



Engineering Services Brochure



OUR STORY.

Jahee Campbell-Brennan, Founder

After graduating with a Masters degree in Automotive Engineering in 2013 followed by a 5 year stint working for an Automotive OEM, in 2018 Jahee founded Wavey Dynamics as a vehicle to pursue his ambitions as a motorsport engineer; specialising in **vehicle dynamics, aerodynamics and engineering design.**

Wavey Dynamics' mission is to collaborate and partner with teams & organisations to extract the absolute maximum of performance from a vehicle platform.

Whether that be for a high performance road car or a motorsport team on a mission to win a hard fought championship, our forte is delivering results at the cutting edge of engineering technology and innovation.

WHAT WE DO.

Wavey Dynamics core expertise is specialised around vehicle dynamics and aerodynamics. Our clients are under continuous pressure to innovate and require specialist knowledge to operate at the intensity demanded by their competition.

You may be in a highly competitive championship battle or preparing for one; our commitment to our specialities allows us to implement innovative solutions unavailable to the competition to give you a competitive edge.

We're favourably placed to offer the following services:

- Vehicle dynamics development
- Aerodynamics development
- Trackside engineering
- Engineering design

Exceptional Insight

We offer an in-depth understanding of the fundamental physics behind performance, enabling us to implement pragmatic solutions to keep you at the front of the grid.

Utilising modern instrumentation, data analysis and simulation tools, We drive a blend between a deep understanding of technology and clear performance outcomes.

HELPING OUR CLIENTS ACHIEVE SUCCESS.



Wavey Dynamics has recent projects including:

- Concept design & development on next generation Hypercar & Supercar projects for a well known British OEM.
- Concept design of a rising-rate inboard suspension system (pushrod, bell-cranks and damper specification)
- Track support & data engineering for Mercedes GT3 & GT4 platforms. Setup optimisation
- Kinematics design and development (MacPherson & Double Wishbone)
- CFD development of aerodynamic devices (body & underbody)
- Implementation of mathematical tyre models to predict thermal and wear effects in real time. Research in tyre physics and tyre strategy.
- Creation & development of MATLAB based vehicle dynamics models.
- Development of a vehicle dynamics fundamentals course for industry and academic students.

VEHICLE DYNAMICS.

Vehicle dynamics is at the core of our work. A clear vision to work with the best, along with constant research and development in this discipline enables us to deliver in a range of applications; whether it's working on drivability or finding lap time to close down the competition at the track.

With a data driven, tyre centric approach, a strong root in the physics and an understanding on the importance of subjective considerations to complement analytical engineering, we want to help you with the competitive edge.

We can help you with the following:

- Trackside support
- Laptime simulation.
- Objective tyre performance characterisation
- Development of vehicle dynamics models.
- Vertical dynamics optimisation (rig testing and simulation).
- Kinematics & compliance development.



AERODYNAMICS.

A racecar's performance can't be fully considered without a fundamental understanding of the interaction between aerodynamics and the chassis platform.

Having competence in vehicle dynamics is a great advantage in any team, but what can often be missing is an understanding on aerodynamics and how the interactions between the two disciplines can manifest.

Combining our knowledge with analytical techniques, we want to help you find every hundredth through:

- Trackside aerodynamic performance optimisation.
- Computational Fluid Dynamics (CFD) development.
- Windtunnel support.
- Optimising aeromap & chassis relationships.
- Component development.



TRACKSIDE ENGINEERING.



