



ENABLING CAE SIMULATION

ALTAIR AND PATAAC COLLABORATE TO DEVELOP AN EFFICIENT CAE SIMULATION PLATFORM

About the Customer

Designing and developing vehicles and automotive systems has historically required a repetitive cycle of design, trial production, and iterative improvements — a lengthy and expensive undertaking. Today, with computer-aided engineering (CAE) simulation technology, automotive companies like the Pan Asian Automotive Technology Center (PATAAC), a joint venture between General Motors and SAIC Motor, can avoid that cycle, reduce costs, and improve quality and efficiency.



In the process of building the simulation management platform, PATAAC and Altair often needed to collaborate on strategies to find the best solution because there was no precedent. Altair has shown us its professional understanding of the CAE business and its ability to customize products.”

Qiu Rongying, Senior Manager, PATAAC Vehicle Virtual Technology



Their Challenge

The speed of automotive innovation is constantly accelerating, and vehicle designers face new challenges in using CAE simulation technology. PATAC found that, as its analytical technology improved, the volume of its CAE analysis tasks increased. Engineers needed to store, reuse, and share models, and to collaborate within different simulation fields. At the same time, **PATAC was digitally transforming its R&D system**. According to Qiu Rongying, senior manager of PATAC vehicle virtual technology, “A simulation management platform was needed to effectively manage daily analysis work, structure CAE data systematically, improve visualization of results and processes, track analysis cases more easily, and more.”

PATAC and Altair collaborated to develop a first-of-its-kind CAE simulation management platform

Our Solution

PATAC found that because simulation models and processes vary so greatly among different enterprises, **no mature simulation management platform solution existed**. They decided to create a platform that would cover all areas of vehicle and subsystem analysis — a feat that wouldn’t be easy to achieve. After a nearly two-year strategy, screening, and selection process, PATAC selected Altair as its technology partner for the platform’s development and implementation. PATAC was already using solutions including Altair HyperWorks™ and Altair PBS Works™. “Altair products have good openness and can be integrated with other business systems in the company,” says Rongying. Platform construction began in 2017, and in 2018 it was put into practical application in areas including vehicle safety, NVH, vehicle dynamics, and structural and fluid analysis. The project included **customization and integration with PATAC’s project management system**, and the platform was built with a dashboard plus modules for modeling, simulation, and process management. It was designed to seamlessly integrate with Altair® PBS Professional® workload management. Since this was a **first-of-its-kind endeavor**, the road ahead wasn’t always clear. According to Rongying, “In the process of building the simulation management platform, PATAC and Altair often needed to collaborate on strategies to find the best solution because there was no precedent. Altair has shown us its professional understanding of the CAE business and its ability to customize products.”

Results

Today, PATAC’s custom CAE simulation management platform includes modules for full-vehicle rapid modeling, model management, load case data management, and analysis plan management, plus a collaborative statistics dashboard. It **accommodates a wide variety of users and efficiently enables the company’s CAE simulations**. “In the long run,” said Rongying, “the establishment of the Pan Asia CAE simulation management platform will be advantageous not only for the efficiency of the simulation business, but also for the **digital transformation of the entire company**.”