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**Pratt & Miller Engineering, Inc.**

A Co-Sourcing Introspective

A Logical Advantage Case Study





**“The foundation of Pratt & Miller’s and our clients’ success hinged on the ability to rewrite our Vehicle Engineering System into an enterprise class application.”**

- Chris Gilligan  
NASCAR Program Director  
Pratt & Miller Engineering

**Industry:** Automotive / Engineering

**Client Profile:** Pratt & Miller Engineering is a world-class engineering company and respected leader in the motorsports, commercial, military and aerospace industries.

**Business Challenge:** Pratt & Miller’s future success hinged on their ability to rewrite and improve their Vehicle Engineering System, a powerful knowledge-based application tailored for vehicle development programs. With limited in-house development resources and a short, customer-driven development timeline, Pratt & Miller sought outside assistance from an experienced application outsourcing provider.

**Solution:** Pratt & Miller partnered with Logical Advantage LLC, to provide hands-on, best practice disciplines around software development. Together, Pratt & Miller and Logical Advantage were able to successfully rewrite the VES system into an enterprise class application and deploy the product to the customers as scheduled.

**Benefits:**

- Enhanced Pratt & Miller’s internal development team capabilities
- Improved the capability and efficiency of the Vehicle Engineering System
- Introduced a quality assurance process and improved the development process
- Provided hands-on mentoring throughout the application’s development lifecycle to ensure best results and long-term success

## **Leading Engineering Firm Utilizes Co-Sourcing Strategy to Create Custom Enterprise Application**

Pratt & Miller, a world-class engineering company and respected leader in the automotive industry, had begun the process of rewriting their Vehicle Engineering System (VES) program. Due to the complexity of the project and an aggressive delivery timeline, Pratt & Miller recognized that they needed outside expertise to help them with their software development lifecycle. Logical Advantage was selected to deliver application development, IT consulting and staffing services. Through the hands-on mentoring and development process, Pratt & Miller was able to deliver the new enterprise class solution on time.

### **Situation**

Founded in 1989 by Gary Pratt and Jim Miller, Pratt & Miller aspired to become a world-class engineering company that developed full-service automotive-based programs that would position their clients to win. Fast forward twenty years and Pratt & Miller have done just that with multiple wins and championship titles under their belt. Among those accomplishments are titles at the most prestigious production-based racing events in America and Europe: the 24 Hours of Le Mans, Rolex 24 at Daytona, and Sebring 12-Hour.

As motor racing has become more advanced and technologically driven, Pratt & Miller has remained at the forefront of innovative automotive engineering. By developing proprietary and leading-edge software solutions, they have enabled their clients’ teams to remain ahead of the competition. VES, one of Pratt & Miller’s pioneering software programs, is a powerful, knowledge-based application that allows racing teams to gather, store and manage a large amount of data, and make it available instantaneously to all members of the team. This allows for the data to be collected via a combination of automated and manual processes at the track during test or race events and accessed by team members both onsite and at team headquarters in real-time. This tool reduces the delay of information sharing between races and ultimately, increases efficiency.

With the coming of the digital age, the ability to store, manage and distribute vehicle development data is critical for success in the racing industry. During the past 15 to 20 years, advanced engineering and information technology have become key tools and a competitive advantage for racing teams. As a strategic asset, IT programs make the data capture and management, as well as the distribution process more efficient than ever before.

**“Co-development was the ideal solution for our software development lifecycle needs. Through the process, we have improved the efficiency of our process, and implemented best practices for future projects.”**

**- Chris Gilligan  
NASCAR Program Director  
Pratt & Miller Engineering**

## **The Need for Speed**

For many years now, select NASCAR teams have depended on Pratt & Miller to develop and deliver innovative engineering applications that help improve their performance and give them a winning edge. The company had designed and developed many internal vehicle engineering systems utilizing their in-house development team. Many of these applications were written in Microsoft® Access and MATLAB®. Chris Gilligan, Pratt & Miller’s NASCAR program director, knew that VES’s future hinged on taking these existing applications and consolidating them into one enterprise solution. By combining the functionality of the various utilities together into one common platform, Pratt & Miller could provide their clients with a stable, easy-to-use application.

With the solution in mind and deadline in sight, the Pratt & Miller team began to internally rewrite the VES program utilizing Microsoft® .NET and SQL Server. Additionally, they had an overarching goal to rewrite the application in a way that could be used and introduced into a variety of new industries beyond motorsports. Pratt & Miller realized that if they were to effectively rewrite and improve the VES program before the new racing season started, they would have to partner with an outside resource that had a strong background in application development.

“At the core, our organization is made up of a talented team of engineers, but in some areas we lack the program development expertise needed for a project of this size,” said Chris Gilligan, Pratt & Miller NASCAR program director.

“It was critical for us to partner with an IT company that had the flexibility, skill, programming framework and methodologies that would mesh well with and improve our internal team.”

## **Process Improvement as a Strategy**

As Pratt & Miller recognized that they lacked the internal development resources and expertise, they realized that they had a difficult choice to make. Do they keep development in-house and risk missing their narrow window of opportunity? Or should they consider outsourcing VES’s development to a third party?

Rather than incurring the cost and time delay to hire new members to the development team, Pratt & Miller decided that they could temporarily bring in a team of seasoned software development practitioners to help rewrite the new VES application and mentor their staff at the same time. Additionally, they had a pressing deadline and needed immediate response. In order to fully leverage the investment made in the internal development staff, the decision was made to co-create rather than totally outsource the project.

