Emotions in motion: Biometrics

Innovation at Populus Data Solutions

PDS Populus Data Solutions
METHOD DRIVEN BY INNOVATION

Introduction

Populus Group, which includes Populus and award-winning fieldwork agency Populus Data Solutions, has been on the forefront of industry innovation for over a decade. As our client list has grown, so too has our insatiable curiosity for pushing the boundaries of market research.

Research captures the rational responses of individuals, however much of human behaviour is driven by emotions. Biometrics is a passive way of capturing real-time human responses via a non-obtrusive biometric sensor that clips onto a respondent's finger.

In addition to capturing the rational response of what people think, biometrics allows for the way people feel and the context in which they make their decisions to also be recorded. Thus, biometric research enables business to really understand their audiences by combining neuroscience and market research for a full picture.

In the following Chapters we'll explore how biometrics can help your business.

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Biometrics: How it works

Imagine being able to pinpoint the moment a high-impact crash at the Grand Prix happens, based on a sport fan's suddenly quickening heartbeat. Picture being able to locate the best slot for radio advertising on a late-night show, deduced from a listener's uncensored sensory reactions.

Although these experiences may seem worlds apart, they are connected by the seamlessness of using biometrics research. With biometrics, respondents are passively tracked and immediate, real-time and unconscious reactions are accurately recorded.

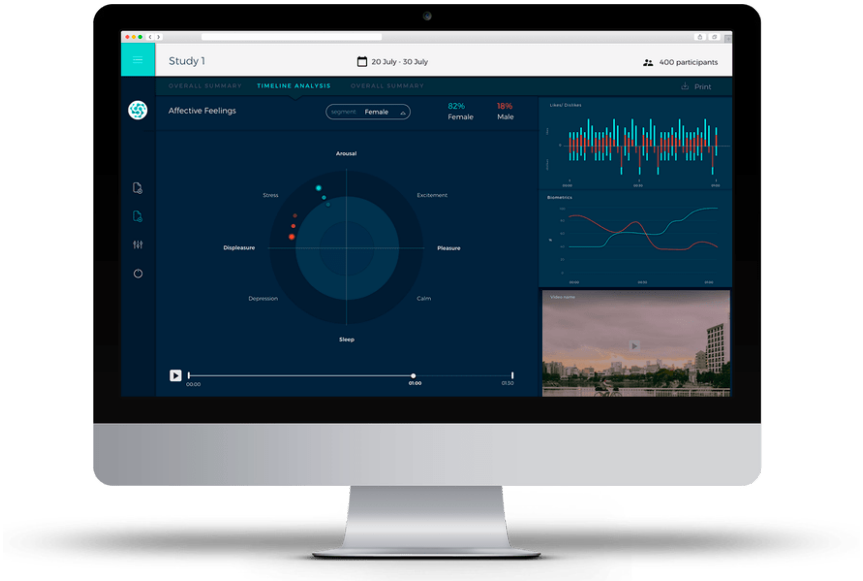
Populus Data Solutions delivered the data solution behind the world's first ever in-home biometric survey of a live sport event, to measure engagement with the British Grand Prix. Working with technology partner MindProber, we tracked the implicit engagement journey that viewers go on when consuming media in real-time, by measuring emotional arousal and stress via biometrics.

The data can be analysed in accordance with the material viewed.

For the individual on the panel, using the biometric sensor is simple. In the comfort of their own home, the individual can watch the content with a small device attached to their hand and eventually forget about the device at all.

Meanwhile, the device captures their every response to the live footage. It records a detailed second-by-second history of their reactions, in a non-intrusive way. Those feelings that manifest as butterflies in the stomach, or clamming of the hands, can now be translated into real-world, impactful insight.

