Mercedes-AMG: A Showcase for Real-Time Business Decisions

The maker of high-performance automobiles is building next-generation manufacturing operations on a real-time business platform.

Mercedes-AMG is the performance unit of Mercedes-Benz, testing the limits of driving dynamics and performance with its hand-built engines. But the division is also a testing ground for revving up real-time business performance.

As manufacturers integrate complex machinery with networked sensors to create next-generation production processes, they are gathering more data than ever before that could eliminate waste and improve efficiency, according to the U.S. National Institute of Standards and Technology. In fact, pressure to cut costs while bringing new products to market is pushing manufacturers to make better use of that data, the Aberdeen Group has found (see Figure 1, “Analytics Offers Relief From Operational Pressures”).

In the automotive industry, manufacturers must manage a greater number of both models and customization options as they adjust to fragmented consumer demand, while also managing shorter product life cycles, according to McKinsey and Company (see Figure 2, “More Product Options, Shorter Product Cycles”). To make the best use of their data riches as they tackle these challenges, companies are implementing technology capable of analyzing large volumes of data from disparate sources in real time.

Mercedes-AMG and its parent company, Daimler AG, are among the businesses that are expanding their product portfolios. Daimler is currently one of the largest producers of premium cars and the biggest global manufacturer of commercial vehicles. To increase market share and profits, the €118 billion company has not only introduced new cars, such as its million-dollar S-class line and the new GLA compact SUVs, but also invested in more efficient manufacturing processes to cut the cost of product delivery and improve vehicle quality.

Daimler saw Mercedes-AMG as the perfect place to test out real-time systems that might benefit the larger enterprise.

Employees working in the performance unit’s engineering-focused manufacturing environment have yearned for real-time access to information for nearly 50 years, observes Dirk Zeller, Mercedes-AMG head of IT Consulting. In addition, Mercedes-AMG operations are concentrated at the company’s Affalterbach, Germany, headquarters. “We have everything close to us, from design and development to marketing and sales, making us a good company to test out innovation, with regards to the products as well as in the IT area,” Zeller says.

LESS WAITING, MORE WORKING

In late 2012, Mercedes-AMG began to deploy an in-memory platform across business functions to

Figure 1  Analytics Offers Relief From Operational Pressures

Need to reduce the cost of manufacturing operations

Need to improve delivery of new products to market

Management of global supply chains

Management of demand volatility

Customer mandates for improved order fulfillment

Cutting costs is a top reason for seeking more insight from data.
analyze large volumes of data in real time. The company started with back-office systems, such as accounting and finance, and then moved on to its core operations—the development and manufacture of its one-of-a-kind vehicles.

The first goals were to “be more efficient by crunching numbers faster,” says Mercedes-AMG CIO Reinhard Breyer. Company leaders saw an opportunity to free financial analysts from waiting for reports and enable them to focus on strategic analysis and decision-making.

But a faster, more efficient back office was just a start. The key to becoming a real-time enterprise is not delivering more data quickly, it’s more quickly delivering information that can improve the processes that lead to competitive advantage. For Mercedes-AMG and Daimler, these are product development and manufacturing processes.

Real-time efforts “are useless if they aren’t aligned,” says Behnam Tabrizi, consulting professor at Stanford University’s department of management science and engineering. “If you throw new technology at a bad process, you won’t resolve anything. It’s not just about real-time systems, it’s about real-time organizational transformation.”

A NEW WAY TO TEST ENGINES

Even today, every Mercedes-AMG engine is hand built from start to finish by a master engine builder: it’s a hallmark of the brand. But company leaders recognized an opportunity to use big data analytics to also improve the engine production process.

When they went looking for the next high-value area to transform the company using real-time applications, they zeroed in on quality assurance for its engines.

Earlier this year, Mercedes-AMG piloted a real-time quality assurance platform that harnesses predictive analytics to optimize engine-testing processes when manufacturing its vehicles. The dynamometers the company uses to determine the torque or power characteristics of engines being tested are high-cost equipment, and efficient use of the facilities was a priority. The ability to correlate historical test data in real time with sensor data from the engines being tested enables engineers to identify possible problems more quickly.

“We are able to analyze test data from engines and test vehicles faster than before,” Zeller says. “And that leads to more insights faster, as we compare more data and use complex analytics without losing time.”

Now an engine test that shows unusual behavior can be stopped at any step of the test procedure; engineers used to have to wait to analyze the majority of data until after the hour-long test run has ended. That change, in turn, creates more engine-testing capacity each week. It also gives engineers more time to focus on refining engine quality.

