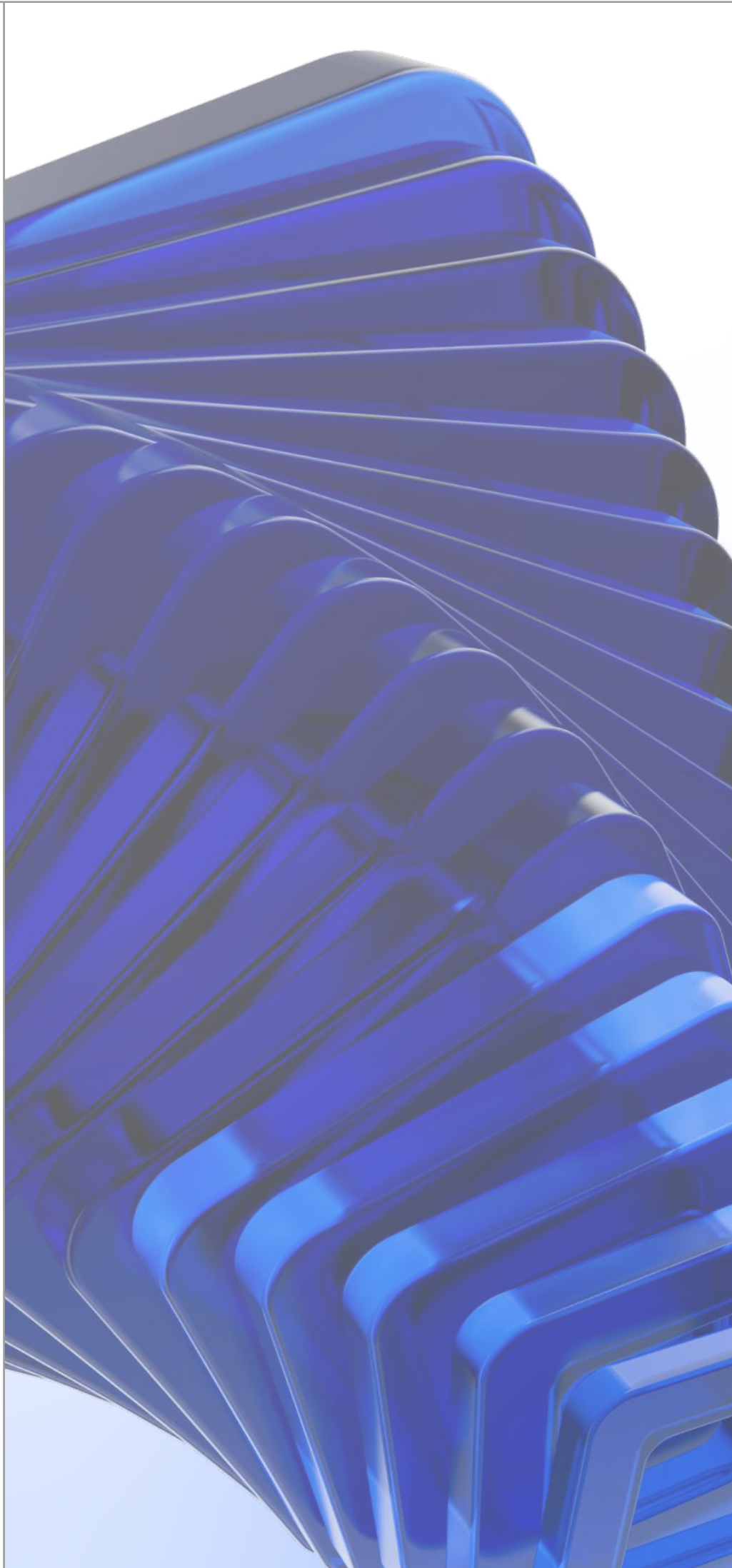
Our partnership with Motive Retail is built on **three pillars: trust, autonomy and a shared product mindset**. From the start in 2008, we were given the freedom to act not just as developers but as decision-makers, challenging requirements and assumptions, and then proposing smarter approaches. We earned that trust through **transparency, predictable delivery**, and our ability to **simultaneously navigate complex priorities and maintain focus on long-term goals**.

We work as two self-sufficient teams, fully embedded in Motive Retail’s workflow yet able to operate independently. This means spotting risks before they become blockers, improving performance without waiting for formal requests from their team, and keeping the product aligned with both user needs and market changes. **Urgent production issues are handled with the same discipline as planned releases**, supported by strong regression coverage, automated tests to continuously verify critical features, and clear ownership for every task.