mindprober



https://www.mindproberlabs.com/

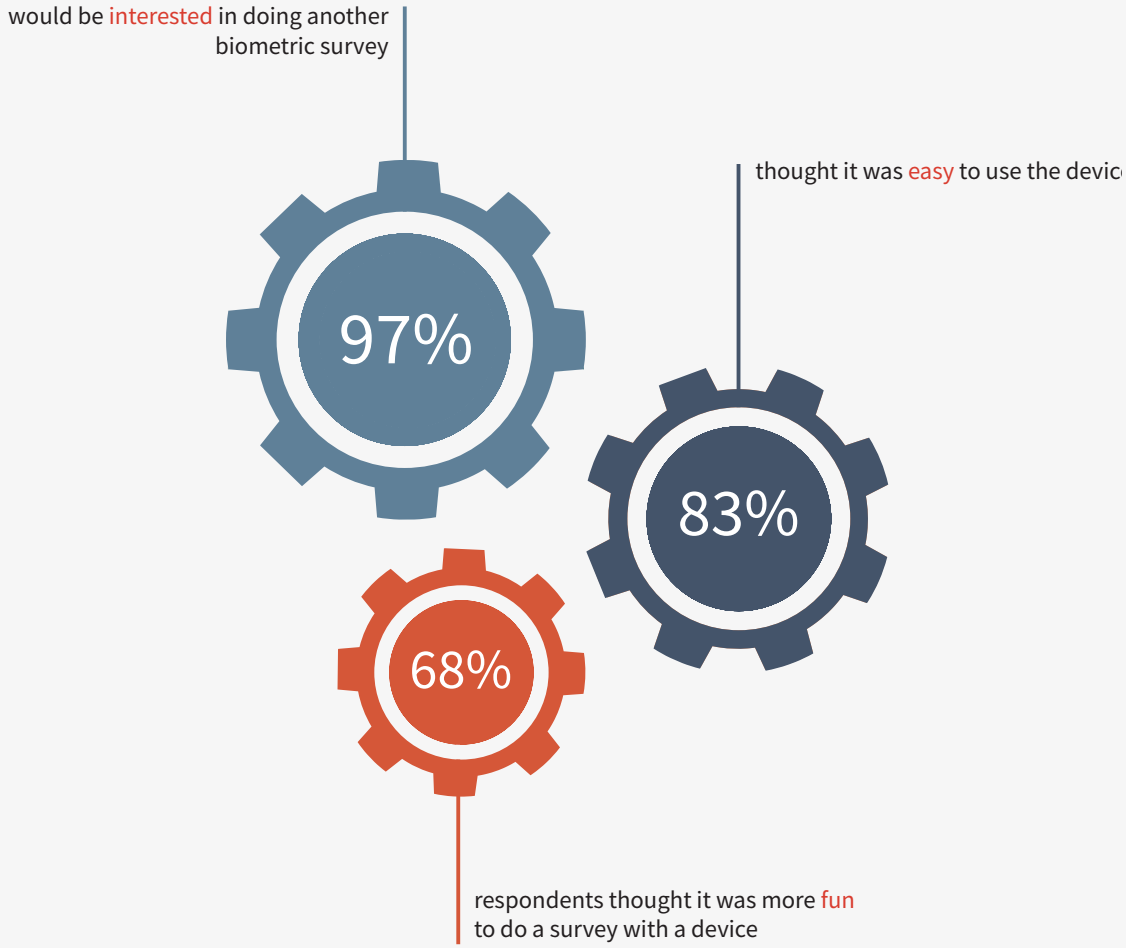
The data solution behind biometrics

Populus Data Solutions screened and recruited a sample of 60 F1 fans from the PopulusLive panel, which is comprised over 160,000 respondents across the country.

We provided pre- and post-race surveys for respondents to fill out. They completed this by rating the race in real-time using a thumbs up or thumbs down approach within the companion app to provide rich explicit reactions, in addition to the biometric data captured.

Respondents are given an app to capture their reported responses before and after the event. Data can then be mapped in tandem; respondents' implicit responses alongside their reported responses are overlaid to give brands and agencies a holistic overview of consumer behaviour.

Using technology also enhances the respondents' experience of the survey. Populus found that:



(1) https://nypost.com/2017/11/08/americans-check-their-phones-80-times-a-day-study/
(2) https://www.independent.co.uk/news/world/europe/france-workers-right-work-life-balance-disconnect-work-email-home-a7503311.html

Case study: Formula 1

Formula 1 (F1) is one of the most famous names in sport, renowned for its Grands Prix, which are held on purpose-built circuits and public roads across the globe. F1 cars are some of the fastest road racing cars on the planet, they attract a global following with 11 of the 21 races in the 2018 season taking place outside Europe.

