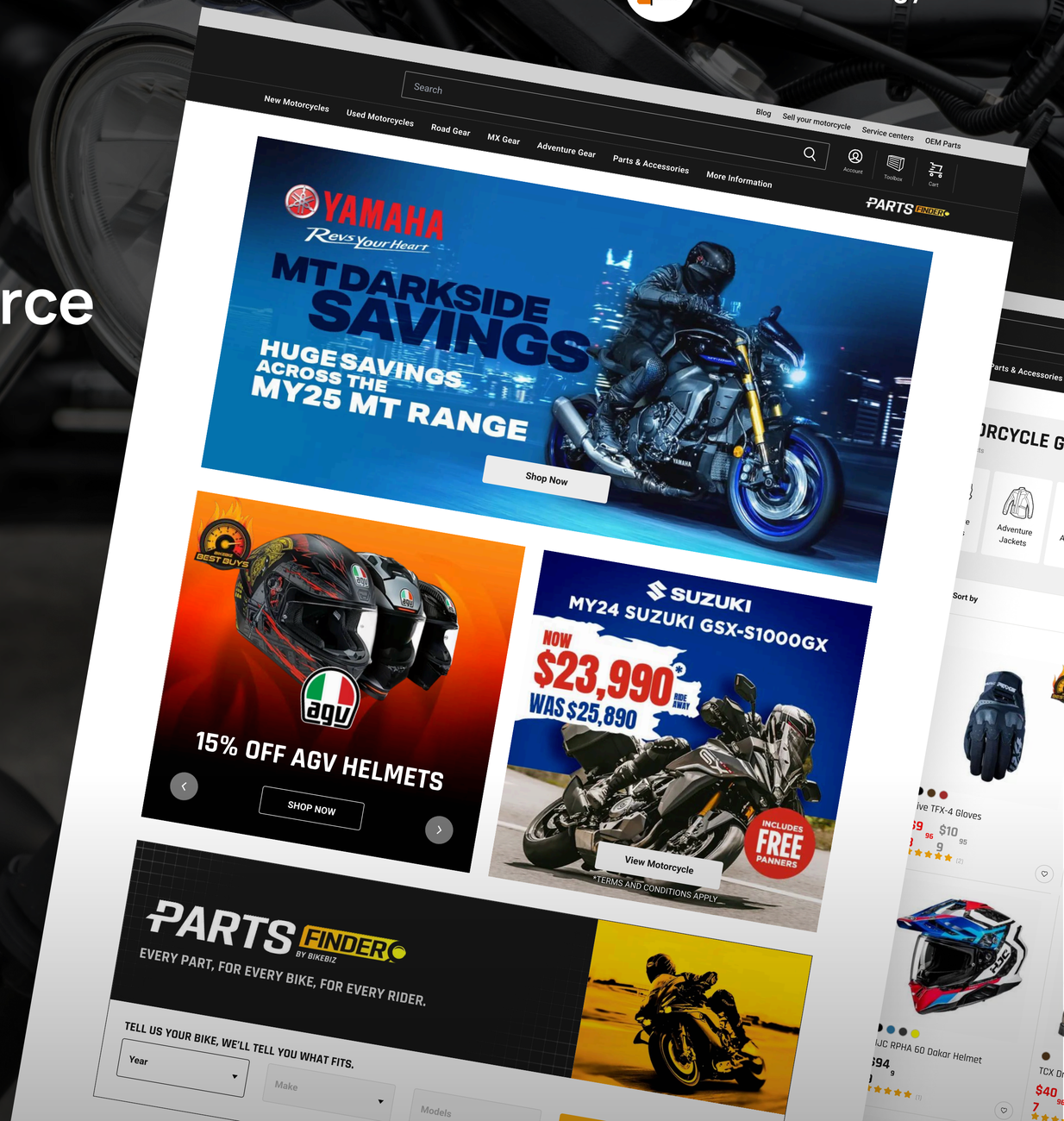
NUS Technology

CASE STUDY

Orchestrating Complex E-Commerce Operations for an Australian Motorcycle Parts Retailer

Client: **Confidential Australian motorcycle parts retailer**



THE MISSION-CRITICAL MANDATE

Engineering an Operations Backbone

When an established Australian motorcycle parts retailer found its growth constrained by a fragmented and ageing Magento infrastructure, it needed more than a new website. It needed a transformative operations platform.

