



# CARLISLE BRAKE & FRICTION

## Aras PLM Drives Improved Product Development

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Isaiah Kincaid  
Electrical and Computer Engineer,  
Carlisle Brake & Friction

**Global OEM streamlines data management, project management, workflow, test information management.**

Carlisle Brake & Friction is a globally recognized leader in the development and manufacture of highly innovative brake and friction system solutions serving a diverse range of motion control applications. The comprehensive nature of Carlisle's brake system expertise includes hydraulic control products, industrial brake assemblies, wet and dry friction material for brake, clutch and transmission applications as well as aftermarket replacement kits, all developed and manufactured under the Carlisle umbrella. Carlisle's full-system product offering supported by its industry-experienced staff of experts provides its customers with brake system solutions that set them apart from their competition.

### Carlisle Brake & Friction

#### Legacy IT Environment:

- ▶ **CRM:** Microsoft Dynamics
- ▶ **ERP:** QAD
- ▶ **PLM:** PTC Windchill
- ▶ **CAD:** Creo
- ▶ In-house MSSQL database system

### Growing Product Complexity

In previous years, as the company continued to expand into international markets to serve leading OEMs with heavy duty brake, clutch and transmission applications on a global level, the product development process grew more complex. Since product data management, project management, workflow, test information management and other product development processes were managed with a variety of standalone and homegrown systems, the IT environment wasn't able to keep pace. Product data was difficult to integrate between Creo CAD and QAD ERP and the standalone

systems. The company's global business units were challenged to effectively collaborate and synchronize their product development processes across disciplines and locations. Bottlenecks grew in the areas of managing complexity, global security, data version control, and other product lifecycle management (PLM) processes.

Thus, considering the growing complexity and limits of past legacy systems, the team

saw an opportunity to improve visibility among all business units throughout the globe, by migrating and linking once standalone data management systems. The efforts involved shifting to a new platform approach to PLM to seamlessly connect existing processes, maintain flexibility in material development and system design, as well as leverage standard reporting and dashboard functionality for ease of reporting.

Explains Carlisle Brake & Friction's Isaiah Kincaid, Electrical and Computer Engineer, "The most significant driver for a new PLM approach was to unify data once stored and managed in multiple systems across the organization. We saw the chance to obtain 'one version of the truth' from a product perspective, as well as cut wasted steps, remove manual data entry and reduce the chance for errors."

According to the company, another key driver was in the regulatory area. With several military OEM customers, the company's products and processes must be in compliance with International Traffic in Arms Regulations (ITAR) and the Export Administration Regulations (EAR). Thus, any move to standardize on a single PLM platform had to provide global teams with a way to support compliance in terms of reporting to meet these mandates.

When considering a new approach to PLM, additional business issues were front and center during the selection and evaluation process. The solution had to give the company a way to tightly control global data security. In addition, there was a need for the company to create, deliver and distribute standard work instructions/training for end users.

## A New Approach

The team evaluated several solutions to address their key issues, and eventually selected Aras Innovator. Working with Aras gold certified partner Razorleaf, Carlisle Brake & Friction selected Aras PLM for the platform's flexibility and extensive out-of-the-box best practice solutions. Integrating with Creo CAD and QAD ERP systems, Aras Innovator provided a flexible platform to unify Carlisle's ITAR compliance, engineering processes, parts management, BOM management, change management, and auditing at 11 manufacturing and purchasing facilities worldwide.

Having extensive experience with Microsoft products, Carlisle's IT staff was drawn to Aras Innovator's application framework, which is implemented on Microsoft .NET and SQL Server platforms. Aras Innovator was able to demonstrate much faster implementation times than competing PLM platforms.

## Issues Driving Implementation

The need to:

- ▶ Unify data in multiple systems across the organization
- ▶ Streamline ISO/TS certification audits
- ▶ Provide a platform for R&D Test Management globally
- ▶ Reduce time from customer request to solution

As implementation began, and the team migrated PTC Windchill and file data into Aras Innovator, Carlisle realized key benefits from standardizing on a single platform for a single source of truth in terms of product data and processes. The team is now able to use Aras Innovator as a central repository for all data with full integration of data between CRM, ERP and PLM – a benefit that yields many positive business benefits for the company.

Other improvements have come since streamlining ITAR/EAR compliance. Aras Innovator automatically generates standardized reports tracking required product data in a compliant format, meeting reporting mandates. The system helps enforce defined standards related to test procedures, wear data and other versioned procedures with an approval process. ITAR/EAR compliance is enforced via Innovator user accounts, active directory and IP addresses. The generated documents are watermarked with 24 hour use and ITAR/EAR compliance data. The new processes have also improved ISO/TS certification audits.

## Maintenance, Workflow and Change Management Improvements

The new PLM has also improved preventative maintenance. The Aras system provides standardized templates and procedures for periodic maintenance scheduling for test equipment, and these improvements can be used for other machinery as well. Calibration can be a scheduled preventative maintenance item, taking out multiple steps once needed when managed manually. The Aras platform also helps manage tooling used to record all measurements during testing and calibration. The system consolidates reports of all test-related data upon test completion, which is useful for compliance and customer reporting.

The company has also been able to drive efficiency with Aras workflow features within the Project Management application. Notes Kincaid, "It's been helpful for all our teams to use the project templates as a way to standardize on processes, which was difficult in the past. For instance, we now have a unified approach to track time on projects which helps us to maintain balanced workloads throughout production." Workflow features also provide real-time feedback on project gate status, which works to streamline processes.

Change management is also another area of improvement. The team uses Aras Innovator to manage all change requests, assessments, plans, and orders to a product or system. It ensures users have easy visibility into the engineering change status through the product lifecycle, where change histories are automatically captured and recorded. According to Kincaid, the company has realized key cost savings by consolidating systems and using Aras to take unnecessary manual steps out of Change Management. As an example, Engineering Change Requests now flow more smoothly, with ECR throughput metrics growing more favorable following the Aras implementation.

## Future Plans

The team looks forward to future projects, including using Aras Innovator to manage quality and manufacturing systems. The team also will fine tune the Part BOM and CAD document release process, as well as implement classification-based search grids. The flexible platform will also help enable a more seamless CRM and ERP automation process.

In terms of test management automation, next steps include a template-based graphical drag-and-drop customer report generator. The Aras PLM platform will also facilitate integration of barcoding test parts and test requests to connect test equipment and PLM. The team also looks forward to implementation of wireless measurement equipment for test wear data and incorporating a camera-based measurement system for wear data.

## About Aras

Aras® offers the best Product Lifecycle Management (PLM) software for global businesses with complex products and processes. Advanced PLM platform technology makes Aras more scalable, flexible and resilient for the world's largest organizations, and a full set of applications provides complete functionality for companies of all sizes.

By rethinking the way PLM is designed, Aras has taken a fundamentally different approach with a focus on the Business of Engineering. Aras solutions support processes for global product development, systems engineering, multi-site manufacturing, supply chain, quality and more.

Companies running Aras include Airbus, Boeing, Bombardier, GE, Hitachi, Honda, Kawasaki, Magna, Microsoft, Motorola, Nissan, TOSHIBA, Xerox, the U.S. Army and hundreds of others worldwide.



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