F1 had a problem. Post-race surveys suggested that what people enjoyed most was whether their favourite driver or team had won the race; but separate research from a brand tracker indicated that how competitive a race was actually mattered more. With two sets of information that didn't match up, F1 needed a different way of looking at things.

Populus Data Solutions, working with MindProber and Populus, delivered a biometric solution that would eliminate post-rationalism and deliver the in-the-moment, implicit responses needed to optimise live content.

This approach was used as an effective way of tracking real-time engagement within a natural setting for respondents, in order to understand how and when viewers reacted to Grand Prix race coverage.

(3) https://en.wikipedia.org/wiki/Formula_One

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The approach

The approach for carrying out the world's first ever in-home biometric study of a live sport event relied upon an innovative data solution from Populus Data Solutions. As a result, we delivered a far more complete and granular picture of the viewer experience, than was previously attainable.

The use of a medical grade biometric sensor developed by technology partner MindProber allowed us to capture a large number of engagement peaks and troughs during moments in the F1 race that simply weren't captured through explicit stated responses. With this knowledge it is therefore possible to do more to replicate the highs and recapture audiences immediately after the lows to ensure they do not tune out.

Populus recruited an F1 Viewing Panel in the UK with the aim of collecting:

Galvanic skin responses (GSR)

measures emotional arousal and stress by measuring changes in the conductivity of the skin.

Electrocardiogram (ECG)

detects muscle activity, motion performance, arousal and stress.

Populus Data Solutions recruited 60 F1 fans from the PopulusLive panel. Each respondent downloaded an app and received a small biometric sensor that can be attached to the palm of the hand. We also asked respondents to complete a pre and post-survey and rated via a thumbs up or thumbs down their explicit reactions to the content, to test whether this matches their passive emotional reaction.

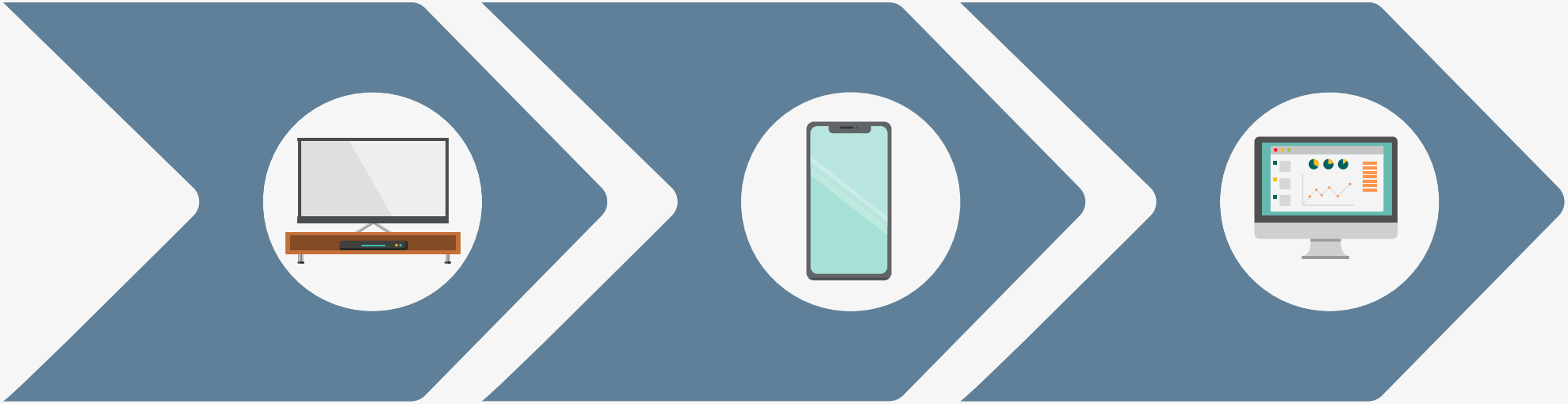
By amalgamating a combination of these metrics, we were able to provide a moment-by-moment arousal responses to the live stimulus, unfolding in front of respondents' very eyes. This was then overlaid with respondents' reported reactions (via the respondent app).