A cornerstone of our collaboration is **recognizing opportunities and acting on them**. Many impactful changes began as our own initiatives, from introducing an organizational hierarchy tree that lets system admins navigate and manage manufacturers, subscribers, etc., to building automated billing tools that accelerate email processing and boost Certify’s performance. Over time, our **proactive approach** has shaped the way work gets done: cleaner architecture, consistent reusable component libraries, and processes built to scale.

This combination of **independence, shared accountability and continuous improvement** is the reason our partnership has lasted and is why Motive Retail still chooses to fully integrate our team into product development cycles.

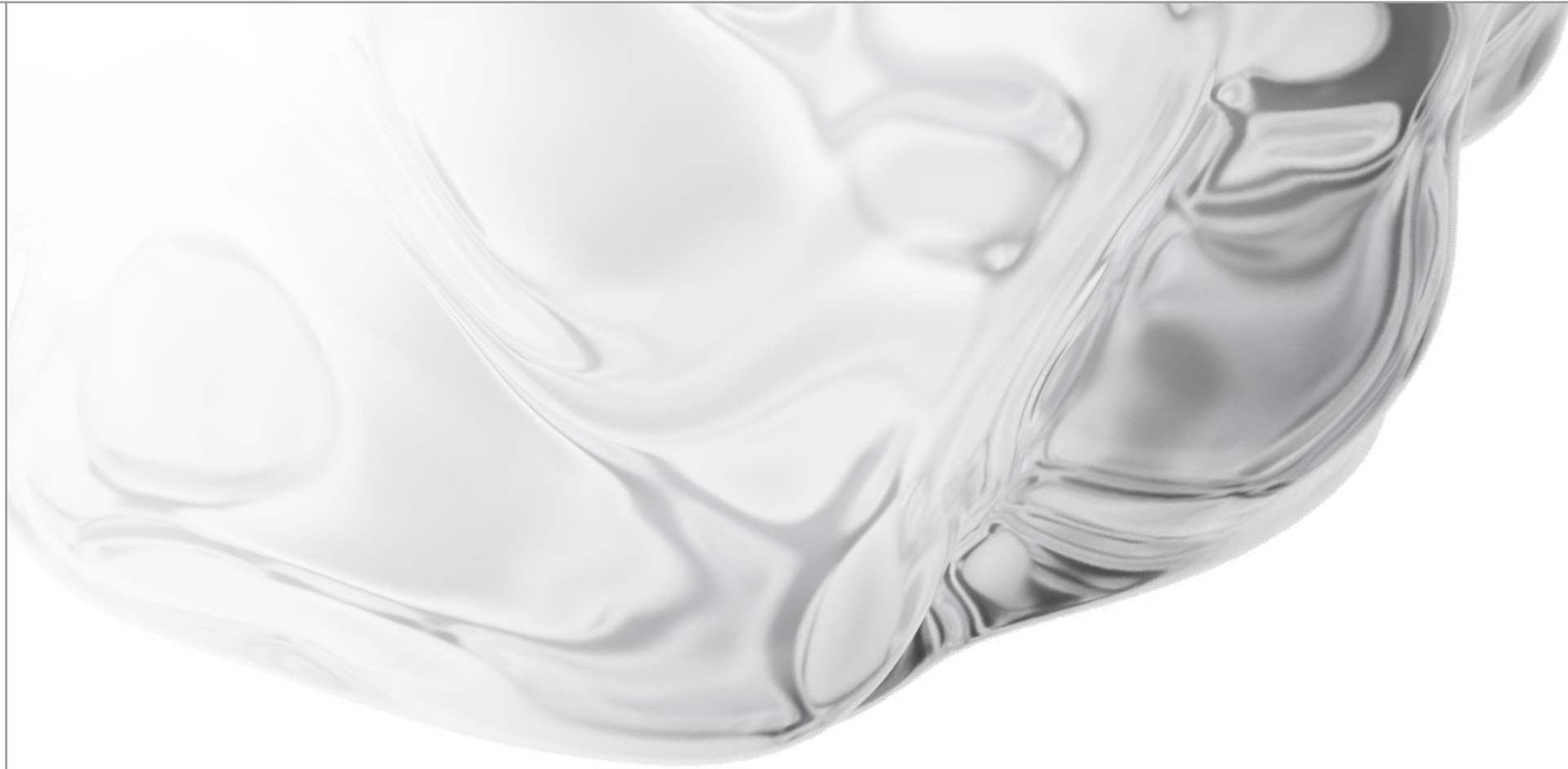
PARTNER TESTIMONIAL



“Your team has been a true partner to Motive Retail, helping us bring products to life and investing in our success as if it were your own. We are proud to celebrate this milestone with you!”