This case study explores how NUS Technology replaced a legacy bottleneck with a mission-critical architecture and became a long-term partner in the client's digital evolution over more than three years.

- Industry
  E-commerce (Motorcycle Parts & Accessories)
- Market
  Australia
- Frontend
  Next.js, TailwindCSS
- Backend
  Saleor (Headless Commerce), Express.js
- Database
  PostgreSQL, Firestore
- Infrastructure
  Vercel, AWS, Cloudflare
- Integrations
  Braintree, Australia Post, Custom ERP/Inventory Synchronization

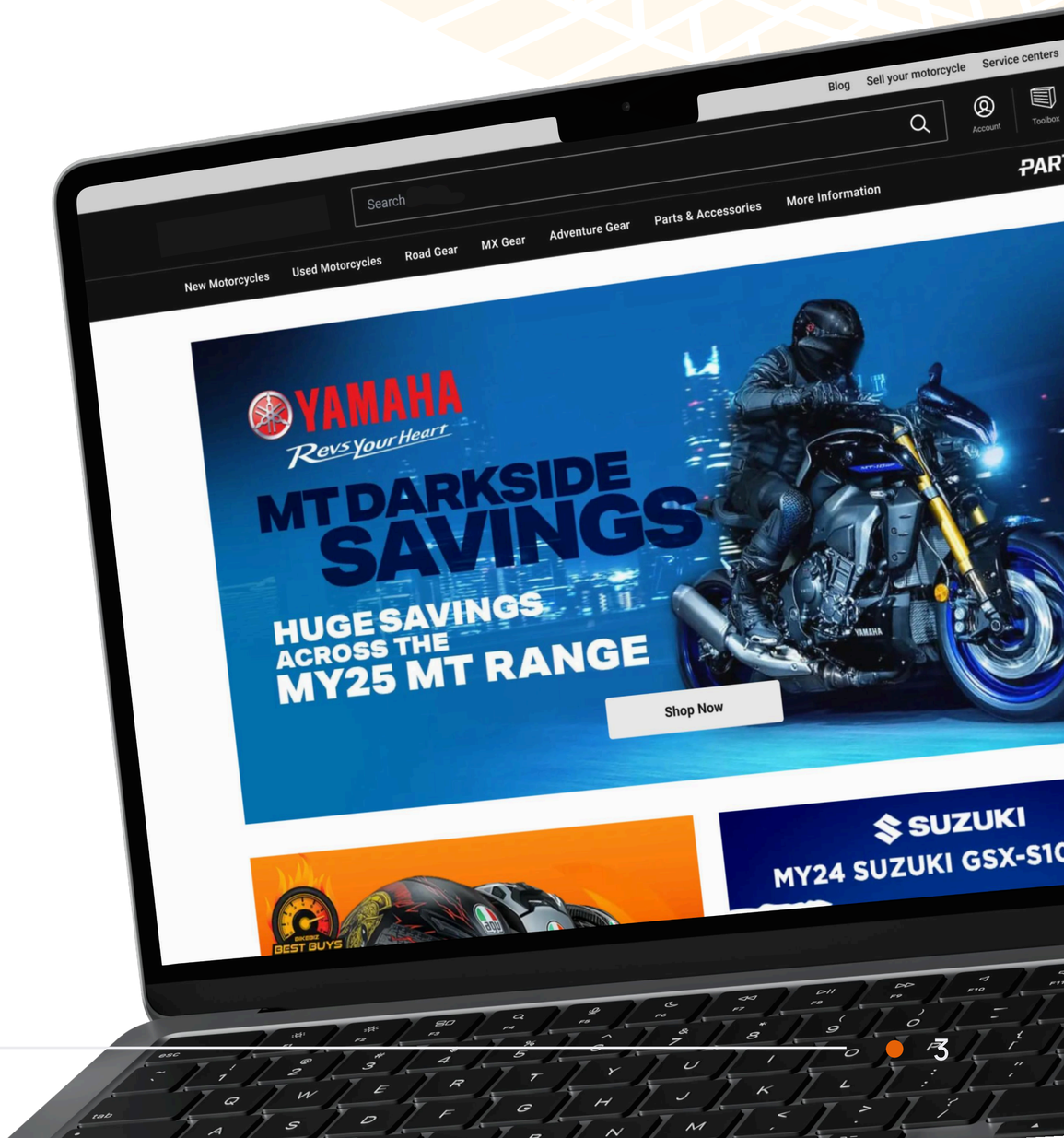
THE CHALLENGE

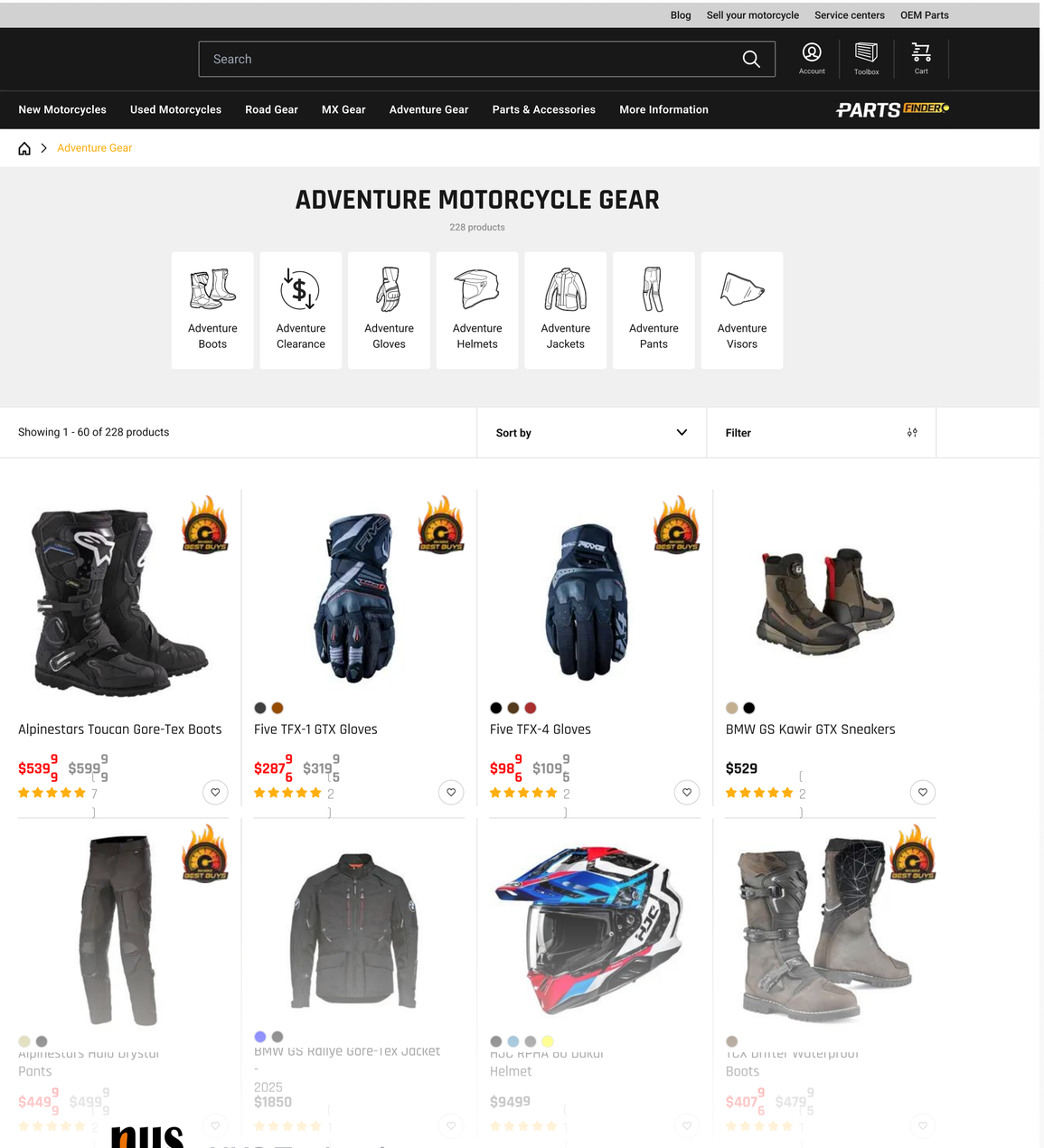
When Off-the-Shelf Software Becomes a Bottleneck