Step 1

Biometric sensor captures what is being viewed

Step 3

Data is collected and visualised in a platform



Step 2

Biometric data is sent to respondent app

The results

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The research provided us with a far more detailed understanding than we could have imagined of how viewers engage with a race. Above all, for the first time ever, we can use this data within a true data science environment deploying techniques such as machine learning to inform us of the path to better fan satisfaction. The value of the research is clear, and we’re very keen to build a bank of knowledge about our fans’ engagement so that we can move the sport forward in the right way.

Pat Symonds, Chief Technical Officer at Formula 1

Formula 1

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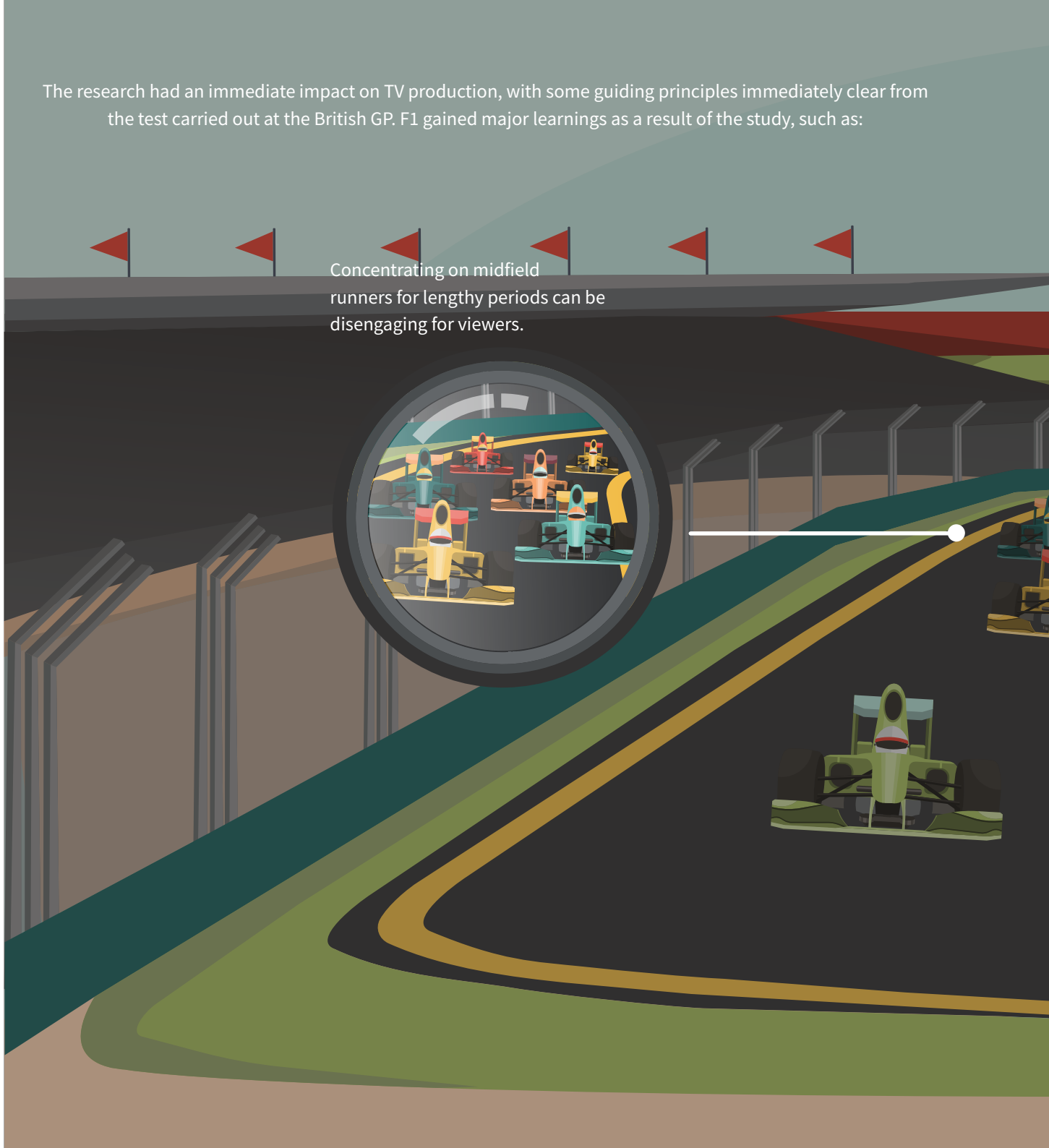
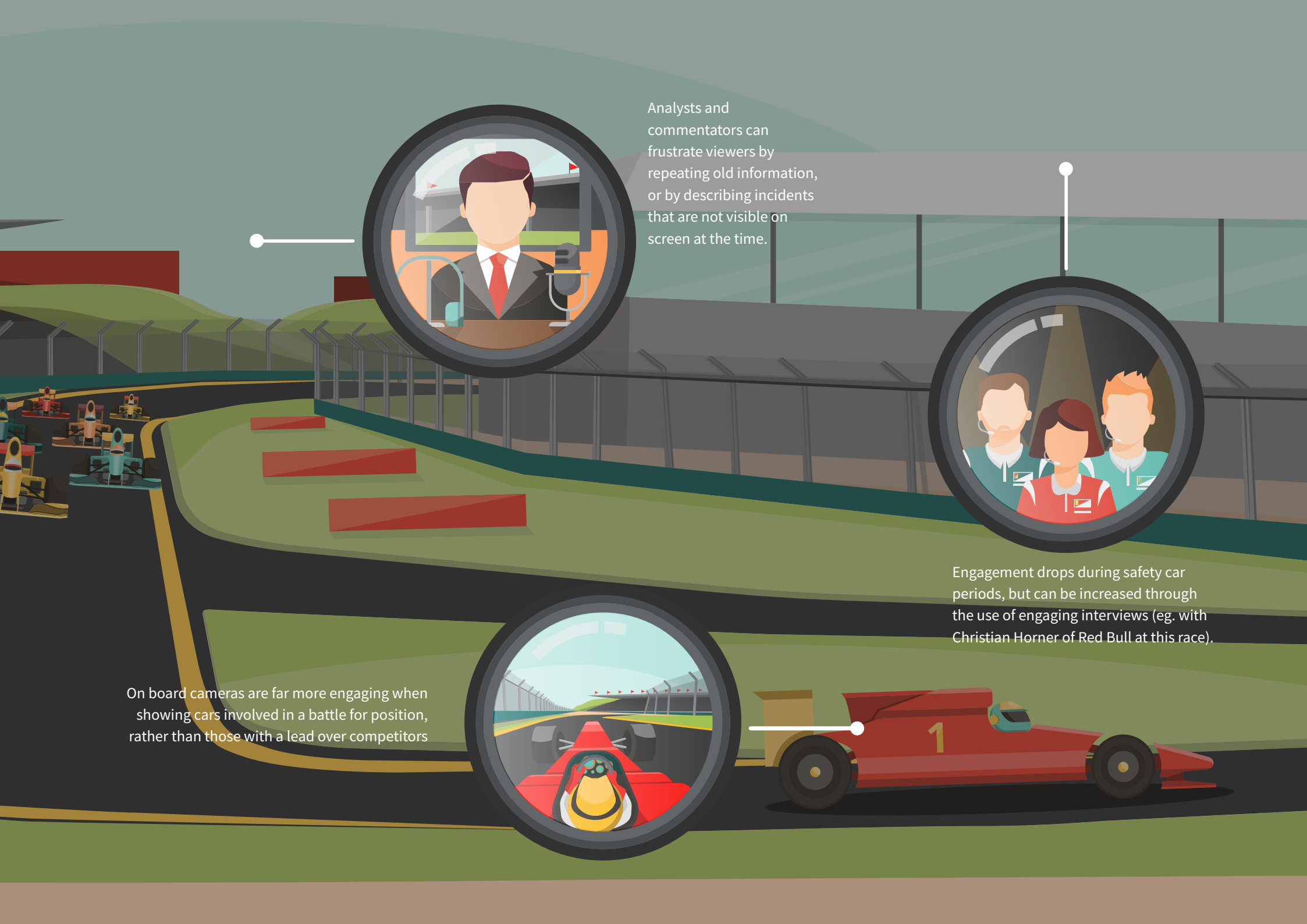
The research had an immediate impact on TV production, with some guiding principles immediately clear from the test carried out at the British GP. F1 gained major learnings as a result of the study, such as:

Concentrating on midfield runners for lengthy periods can be disengaging for viewers.