Bill Koch,
Sr. Director of Engineering at Motive Retail

STEP-BY-STEP PROJECT FLOW



Stage 1: Improvements to their original ecosystem

Our collaboration began with updates to their legacy desktop app that supported basic certification workflows between manufacturers and their subscribers. As demand grew, we helped transition this tool into a web-based Liferay portal, introducing better accessibility and structured role-based workflows for certification tasks.

As the portal matured, we initiated one of the first major modernizations in the product's lifecycle: a UI upgrade from static portal pages to a fully interactive, Angular-based single-page app. This shift improved usability, interface load times, and laid the groundwork for what would later become their reimagined certification system, Certify. In parallel, we contributed to the development of Motive Integrator, their integration platform that supported API-driven connections between automotive partners.

Stage 2: Full platform rewrite and Certify launch

As their original, Liferay-based certification system aged, it became increasingly difficult to maintain, test and expand. Together with our partner, we initiated a full rewrite, starting from scratch with a clean Java backend and Angular frontend, introducing modern coding practices, architectural consistency and new core features.

This rewrite became Certify, a multi-role solution that supports manufacturers, subscribers, dealers and internal teams. It centralized the certification process, enabled rule-based test case management, streamlined file uploads and validation, and introduced user dashboards, announcement systems and automated email notifications. By replacing slow, error-prone emails and manual document exchange in incompatible formats, Certify automates the onboarding process and significantly reduces the time from initial certification request to an organization's full integration.

At this stage, we also reduced workload for the core system and increased certification flow speed and stability by separating high-load logic into a dedicated Validation API service.



