Using Technology **Effectively**

Caroline Hargrove

World Rowing Coaches Conference
22nd January 2011

F1
AN INTRODUCTION

McLaren APPLIED TECHNOLOGIES
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McLaren APPLIED TECHNOLOGIES

"To realise breakthroughs in **performance** through the application of McLaren **technology** and design"

SPORTS

PERFORMANCE OPTIMISATION
STRATEGY & SIMULATION
SMART TECHNOLOGY
HIGH PERFORMANCE EQUIPMENT

HEALTH & WELLNESS

TELEHEALTH SYSTEMS
PHARMACEUTICAL SERVICES
HUMAN PERFORMANCE
MEDICAL GRADE TELEMETRY
REAL TIME, REMOTE DATA COLLECTION

LOGISTICS

VISUALISATION
STRATEGY
SIMULATION
SMART TELEMETRY
ENERGY
TRANSPORT
ENTERTAINMENT

TECHNOLOGY AND DATA UNDERPINS **EVERYTHING** WE DO

McLaren
APPLIED TECHNOLOGIES

IF YOU CAN MEASURE 500 SIMULTANEOUS DATA FEEDS **WHY WOULD YOU SETTLE FOR JUST ONE?**

vodafone
JOHNNIE WALKER
vodafone
vodafone

500 SENSORS PER CAR

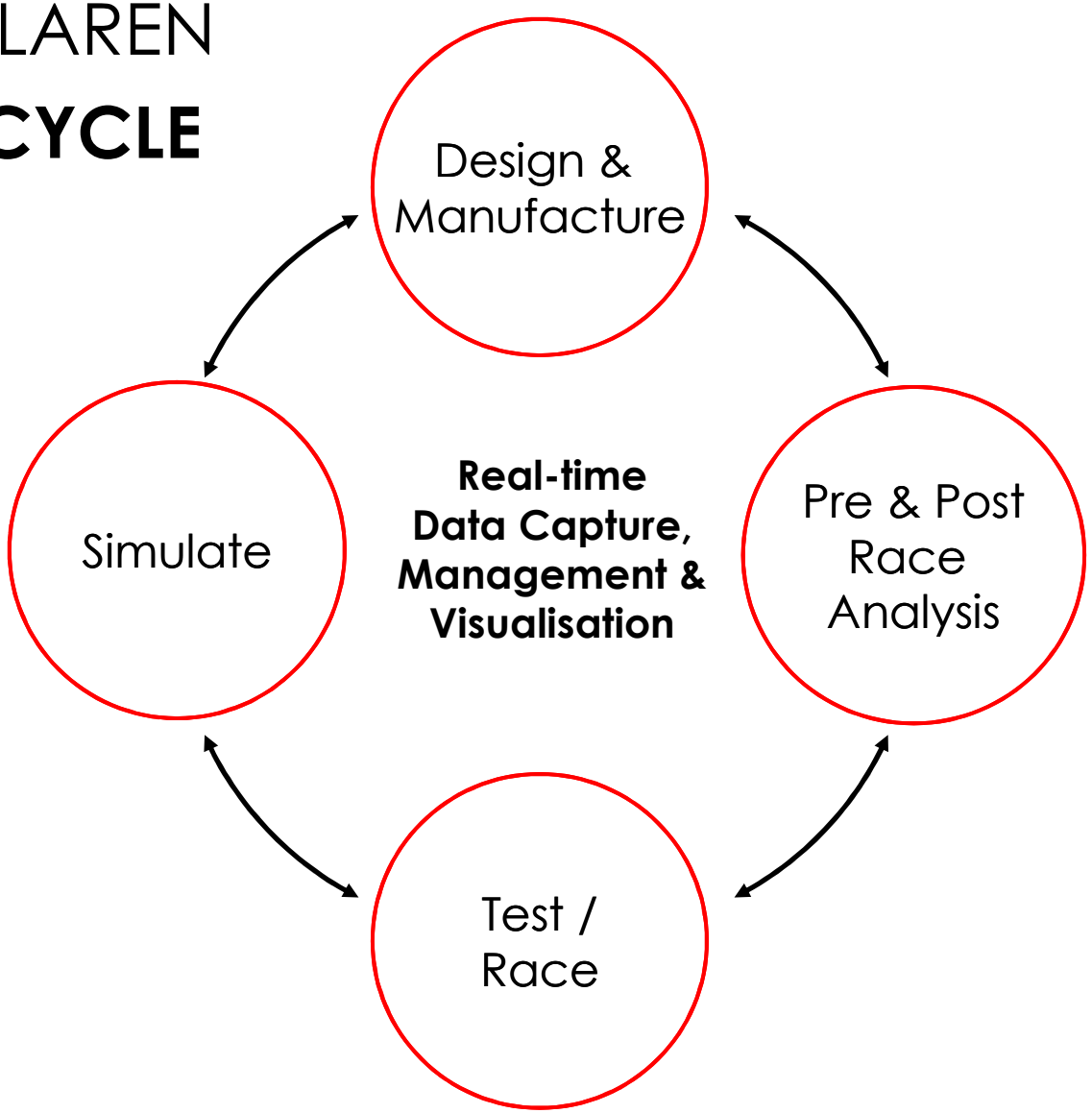
Creating over 1100 channels at up to 1000Hz