“We could have outsourced the entire project,” said Gilligan, “but instead decided to invest in our in-house capabilities by giving our internal development team exposure to some industry accepted best practices that only hands-on mentoring could provide.”

**“The processes and best practices introduced by Logical Advantage will help us in every new software development project we undertake.”**

- Kumar Periannan  
Applications Development Manager  
Pratt & Miller Engineering

## The Development Process

With an IT partner in place, strategic planning and discussions quickly began in earnest. Pratt & Miller and Logical Advantage, working in conjunction, took the following steps:

- **Vision Scoping** – First, both long and short term goals were analyzed and documented, setting the framework for the VES project.
- **Knowledge Transfer** – Pratt & Miller then engaged Logical Advantage in an application “deep dive” to help them understand the code of the current systems.
- **Roadmap Design** – From there, the team documented the steps necessary to move the current applications to their future state.
- **Technical Assessment** – Before development began, technical interviews of Pratt & Miller’s development team were conducted utilizing Logical Advantage’s proprietary I.R.I.S.<sup>SM</sup> (Immersive Response Interview Screening).
- **Mentoring** – Throughout the entire process, Logical Advantage educated the Pratt & Miller team on best practices for software development.
- **Implementation** – Analysis, project management and quality assurance processes were also introduced and put into operation.

## Technical Assessment

Logical Advantage applied their I.R.I.S.<sup>SM</sup> technical skills assessment to determine the strengths and weaknesses of Pratt & Miller’s development team. This technical assessment consisted of in-depth phone interviews. A series of subjective technical questions were

asked in a variety of silos, such as object oriented programming, web UI, database, and others, to name a few. Depending on the interviewee’s response, the results were mapped on a skill set matrix. This tool determined how best to leverage the internal development team’s key strengths. Additionally, this assessment lent insight into the areas where the developers needed additional professional development and training.

After the assessment, Pratt & Miller assigned team members to different areas of the project based on their technical skill. From there, Logical Advantage brought in their team of IT professionals to fill in the gaps. Specifically assigned to the project were a business analyst, project manager, technical architect and several senior .NET developers. These SDLC (Software Development Life Cycle) practitioners consulted in each of their disciplines, specifically focused around the new VES application.

## Quality is Key

Within the SDLC, Logical Advantage introduced a new quality assurance process to Pratt & Miller. Prior to this, Pratt & Miller would push applications from the developer directly to the engineer and then out to the client. However, Logical Advantage recommended a unique, multi-step team approach to quality assurance.

First, each developer is responsible for providing basic unit testing of his or her work. Throughout the project, the tech architect performs periodic code reviews of each team member’s work. Once the business requirements and functional specifications are written and approved, the business analyst then begins writing test plans for the later QA stage of development. Since they are often considered the project’s subject matter expert (SME), they know precisely how

**“We made the decision to partner with Logical Advantage because they gave us the confidence that they had not only the skill and methodologies we were searching for, but they shared the same enthusiastic attitude as our own team.”**

**- Chris Gilligan  
NASCAR Program Director  
Pratt & Miller Engineering**

the end users will be using the application. Once code is ready for QA, the QA team reviews the application to ensure that the program properly functions as intended. This process allows for a wider range of product testing, which ultimately improves the performance of the application.

### **Benefiting the Business**

One of the primary benefits from consolidating several applications into an enterprise class application was immediate improvement of the efficiency of the VES. The new software has enabled NASCAR teams to track how specific changes to the vehicle have helped improve on-track performance. From this knowledge, teams are able to continuously improve upon their vehicles and position themselves to win. Through the hands-on mentoring process, Pratt & Miller has seen increased productivity from their development staff. It has also helped enhance communication and set expectations between management and developers. Going forward, the training that the team received will be utilized by Pratt & Miller for all future software development projects.

### **Future Initiatives**

Pratt & Miller Engineering plans to make VES an application that can be used throughout multiple industries, including armored equipment, transportation and general product development. They see this very robust system helping their clients reduce the learning curve for new team members by providing them with past product knowledge stored in the application.

In the near future, Pratt & Miller is also looking into using the methodologies and platform provided by Logical Advantage to improve the efficiency of data entry and management with the VES.

Additionally, they are looking at applying the new framework across all tool sets in an integrated fashion. The software development process for the new VES program has easily set the standard across the company.

### **Conclusion**

Pratt & Miller found that collaborating with an experienced IT partner for software development was the solution they needed. By co-developing the enterprise class application, Pratt & Miller was able to utilize their internal development staff, while benefiting from significant cost savings. After successfully completing the project, Pratt & Miller was able to deliver the desired end product to their client while learning time-proven methodologies and best practices along the way. “By leveraging Logical Advantage’s experience, we were able to gain real-world experience and working knowledge of their best practices,” said Gilligan.

### **About Logical Advantage**

Logical Advantage is an award-winning, full-service Information Technology Consulting and Application Outsourcing company. We are dedicated to providing high-quality, cost-effective customer software development and consulting services. We pride ourselves on our ability to master our clients’ most complex business challenges, delivering mission critical solutions that require our deep expertise and mastery of Microsoft® technologies.

### **For More Information**

For more information on the application outsourcing, IT consulting or IT staffing services provided by Logical Advantage, please call 704.377.5066 or visit the website at [www.logicaladvantage.com](http://www.logicaladvantage.com).

For more information about Pratt & Miller Engineering, please visit [www.prattmiller.com](http://www.prattmiller.com).

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