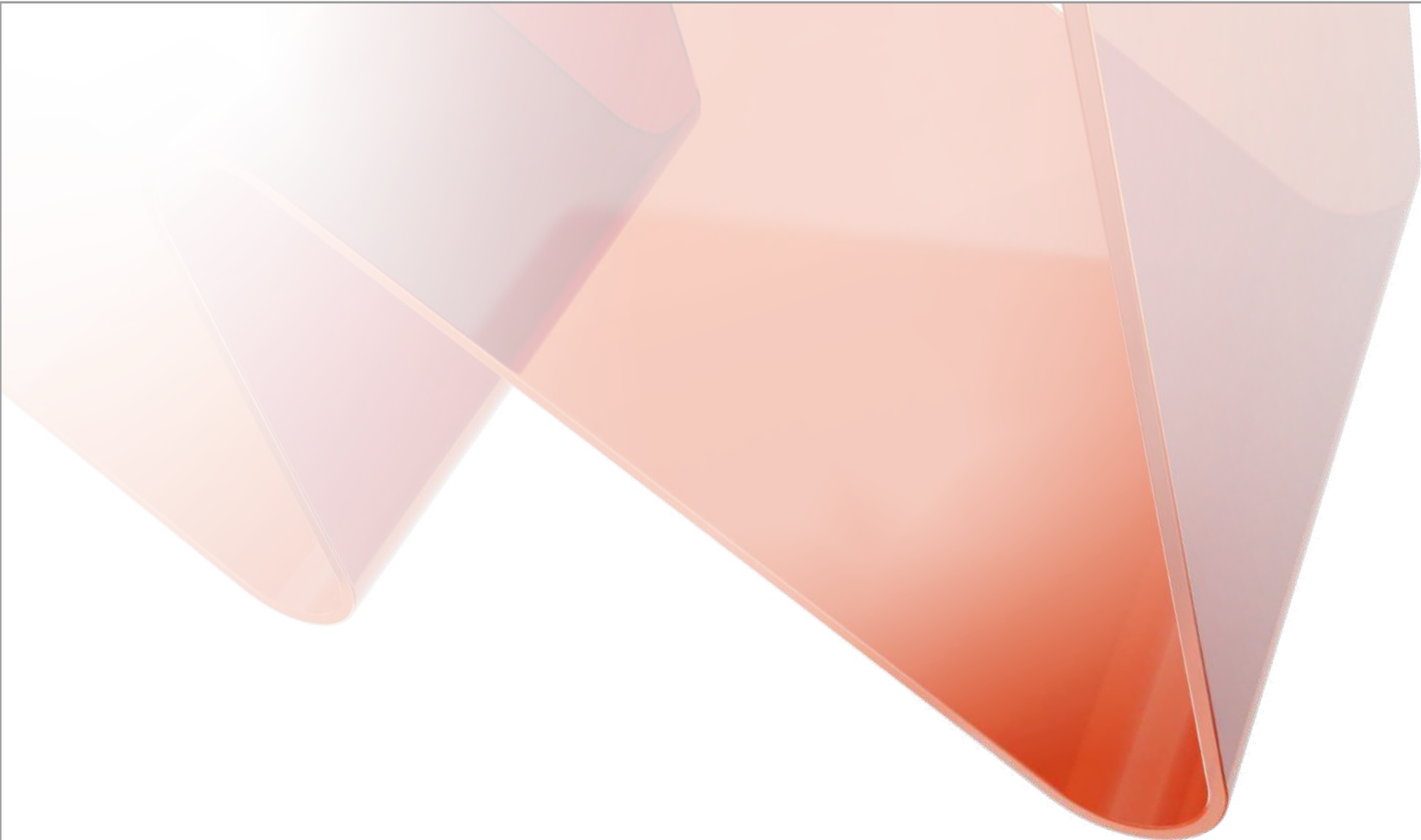
STEP-BY-STEP PROJECT FLOW

Stage 3: Expanding MIX and ecosystem

We enhanced Motive Integrator, which later became MIX, the central integration hub for API-driven connections between automotive partners. Over the years, we’ve strengthened MIX’s architecture, stability and performance while introducing new services that extended its governance, monitoring and configuration capabilities.

We separated some core functions, such as secure subscription approvals and dealership data governance, into a dedicated service known as Activate. And we also developed Console, to provide real-time request analytics, error tracing and usage monitoring, and improved the Admin Panel’s interface for better configuration and user management.

This ongoing evolution required in-depth analysis and improvements to architecture, caching strategies, and queue-based background processing. At the same time, automated billing logic had to be refined to process hundreds of thousands of daily requests without sacrificing responsiveness or data consistency.