1,400,000,000 DATA POINTS IN RACE

10GB of time-series data over a
race weekend

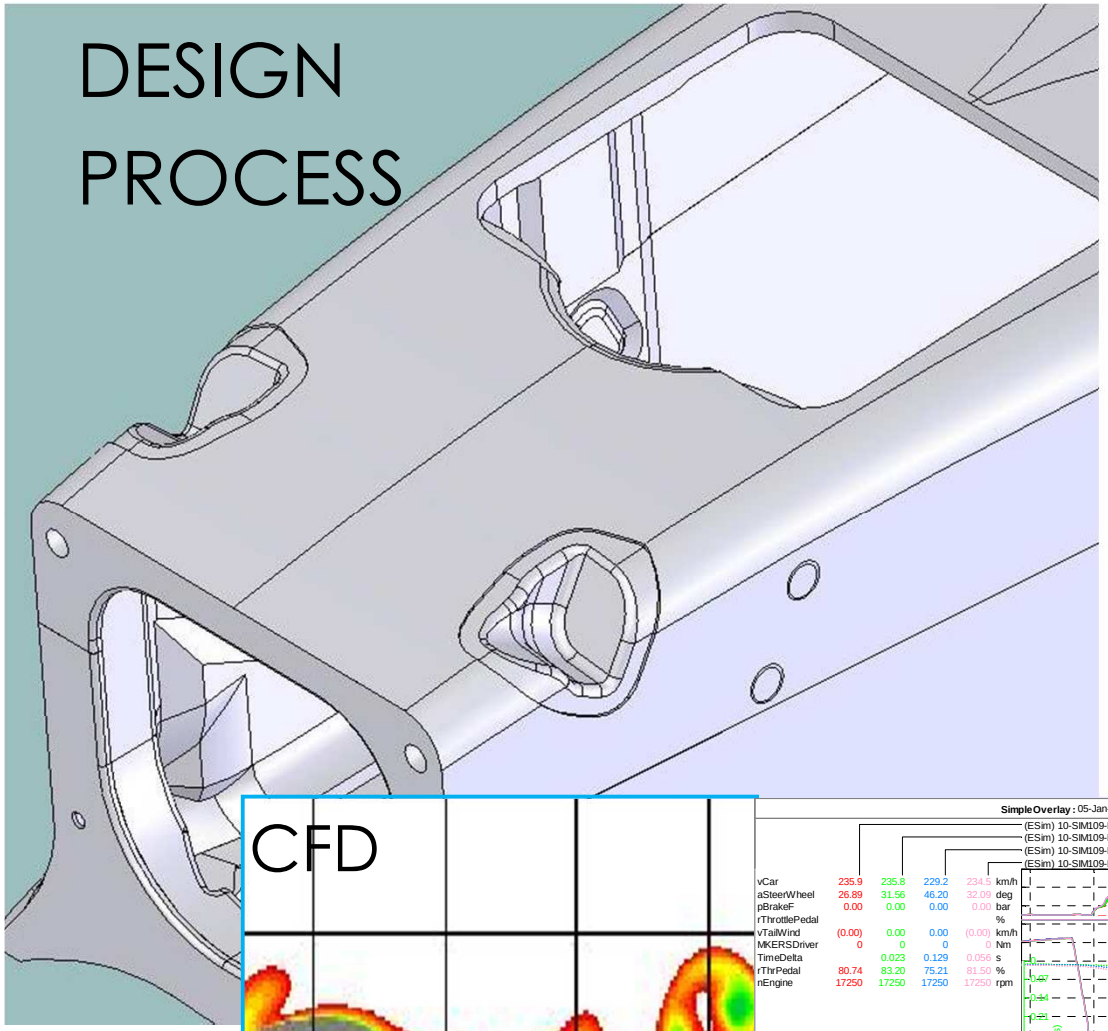
...IN REAL TIME

McLAREN F1 **CYCLE**

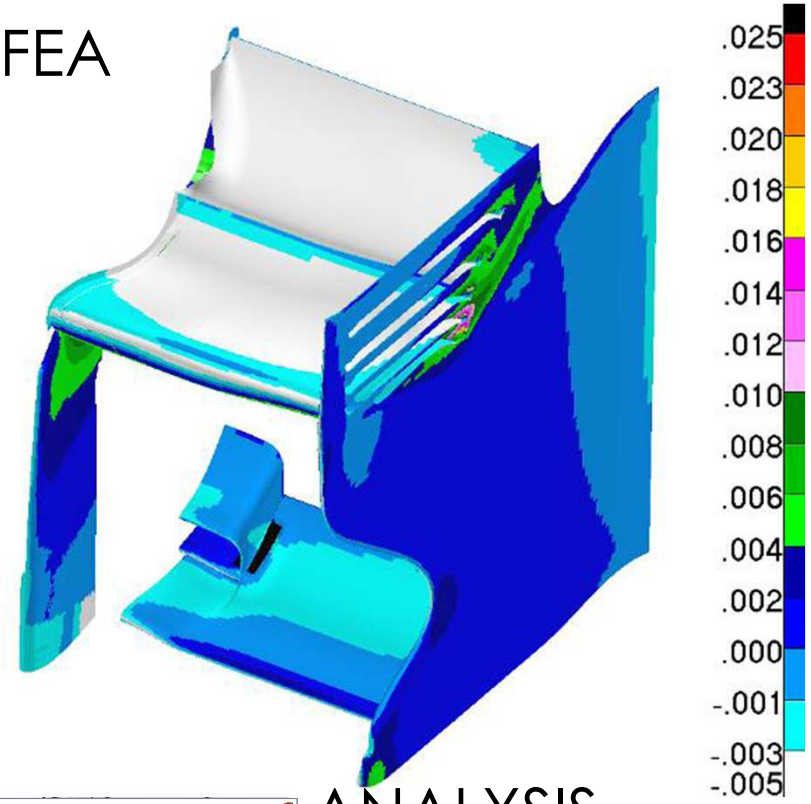


McLaren APPLIED TECHNOLOGIES

