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Why industry is lapping up pit-stop technology

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Formula 1 success depends on split-second forecasting which business is now keen to exploit, writes Jonathan Russell.

When Lewis Hamilton lines up his McLaren on the Silverstone grid today he will have technology at his fingertips that most drivers only dream of. But the increasing transfer of F1 technology to the corporate world means that more humdrum professionals from dentists to finance directors are benefiting in ways they might never imagine.

Within seconds of Hamilton's car passing the first corner, almost inevitably the most eventful moment of the race, his team will have recalculated his odds changing any number of 3,000 variables to remodel his race strategy

The technology employed by McLaren for scenario modelling is not particularly new to Formula 1, however its appearance in the boardrooms of corporate Britain most certainly is.

After years of largely cosmetic technology transfer between Formula 1 and the car makers, the motor racing industry is starting to wake up to the possibilities of their work offering a real edge to the wider commercial world.

McLaren, the team to beat in the F1 paddock, also seems to be the team that is winning the race to exploit this sort of technology transfer. Its specialist unit, McLaren Applied Technology, has already had one success with its part in the creation of SmithBayes. The company has developed the racing modelling software into a corporate tool designed to challenge the role of the management consultant.

Although SmithBayes became independent at the beginning of this year the software engine it is selling into some of the biggest companies in the UK and abroad is fundamentally the same as that used by the F1 team. SmithBayes chief executive Simon Williams said: "We use the same core software engine as McLaren uses for its race strategy. The technology is straight from McLaren and then adapted for the boardroom."



Lewis Hamilton in the McLaren pits: Formula 1 success depends on split-second forecasting which business is now keen to exploit

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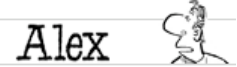
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By swapping race data for market performance and Formula 1 strategy for corporate plans SmithBayes has created a system that allows companies to forecast outcomes for corporate strategies spanning an almost infinite variety of market conditions.

Although Williams is loathe to reveal his client list the hints he drops suggest he is working with some of the biggest names in corporate Britain. What seems to have attracted these companies is the ability to produce a flexible model that can give probability-weighted answers to questions such as what would be the long-term financial impact of delaying development for a new drug. Or what would be the effect on

the bottom line of an oil exploration programme if a hurricane hits a competing oil field, or if there is a change in the macro-political climate, or more prosaically if oil prices plummet.

Instead of giving management consultants hundreds of thousands of pounds to model these scenarios, they can be plotted out and analysed in real time using the software. Interest in the system has lead to talks with the London School of Business about developina it as an



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Technology transfer between Formula 1 and the automotive industry has been around for as long as boy racers have wanted oversized spoilers on their Ford Escorts. Turbo-charged engines, low-profile tyres and high-profile wings have all been stuck on to family saloons with variable effects on performance.

The latest high-tech marketing wheeze to make it from the racing car to the street car is "launch control", a computer controlled aid designed by Formula 1 teams to get optimal performance from their cars from a standing start. By controlling power distribution and engine revolutions the F1 cars are almost assured a clean getaway at the start of a race.

On the roads the system is now being used by red light revvers to beat the competition away from the traffic lights. On the BMW M5 drivers can now be taken through seven gears to speeds of 155mph without little effort or thought. On the Volkswagen Jetta GLI the importance of the launch control seems to be summed up by a website which lists its introduction on the new models alongside such groundbreaking developments as new silver buttons on the car stereo.

However in a variety of areas F1 has worked with other industries to develop and invent new technologies.

The next time you sit in the dentist's chair in need of a crown you could do worse than offer a quiet word of thanks to F1 engineers for saving you a lot of time. If you are offered a tooth cap made on the spot it is more than likely that your dental surgery will be using a process known as "advanced digital manufacturing" to create your new gnasher, exactly the same technology used to make a range of one-off pieces for Formula 1 cars.

By creating an object by building it up from liquid or powder form rather than milling it down from a solid block you can create one-off designs, such as teeth and parts for F1 cars, far more cheaply and quickly. The technology wasn't invented by Formula 1 but the sport has gone a long way, no doubt very quickly, to perfect it.

Renault F1 technical director Bob Bell said: "Formula 1 did not invent a lot of the technology it uses but it did help to promote and develop it. This, as much as anything else is what F1 teams are good at, taking existing technology, testing it and developing it way beyond what it was created for."

It is this use of F1 as a testing and development ground that has attracted most interest from the big corporate engineering and manufacturing companies. McLaren is actively working with BAE Systems on technology transfer while Renault now has a formal link with Boeing.

Bell said: "Some of the technology we are developing with Boeing will have a profound impact on the computational tools they use to help design new products. Our timescale and design cycles are very short while theirs is very long so they can use us as a testing ground for new technologies."

Because of the nature of the work F1 teams are doing with their industry partners, details are sensitive and it is hard to get them to open up. However industry sources suggest McLaren could be about to unveil a biometric monitoring system developed from the work they do to track driver performance.

An industry source said: "The system could be used to for pilots of fast jets or even in the healthcare industry to track patients' health. McLaren are looking at a number of possibilities."

But it is in the unlikeliest of places such as software development that Formula 1 seems to have had most success. For SmithBayes the advantage seems to be the enormous attention to detail put into the development of the original product by McLaren together with its ability to adapt to changes in the environment.

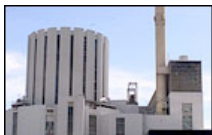
Williams said: "Plans last about three seconds in F1, while their decision-making window is 10 seconds. This is extreme, but it is definitely the way business is moving. Companies need to be able to react quickly. Drug companies can save millions if they move decisions forward by as little as a day."

It is perhaps not surprising in the push to build technology transfer between Formula 1 and other areas that it has coincided with the withdrawal of what was one of the industry's biggest income streams, tobacco advertising. Nothing will be quicker to turn the petrol heads than money to be made that can then be reinvested in making the cars go faster.

Bell said: "We will never be remembered or judged by anything other than success on the track. When most F1 teams look at technology transfer we look at it from the selfish point of view of what makes our cars go quicker."

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