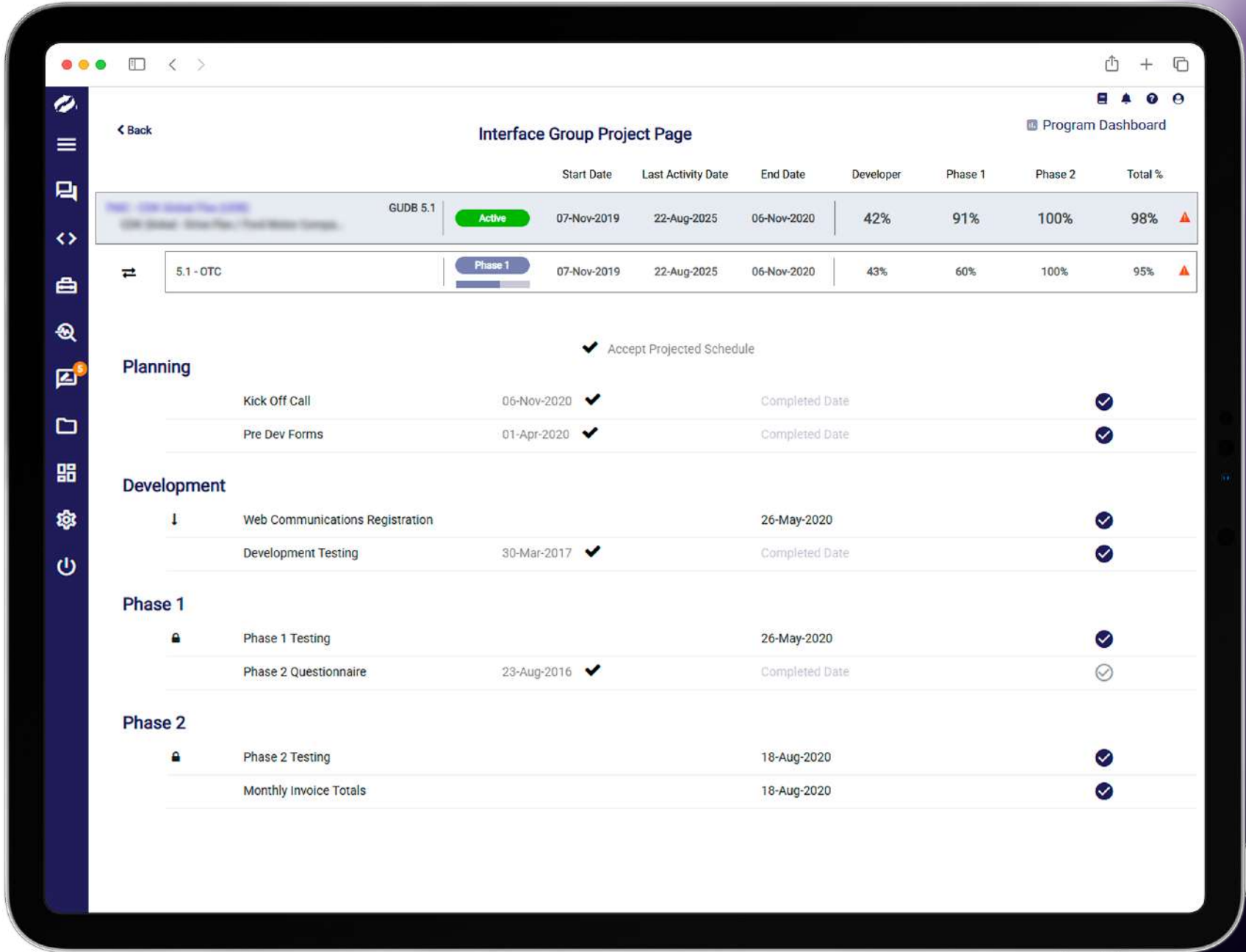


Stage 4: Continuous expansion and future plans

Today, we remain an integral part of Motive Retail’s product development. Our responsibilities grew to include strategic feature planning, infrastructure optimization, tech stack upgrades and user experience improvements. Currently, our team is also working on UI theming support, functionality expansion, and MIX’s gradual migration to TypeScript and the latest versions of Angular.

Looking ahead, we’re focused on further increasing their platform’s modularity. Better modularity will empower Motive Retail to adapt more quickly to changing market demands and integration requirements while maintaining the stability and performance their ecosystem is known for.

DELIVERED PRODUCTS & FUNCTIONALITY



● **Multi-phase API certification workflows (Certify):** A configurable workflow lets manufacturers design and split certification programs into clear testing stages, such as API connection checks, data validation, and other steps, that subscribers complete. Certify tracks progress, manages file exchanges in a unified format and provides a single platform for both parties to collaborate. This reduces tedious back-and-forth communication and accelerates the move from user onboarding to active data exchange.