A PLATFORM FOR REAL-TIME TRANSFORMATION

What’s more, Mercedes-AMG now has a scalable platform that it can apply to other areas of its business, and which Daimler can begin to apply across the enterprise. Both Mercedes-AMG and Daimler are expanding their vehicle lines, and thus the number of projects they must manage. Mercedes-AMG has already introduced three new compact models in pursuit of new market segments.
The company is also enabling car buyers to customize their vehicles more than ever before. The strategy seems to be working: in 2013 Mercedes-AMG sold more than 32,000 automobiles, its most successful year ever.

The project expansion and growth could strain existing project management processes, so Mercedes-AMG leaders have begun exploring how the same data analysis and predictive functionality can be applied to engine testing for project management. The goal is to be able to visualize in real time how the product creation and engineering process is progressing and to predict potential bottlenecks, such as supplier delays, before they impact manufacturing ramp-up.

Both Mercedes-AMG and parent company Daimler anticipate benefits beyond managing an individual project more efficiently. They want to take advantage of real-time analytics to give employees who work across several projects, such as those with a focus on braking systems, visibility across all projects, so they can see if a new part is in time, quality and budget during the engineering process, if it is available for testing or inventories are low.

Even among top-performing companies, access to such supplier intelligence in real time is relatively rare. Less than one-quarter of leading enterprises can provide up-to-the-minute supplier data to their employees (see Figure 3, “Delivering Real-Time Supplier Data”). Mercedes-AMG, however, plans to be the exception.

The goal is to have new business intelligence software running on the in-memory databases by the end of the year, and then to release new functionality every two months. “We are working very closely with our business partners to deliver exactly what is needed in an easy-to-use user experience,” Zeller says.

One key to success when deploying real-time capabilities is gaining a deep understanding about who will be consuming the data and what they need to know. Business leaders and managers shouldn’t become overwhelmed by the amount of data available to them, Zeller advises. The concern is similar to that which accompanied the introduction of email, Zeller recalls. “People felt disturbed by too many alerts, tending to ignore them over time,” he says. “During our projects, we need to define if our target audience is prepared for the solutions we’re offering.”

Daimler’s IT group recently awarded Mercedes-AMG several innovation awards for the testing and implementation of its real-time systems. The parent company will be using the performance unit’s experience and lessons learned as the basis for its planned implementation of in-memory analytics. “They’re the trigger that started us on this path,” Zeller says. “And we had a huge will to innovate.”

ABOUT FORBES INSIGHTS
Forbes Insights is the strategic research and thought leadership practice of Forbes Media, publisher of Forbes magazine and Forbes.com, whose combined media properties reach nearly 50 million business decision-makers worldwide on a monthly basis.

Bruce Rogers
CHEF INSIGHTS OFFICER
Brian McLeod
DIRECTOR, NORTH AMERICA
Writer: Stephanie Overby is a freelance business and technology writer based in Boston.
Real-Time Businesses Make Decisions In the Moment

*Forbes Insights interviewed Steve Lucas, President, Platform Solutions, SAP SE, about transforming business operations with real-time insights.*

**What does it mean to be a real-time business?**

Being a real-time business means being aware of the key factors that will impact your decisions and being able to make a decision in the moment that matters. In most automotive manufacturers today, decision-makers have to wait for batch processes to run. When batch technology is replaced with real-time processing, however, companies can obtain in-the-moment customer and market insights instantaneously. They can use those insights for competitive advantage, whether to innovate and improve their products, manage inventory more effectively or optimize production processes. That is why the SAP HANA platform exists: to enable companies to do business in the moment.

**Where do you see the most value for different organizations?**

The value comes from three main drivers. First, we reduce the complexity of the systems required to produce your existing results. This was one of the key motivations in designing SAP HANA: massive IT simplification. You can use the platform to feed data from all different sources into one system. Second, we enable agility by giving customers the ability to get real-time insight for decision-making. Third, we’re unlocking the true potential for innovation through new business processes and models: the real-time business innovation.

**As you look ahead, what new ways of doing business do you envision?**

Our SAP HANA platform not only can enable customers to make decisions for today, but it also provides a powerful predictive engine. Most companies make decisions by looking in the rearview mirror. But the rearview mirror is tiny compared to the windshield looking forward. Companies will start to build forward-looking decisions into their operating models.

**What is your best advice to companies that want to start their real-time transformation?**

It is not just about the technology. SAP HANA is extraordinarily innovative, but the first thing we do is look at where the opportunities are to transform business processes. Then we spend time with customers rethinking how those processes are designed, and how to remodel them. You have to start at zero: What would you do if you didn’t have to wait for information? If you don’t have to wait, there’s an opportunity for massive reinvention and value creation across industries.

To learn more about using SAP HANA, visit [www.saphana.com](http://www.saphana.com).