

# Pole position assisted by integrated IT

**BAR Honda's determination and vision with its business-wide IT project won the judges votes: our overall champion is an inspiration**

**"W**e never thought we'd get to this," says James Turner, new business manager at Formula One race team Lucky Strike BAR Honda. "Our IT now gives us complete control of all our processes, from designing components to building, testing and developing them and the car in the weeks and months leading up to the season, through racing and into obsolescence. It gives us all the visibility we need across all functions, with reliable information all the time."

That is one hell of an achievement, and this is a fascinating story. What Turner is saying is that BAR would no longer find it possible to run without its SAP All-in-One ERP system, implemented by Ciber UK. Not only does it touch and manage just about everything and everyone; it delivers motor racing's most valuable commodities – time, information and the structure to use them to provide its drivers with very fast cars.

First some figures. We see two cars and a spare at Grand Prix events don't we? So there are three, right? Wrong: there are 125. The BAR team completely strips down and rebuilds three brand new car configurations at its impressive Brackley, Northants site for every single race and test. And these are not trivial machines. Every car has around 3,500 high tech components, all under continuous review and development, meaning that in any year there are some 10,000 parts on BAR's BoM (bill of materials) database, 95% of them new.

Further, that development happens at a frenetic pace. There are just 15 months from the initial wind tunnel model concept to finished racing car – only 10 after signing off the outline aerodynamics – and that's with all-out work on the current year's models as well. At the height of the pre-season run up, and during racing, there can be more than 50 ECNs (engineering change notes) every day.

We're talking about developing, building and testing in parallel across high tech composites, mechanical components, assemblies (gearboxes, brakes, suspension, engines and so on), and the electronic systems – like launch and traction controls – and the rest. "There's nothing that develops anything as complex and as fast as we do," insists Turner. "Aerospace is the closest, but they've got much longer lead times."

Managing all that on the systems side screams for integration, a single database with appropriate man-

agement, workflow technology and role-based screens. Particularly when you find another key issue is mandatory 'lifeing' control of around 400 of the components that are critical (wishbones, steering racks, exhausts, etc). "We have to know the status of every one, what they've been through, which cars, which drivers, which circuits, what testing and when," says Turner.

## The challenge

So that was the challenge, and BAR's answer was to get totally integrated at the applications level. But not, as you might expect, with an engineering design-driven PIM (product lifecycle management) implementation from its CAD supplier UGS. BAR chose to go the SAP ERP route first – because it needed to get its stock control, production, revision controls, financials and so on under one integrated roof. Then everyone could stop chasing their tails, and work as a productive team.

And I have to tell you, it's working like a dream, delivering efficiencies and cost reductions throughout both the business and its production and engineering – all geared entirely to making the cars go faster.

In action, the system is impressive: it's based on configured, role- and icon-based dashboards covering relevant functions, information and KPIs. So at the top level, a chief engineer's screen shows 'lifeing', engineering change control, production, cars in strip down or build, spares, stock lists etc, and he can drill down on any of those into, for example, part audit trails. It's fast and most important, it's right.

And the same is true for all managers and users: the system provides information from across the integrated SAP modules to the necessary detail, expandable on demand. The power of the approach is perhaps best demonstrated by the fact that, during racing, one engineer at track side now manages all component issuing for race car build, across lifeing, spares the lot – compared with five at other front-running teams.

And it's a similar story when the cars come back after each race: strip-down, parts lifeing, further component test and development and next race build can all be managed quickly and largely automatically. In fact, data entry is done from race site via real-time communications back to base. Quite simply, everyone knows what they're supposed to be doing as fast as possible.

Says BAR business development support manager

**"Time is freed up for people to do what they do best, with the business kept aware of costs, and managers informed rapidly so they can make good decisions"**

Alan Bendy, BAR business development support manager



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Alan Bandy: "Time is freed up for people to do what they do best, with everything 'lived-up', engineering change managed quickly and efficiently, the business kept aware of costs, and managers informed rapidly so they can make good decisions."

In production, for example, operators now get work orders showing what's required, quantity, materials, operations, routing and so on. The system captures who's doing it, when started, set-up time, time for first completed unit and then rest of batch. That information is instantly available wherever it's needed – in production management, planning, wherever.

Similarly, outputs from test and development aren't confined to that department. They also help drive procurement and production via automatic alerts. As David France, BAR head of IT, says: "If a component fails, SAP instantly knows and can trace materials, who was involved, which machines and so on, so that other batches of similar and other components or panels can



be checked. But it also signals the requirement for alternative parts, enables users to check against stores and the lifeing system for location and status, triggers new production, procurement or whatever is required."

### Engineering design

As for engineering design, BAR technical computing manager Matt Harris says that the company's UGS CAD/CAM/CAE has been fine to date. He explains that bespoke CAD management has provided permission locking and managed to the level of part naming conventions, with the link into SAP on design release being by part number and description.

SAP then handles parts lists, quantities, BoMs and ECNs, with identical descriptors in both systems. The rest of the factory gets any additional data it needs through UGS – which is also available throughout. Project leaders and procurement people, for example, look at drawings and go through the make/buy decisions. If there's history of similar parts in SAP they can estimate costs and lead times, and they have the supplier database and metrics on screen.

The process for ECNs is similar and, because of the integration and front-end simplicity, all that goes through one individual. The system shows detailed change and reveals approximate cost, inventory and stock locations, outstanding purchase orders and implications in terms of obsolescence and production line scrap, also providing the foundation from which to negotiate with suppliers. ■

### Key benefits

- Automatic control of all business, engineering design, development, production and race processes
- Visibility across all functions, with reliable information in real time
- Stock, production, revisions, financials and 'lifeing' control, all integrated
- Rapid implementation
- Tight, responsive business and operations control
- Information shared business-wide in real time
- One version of the truth at all times