For years, the retailer relied on a monolithic Magento setup. As its inventory grew and customer expectations evolved, however, the platform began to struggle under the complexity of modern e-commerce.

- **Operational Stagnation:** The legacy system was rigid. Even minor adjustments to the user journey or backend workflows required disproportionate development effort.
- **Data Fragmentation:** Managing thousands of unique SKUs, compatibility data across numerous motorcycle models, and real-time shipping throughout Australia created a web of disconnected data that the old system could not untangle.
- **Performance Decay:** Sluggish load times - especially on mobile - resulted in poor Core Web Vitals and declining organic visibility, directly affecting the bottom line.

The retailer needed more than a development vendor. It needed a partner capable of designing a central system that could orchestrate its entire digital operation.





OUR SOLUTION

A Mission-Critical Operations Platform

NUS Technology architected a future-ready, headless e-commerce stack. Instead of forcing the client to work within the constraints of a template, we built a system that reflected its real-world operations.

Orchestrating a Complex Ecosystem

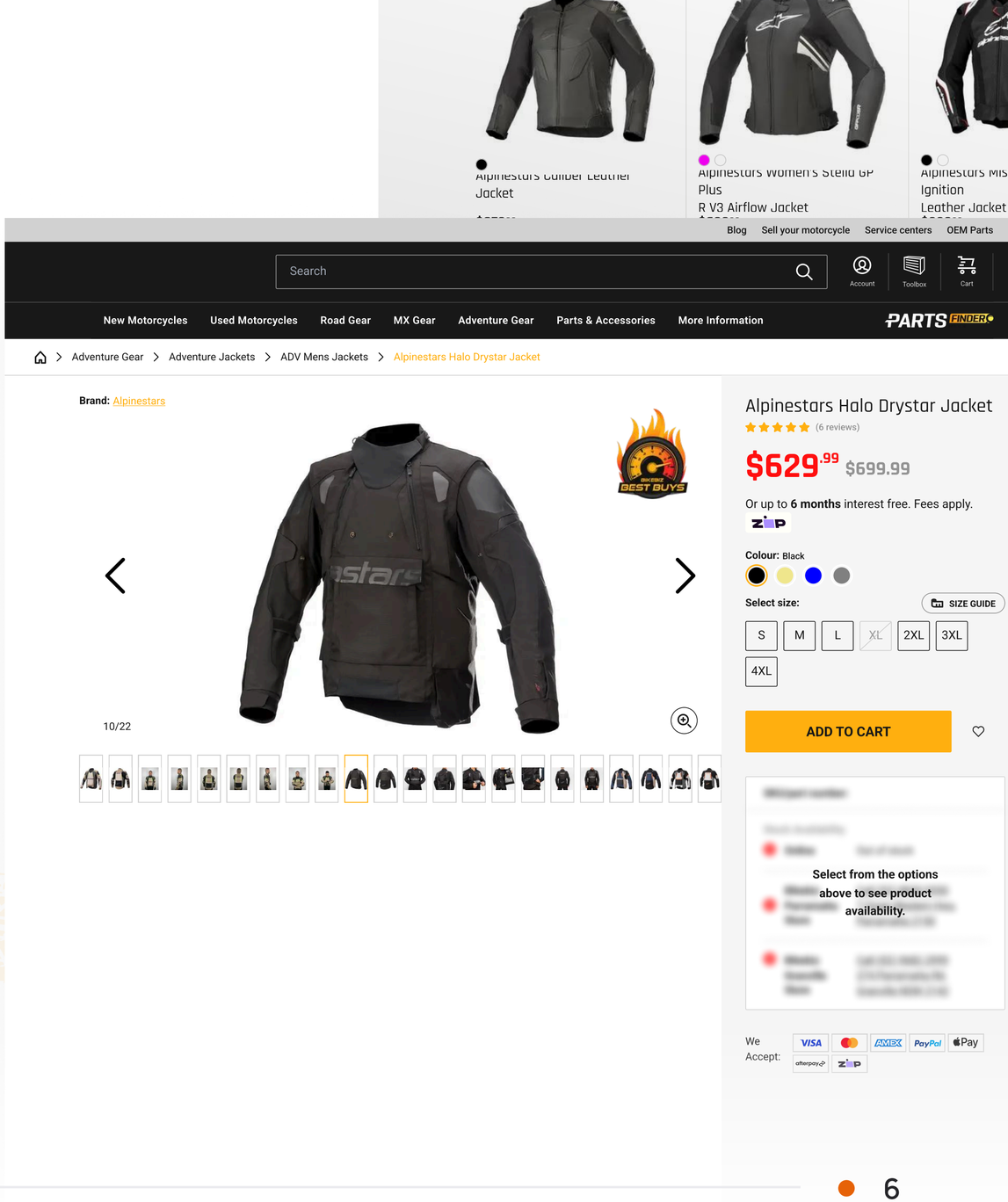
We designed the central backbone to integrate best-in-class tools seamlessly in an environment where failure was not an option:

- **E-Commerce Engine:** Implemented **Saleor**, a headless platform selected for its robust GraphQL API. This enabled us to build custom logic for complex parts matching that off-the-shelf tools could not easily support.
- **The Frontend:** Built with **Next.js** and **Tailwind CSS** to deliver a fast, SEO-optimized experience that feels natural to the way motorcycle riders shop.
- **Mission-Critical Integrations:** We managed deep data synchronization between:
    - **Braintree** for secure, high-volume payment processing.
    - **Australia Post** for real-time calculation of complex shipping rates.
    - **PostgreSQL & Firestore** for a dual-layer data strategy that maintains transactional integrity while providing real-time insights into user behaviour.

Software That Bends to the Process

Motorcycle parts retail is uniquely complex: a single part might fit 50 different motorcycle models across 10 model years. We built **predictive search and enhanced filtering logic** that reflects this complexity, allowing users to find the exact "needle in a haystack" part within seconds.

This was not a template. It was a custom-built solution designed around the client's specific operational needs.



IMPACT

Scaling Through Operational Excellence

The transition from a fragmented toolset to a unified operations platform delivered measurable momentum:

SEO and Traffic Growth

Organic traffic increased by **35%**, driven by a platform optimized for technical SEO and rapid load times.

Conversion Optimization

With a Lighthouse performance score exceeding 95, conversion rates increased by **20%**.

Revenue Growth

Improved operational reliability and user experience contributed to a **30% increase in online revenue**.

