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—Peter Jamieson  
Commercial Operations Manager  
Triple Eight in Australia

# Autodesk Drives Wins

Autodesk Inventor helps optimize the speed and performance of racing cars.



## Project Summary

In the last decade, Triple Eight Race Engineering (Triple Eight) has become one of the largest and most successful touring car operations in the world. What's the company's formula for success? It's to design and build high-performance V8 race cars using innovative techniques. The Autodesk solution for Digital Prototyping drives Triple Eight's concept-to-manufacturing process—helping the company create, optimize, and validate its winning designs. Prior to production, engineers can use a digital prototype to simulate the dynamic behavior of a car's numerous components throughout the full operating cycle. As a result, the team can more accurately predict operating loads, avoid stress-related track failures, and optimize the performance of the vehicle—all done digitally, and cost effectively, during the engineering phases of development. With the Autodesk solution for Digital Prototyping, Triple Eight is:

- Maximizing the speed and efficiency of its design-to-manufacture process
- Testing and optimizing digital prototypes of vehicle components before they are built
- Bringing performance-enhanced cars to the race track—faster

## The Challenge

Triple Eight's status in the industry is undeniable—the racing cars it has designed for General Motors Europe have won nine British Touring Car titles. Recently, Triple Eight has turned an eye towards reaching another goal: winning the Australian V8 Supercars series. More than 45 race technologists, engineers, suspension technicians, and commercial managers working out of the company's Australian facility are focused on the task. “The ultimate culmination of all our hard work is to take first place in the Australian V8 Supercars Championship,” says Peter Jamieson, commercial manager at Triple Eight.

Because the local environment can impact car performance, Triple Eight needed to be able to design and build cars tuned to Australian conditions—which are radically different than those in the UK. The company had to streamline the design process in order to produce a car in time for the local racing season.

Seeking to adopt the most innovative approaches for accelerating and simplifying the concept-to-manufacturing process, the company aimed to transform its design process into a competitive advantage. And key to this shift was Digital Prototyping, which would enable Triple Eight's engineers to validate designs through accurate 3D simulations before they built physical prototypes.

# Triple Eight digitally prototypes all new components to ensure accuracy and race worthiness.

## The Solution

Under the guidance of Autodesk Value Added Reseller ADA CADPartners, Triple Eight's Australian team standardized on Autodesk® Inventor® software to reach its goal. "Having used Autodesk design products in the UK with great success, the Triple Eight team in Australia knew what it wanted," says Sam Di Bartolo, sales manager, ADA CADPartners. "Digital Prototyping is crucial to Triple Eight because it is often the only way interference situations can be checked precisely. The design software is critical to the overall process of increasing the performance of the race engineering team."

## Digital Prototyping Pays Off

Autodesk Inventor, the foundation for Digital Prototyping, enabled Triple Eight's engineers to quickly and easily create an accurate digital prototype by focusing on product function rather than geometry documentation. Today, Triple Eight's designers can experience the performance of cars and ensure that each design is tuned to Australian conditions before the cars ever reach the track.

From the pedals to the pistons, Triple Eight simulates, tests, validates, and optimizes the design and performance of every single car part using Inventor. The realistic environment lets engineers see how each part contributes to the car's overall operation. And with tools for simulating the movement and behavior of each part in the car, engineers can predict the load and acceleration of the parts in a variety of race conditions. For example, Triple Eight's team can more accurately model an Australian track's conditions to optimize the performance of everything from engine parts and the sub-frame to suspension, running gear, and body work.

In addition, when they develop complicated racing-suspension systems with parts that are constantly moving in different directions, Triple Eight's engineering team can test every conceivable scenario by accurately simulating suspension performance. "We digitally prototype all new components to ensure accuracy and race worthiness," explains Jamieson. "And we find that a large percentage of them respond closely to the original design parameters of fit, form, and function—which is directly related to the power of Inventor."

## The Result

With the innovative capabilities of Autodesk Inventor, Triple Eight Australia has simplified and accelerated its concept-to-manufacturing process. The company has optimized the performance of individual car parts by producing advanced digital prototypes to interactively test, simulate, and tweak designs before they are built.

"We are often looking to improve the car's performance by hundredths of a second in a lap that lasts just one minute and 30 seconds," explains Jamieson. "When every single one-hundredth of a second counts, every part of the process can make a difference. The time that we spend on Inventor at the workstation developing an efficient design is directly responsible for the ultimate performance of the car."

Overall, Triple Eight has increased productivity, reduced production costs, and is bringing better cars to the racing track faster. As a result, the company is increasing the spread of its competitive edge.



Concludes Jamieson, "Without Autodesk Inventor, the design of the car would have been impossible. Every component of the car is created, modeled, and analyzed using the software. Inventor has enhanced our design creativity by allowing us to model conceptually and test different scenarios early in the development process. It has also enabled us to produce designs faster."

## Learn More

To discover why Autodesk Inventor is the best choice for automotive product development, visit [www.autodesk.com/inventor](http://www.autodesk.com/inventor).



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