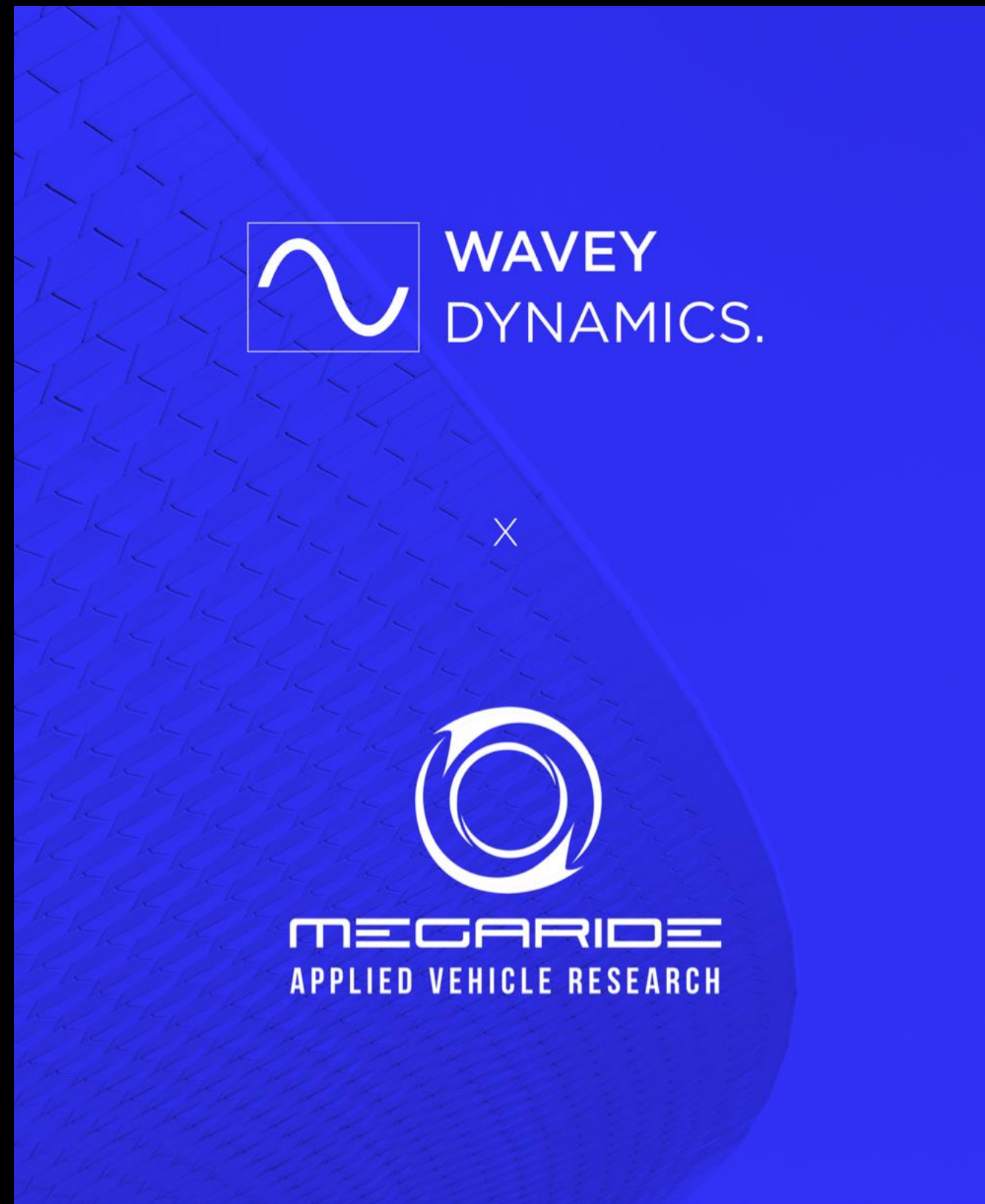
Utilising the advantage that our combined aerodynamics and vehicle dynamics experience brings, alongside a deep understanding of tyre physics, we consider race car development with a holistic but distinctly tyre centric focus.

Achievements are measured as either success or failure. There's no better platform to polish and demonstrate high level, applied engineering.

We can support you with:

- Race engineering and trackside assistance.
 - Data & Performance engineering.
- Lap time simulation (w/ thermo-mechanical tyre modelling).
- Development of vehicle dynamics models.
- Deep, objective understandings of tyre science.
- Test session planning and supervision.
 - Including lab based assessments.
- Chassis & aerodynamic development.
- Component design.

“BREAKING BARRIERS TO F1 TECHNOLOGY”



In 2022 Wavey Dynamics formed a technical partnership with MegaRide - Applied Vehicle Research, the technology company specialised in developing advanced tyre models and characterisation techniques for motorsport applications.

Bringing advancements in the of fidelity thermo-mechanical tyre models to include real-time prediction of thermal effects, wear effects and chemical degradation for their effect on performance, this adds another dimension of understanding into our engineering solutions and strategies for our clients championships.

We are also able to draw from our partner's technology to physically measure viscoelastic properties trackside, to quantify thermal operating windows and degradation over a stint - generating vital driver and setup feedback.