Support Efficiency

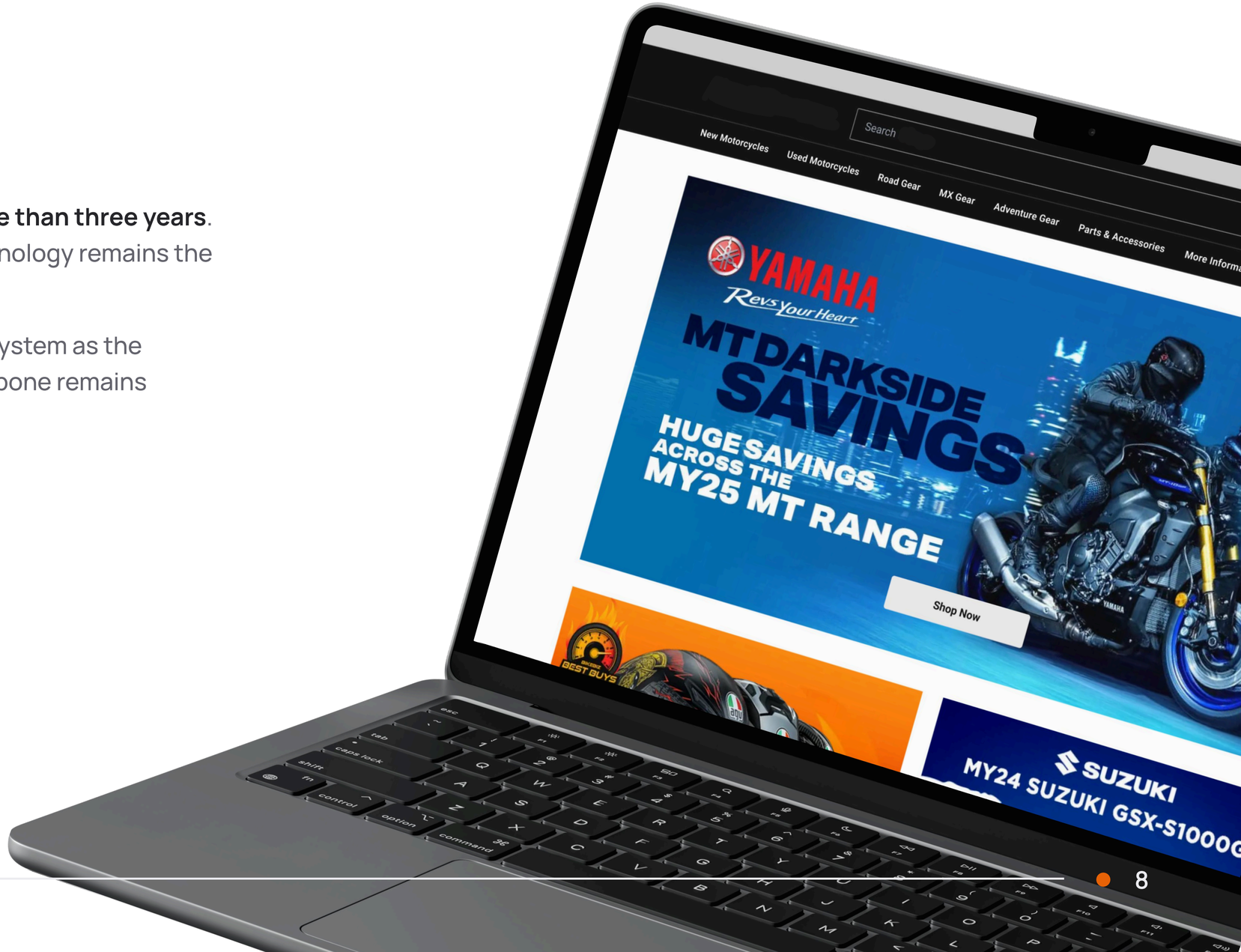
By removing friction from the checkout and parts-discovery processes, **customer-service enquiries fell by 40%**. This enabled the client's team to spend less time firefighting support tickets and more time on strategic growth.

THE NUS DIFFERENCE

We Build It, We Run It

Our collaboration with the client has spanned **more than three years**. Unlike agencies that "launch and leave," NUS Technology remains the retailer's operational partner.

We continue to maintain, optimize, and scale the system as the business grows, ensuring that its operations backbone remains resilient in a high-demand market.



THANK YOU

For Reading Our Case Study

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