Analysts and commentators can frustrate viewers by repeating old information, or by describing incidents that are not visible on screen at the time.
Engagement drops during safety car periods, but can be increased through the use of engaging interviews (eg. with Christian Horner of Red Bull at this race).
On board cameras are far more engaging when showing cars involved in a battle for position, rather than those with a lead over competitors
1

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PDS have delivered a cutting edge data solution that overcomes the biggest challenge we faced to overcome the post-rationalisation of races. By capturing second by second analysis on a long form content race, passively, unobtrusively and in the comfort of fans own homes we have been able to measure natural behaviour and we can be sure reactions are true to life.

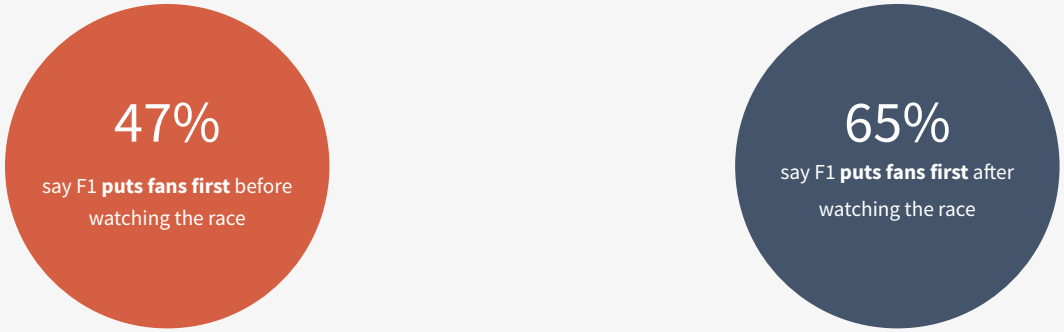
Ian Bramley, Deputy Managing Director, Populus

“ ”

This data solution has brought together the worlds of market research, neuroscience and technology to give F1 insight that was not previously possible.

Pedro Almeida, CEO at MindProber, Professor at the University of Porto

The viewing panel were asked whether they agree that F1 puts their fans first before and after the viewing of the race and the biometric survey.



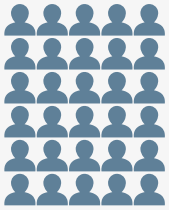
Before the race

After the race

The Process:

1

Target panel is recruited

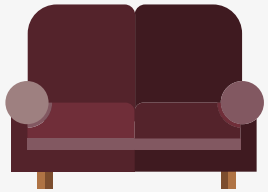


2

Recruited respondants recieve biometric sensor

3

Panellists view target content in the comfort of their own homes



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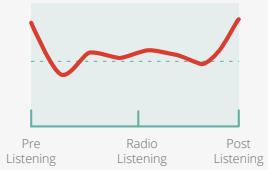
Biometrics capture moment by moment mapping



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Dashboard reports detailed analysis of emotional arousal peaks and troughs

Measure panellists' responses in a non- intrustive way. Captures high quality heart rates and electrodermal activity signals. Collects second-by-second reactions to content.

All data is collected and visualised in a reporting dashboard. Here you can view second-by-second analysis of respondents' reactions combining biometrics with 'hot' moments.

The future at your fingertips

Biometrics is a concept no longer confined to the realms of science fiction literature and movies. It's here, and it's in our hands, literally. Though on the cutting edge of innovation, in many ways biometrics takes brands back to the very basics of market research; it's an activity which gathers information about consumers' needs and preferences. It taps into people's automatic, uncensored reactions to stimulus, using the very features that make us all human.

Populus Data Solutions is an experienced award-winning data collection and delivery agency, with a reputation for being a fieldwork partner that can be relied upon to deliver. Driven by innovation, we are proud to have provided the data solution for the world's first ever in-home biometric study of a live sport event.

Find out more about biometrics as well as our wider range of data solutions by phoning 020 7553 3018 or emailing info@populusdatasolutions.com

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