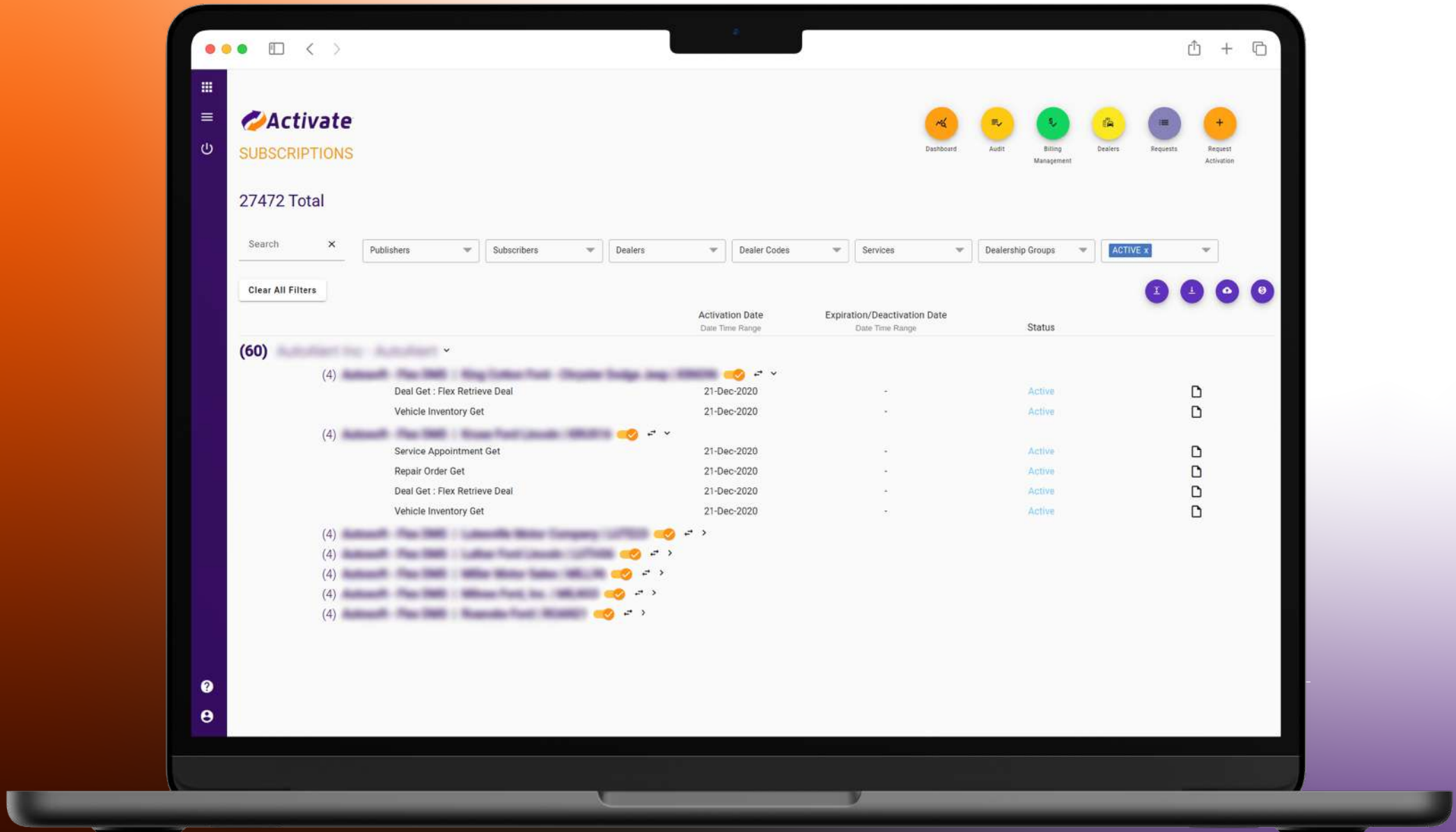
● **Administrative configuration panel and monitoring console (part of MIX):** To support both system stability and operational flexibility, we developed a console and admin panel within MIX. Console gives manufacturers and Motive Retail’s internal teams real-time visibility into live request traffic, system errors and historical activity. Alongside it, the Admin Panel lets admins control user roles, subscription logic, service mappings and contract configurations. It also supports manufacturer-specific customizations, letting Motive Retail adapt their platform to various business needs without requiring hardcoded changes.

● **Custom announcement and communication system (Certify):** To support clearer communication between all parties, we introduced a built-in announcement tool. Manufacturers and Motive Retail admins can send real-time updates, onboarding instructions and alerts to subscribers directly on the platform, reducing reliance on external email threads and improving information visibility.

● **Real-time API subscription workflows with dealer approval (Activate):** Within MIX, Activate provides a secure flow for managing API access subscriptions. Subscribers request access to manufacturer APIs and services, like vehicle specs or pricing, and Activate routes these requests for dealer approval before activation. This creates an audit trail and gives each party accountability and control, so they can monitor connections and stop unauthorized flows.