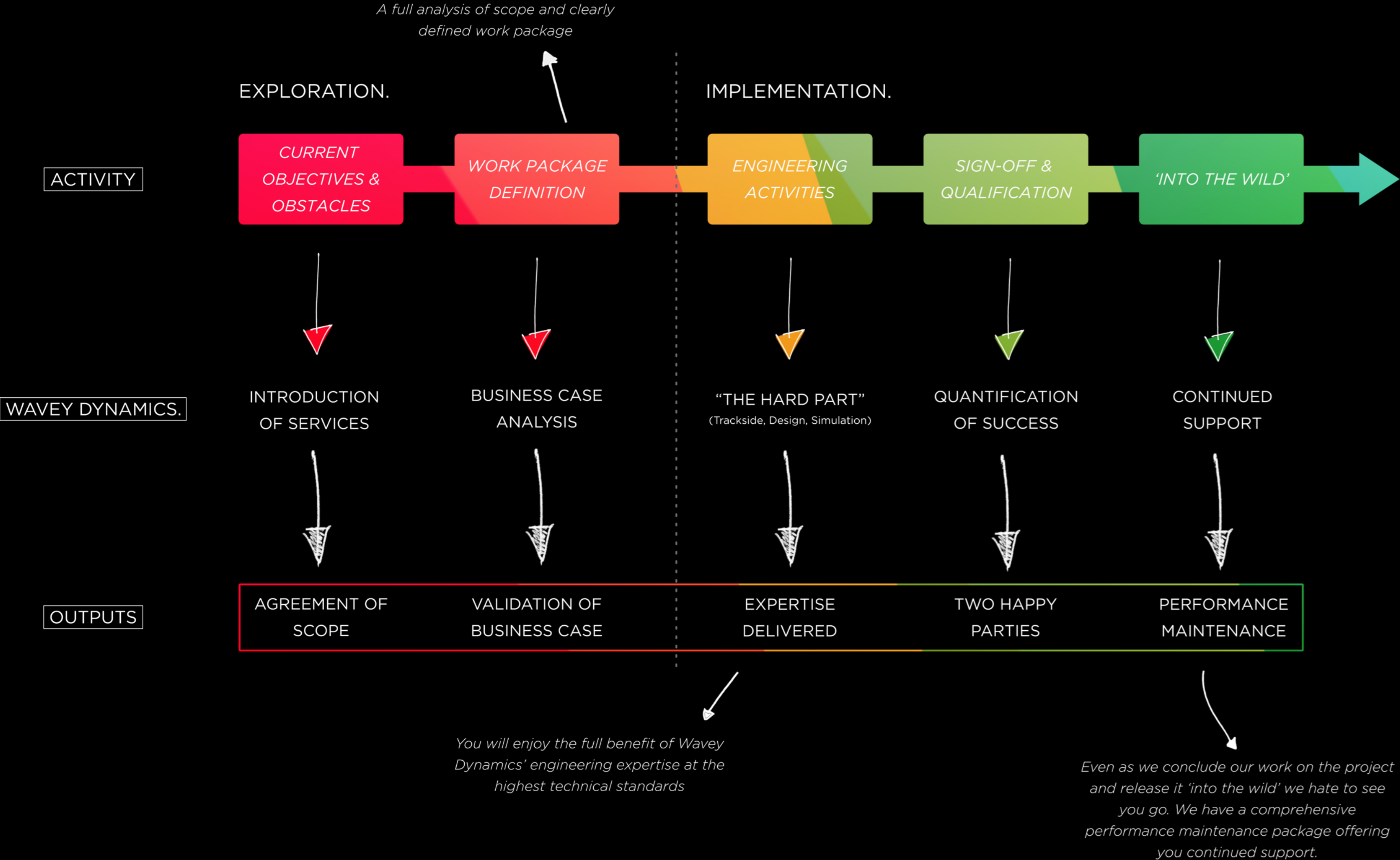
With this partnership and the addition of this technology into our consulting services, we further close the gap between the simulated world and the measured world.

CUSTOMER JOURNEY.

WAVEY DYNAMICS.

Our customer journey is designed to keep our partners front and centre of achieving their desired outcomes.

We explore your challenges and introduce solution focused services within an agreed scope.





LET'S DISCUSS.

We are on a mission to become a prominent figure in the global motorsport & automotive engineering Industry. With our name and reputation associated synonymously with creativity, efficiency and integrity.

As we continue to build our vibrant brand, we're set to redefine the landscape of specialist engineering.

Visit our website to learn more. You'll also find a collection of technical articles summarising a sample of projects we have undertaken.

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