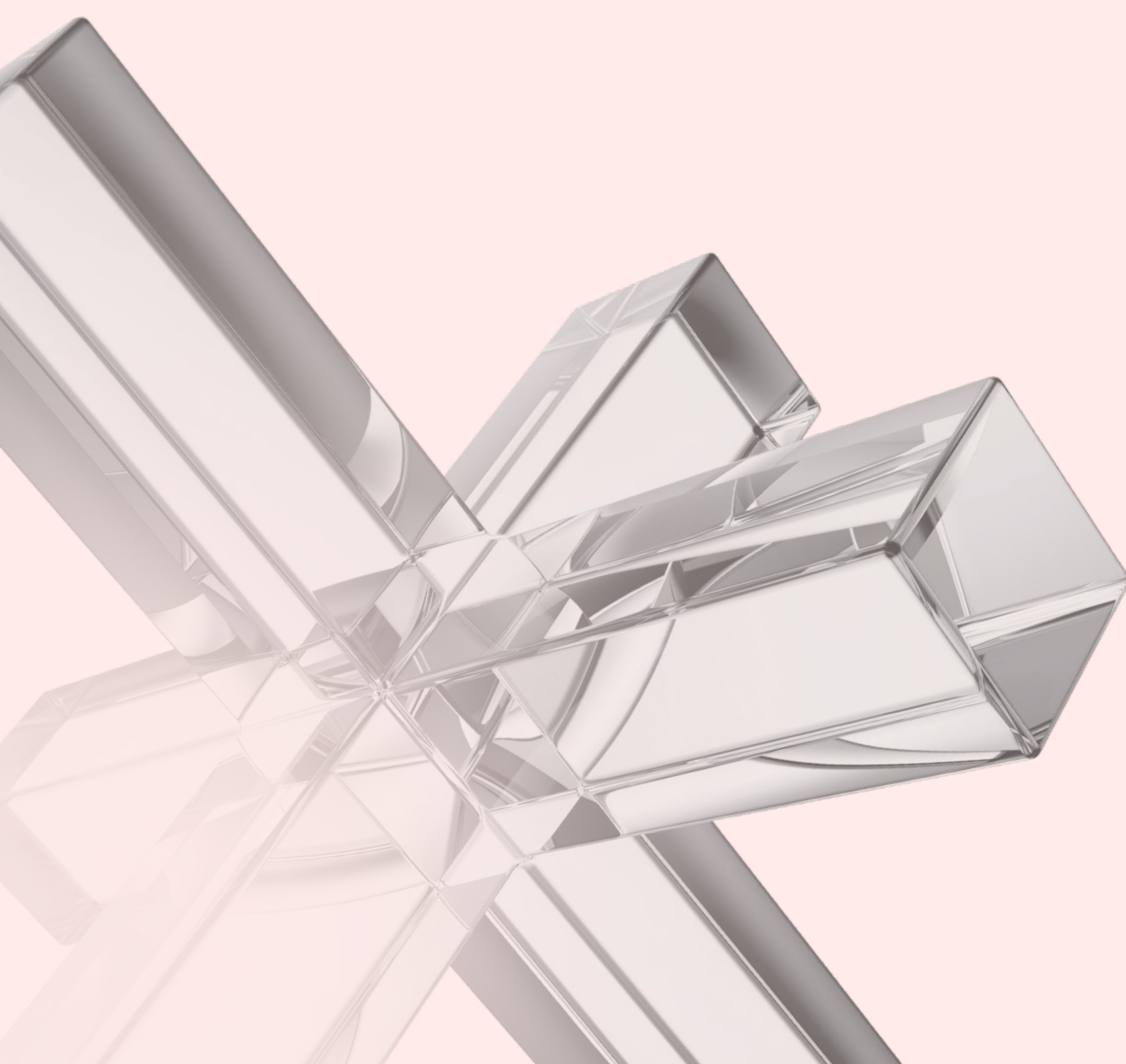
DELIVERED PRODUCTS & FUNCTIONALITY

- **Role-based dashboards and reporting tools (Certify):** Certify includes a set of dashboards tailored to user groups, from manufacturers tracking multiple certification programs to subscribers monitoring the current status of certification testing. These dashboards provide key metrics like project status, test progress, service readiness and pass/fail rates, helping all parties stay aligned and accountable throughout integration with the platform.
- **Dynamic service mapping and access control (Activate):** Activate lets manufacturers define service templates that control the API endpoints subscribers use. Once a request is approved, Activate automatically provides access, registers the subscription, and documents complete activity history to meet compliance and troubleshooting requirements. Admins can update API services and endpoints, like vehicle data or pricing, and pause or update dealer subscriptions directly through Activate’s interface, without directly editing the database.
- **XML validation at scale with internal API (Validation API):** We adapted the system to the increase in certification requests by separating validation logic from the main Certify system into a dedicated Validation API service. When a subscriber uploads test files, they’re automatically routed to this internal API, where business rules are applied to validate the files. This architectural decision significantly reduces server load, stabilizes the platform’s peak-traffic performance, and allows for faster response times during certification testing.
- **Automated billing data generation (Activate):** A tool within Active eliminates two weeks’ worth of manual spreadsheet work. It automatically aggregates active subscriptions and outputs structured billing data. Now, it takes just one click to immediately generate a full list of subscribers, services and usage data formatted for invoicing.



PROJECT IN NUMBERS

By rewriting their legacy systems, isolating high-load services, and building scalable workflows for future growth, our team helped Motive Retail turn fragmented digital services into a centralized and stable API integration ecosystem for the automotive retail sector.



17+

years of partnership,
and counting

50M+

transactions handled
by MIX per month

10X

faster email delivery
across Certify

HUNDREDS
OF THOUSANDS

of API requests processed
daily through Activate

1,000S

of API certification requests
handled weekly with Certify

0%

deployment failure rate

PROJECT OUTCOMES

17 years of continuous growth and flexibility

Since 2008, we’ve helped grow Motive Retail’s digital presence, evolving two initial platforms into a multi-product ecosystem serving dealers, manufacturers, API subscribers and their internal teams in the US. Continuous partnership preserves critical product knowledge and helps our partner respond to new business opportunities quickly—they scale features, adopt new tech, and expand into new product areas without sacrificing system stability or delivery pace.

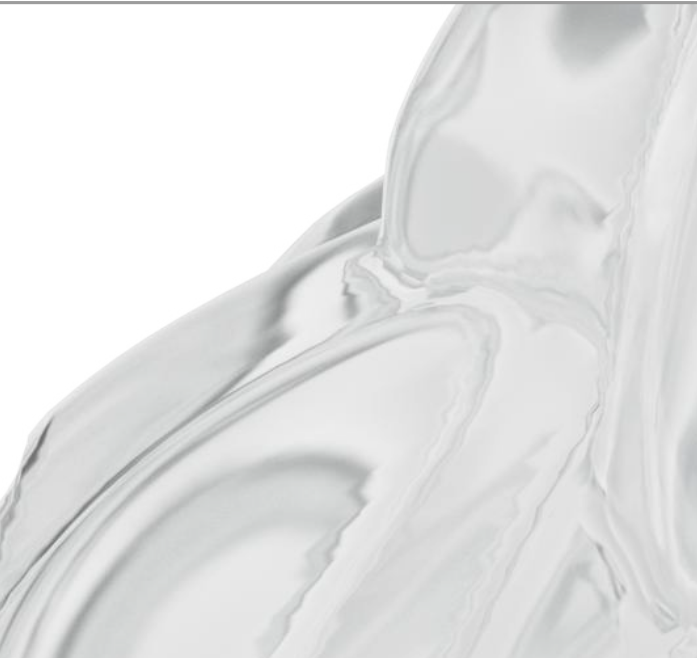
Accelerated product modernization and scalability

Upgrades from Liferay to Java, JavaScript to TypeScript, and several major Angular version updates were paired with thoughtful refactoring and new functionality to help Motive Retail roll out features faster, improve platform performance and reduce long-term maintenance costs. Their updated platform makes it easy to scale for growing user volumes and new market needs without disrupting operations.

Enabled real-time data processing at enterprise scale

With architectural improvements like caching, multithreading, asynchronous processing and Validation API offloading, their systems reliably handle hundreds of thousands of daily requests and thousands of concurrent certification flows without slowdowns or crashes.

PROJECT OUTCOMES



Built automation and tooling to exponentially accelerate ops

We cut invoice data generation from weeks to minutes, ensured compliance without back-and-forth emails, and sped up onboarding by replacing error-prone manual processes with features like automated billing preparation, dealer-driven subscription approvals, and scalable test workflows. These improvements streamline both internal operations and client-facing processes to improve speed, accuracy and transparency across Motive Retail’s ecosystem.

Maintained stability and quality across a complex, fast-evolving platform



Deliveries sustain zero deployment failures over years of active deployment, even as functionality, integrations and traffic volumes increase dramatically. We achieve this level of reliability with rigorous manual and automated testing, like regression and end-to-end coverage, and close attention to detail.



Improved strategic direction through proactive ownership

Acting as an extension of Motive Retail’s product team, we quickly identify opportunities, propose improvements and influence roadmap priorities based on insights from real-world usage analytics. By introducing features that address emerging user needs and recommending architectural changes that support increased usership, API certifications, and faster onboarding, our team’s input consistently balances tech with business impact. This approach helps Motive Retail prioritize directions that resonate with their users and market.



aimprosoft

contact@aimprosoft.com