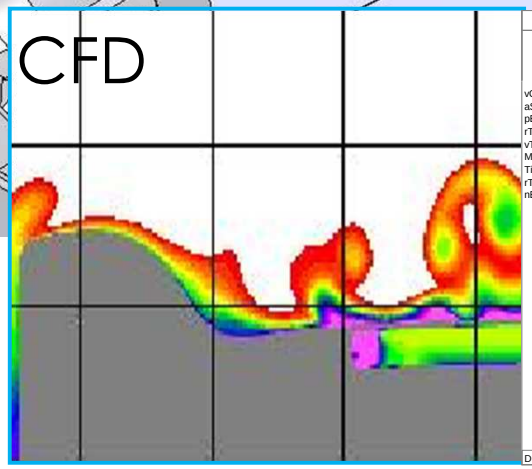
DESIGN PROCESS



FEA



CFD



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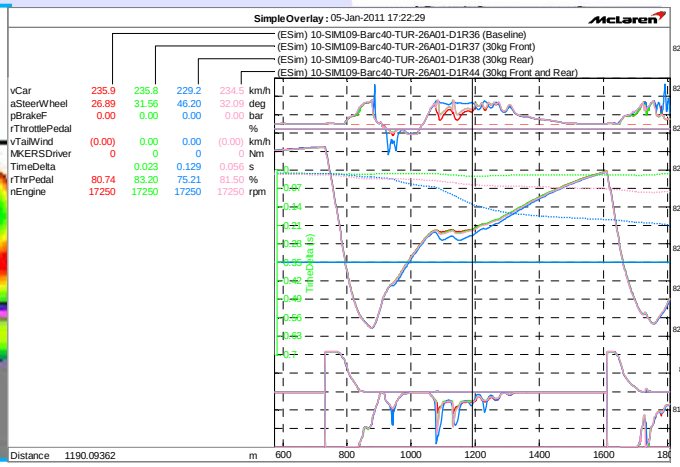

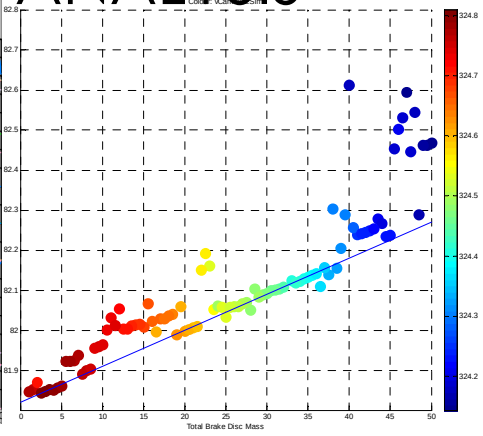

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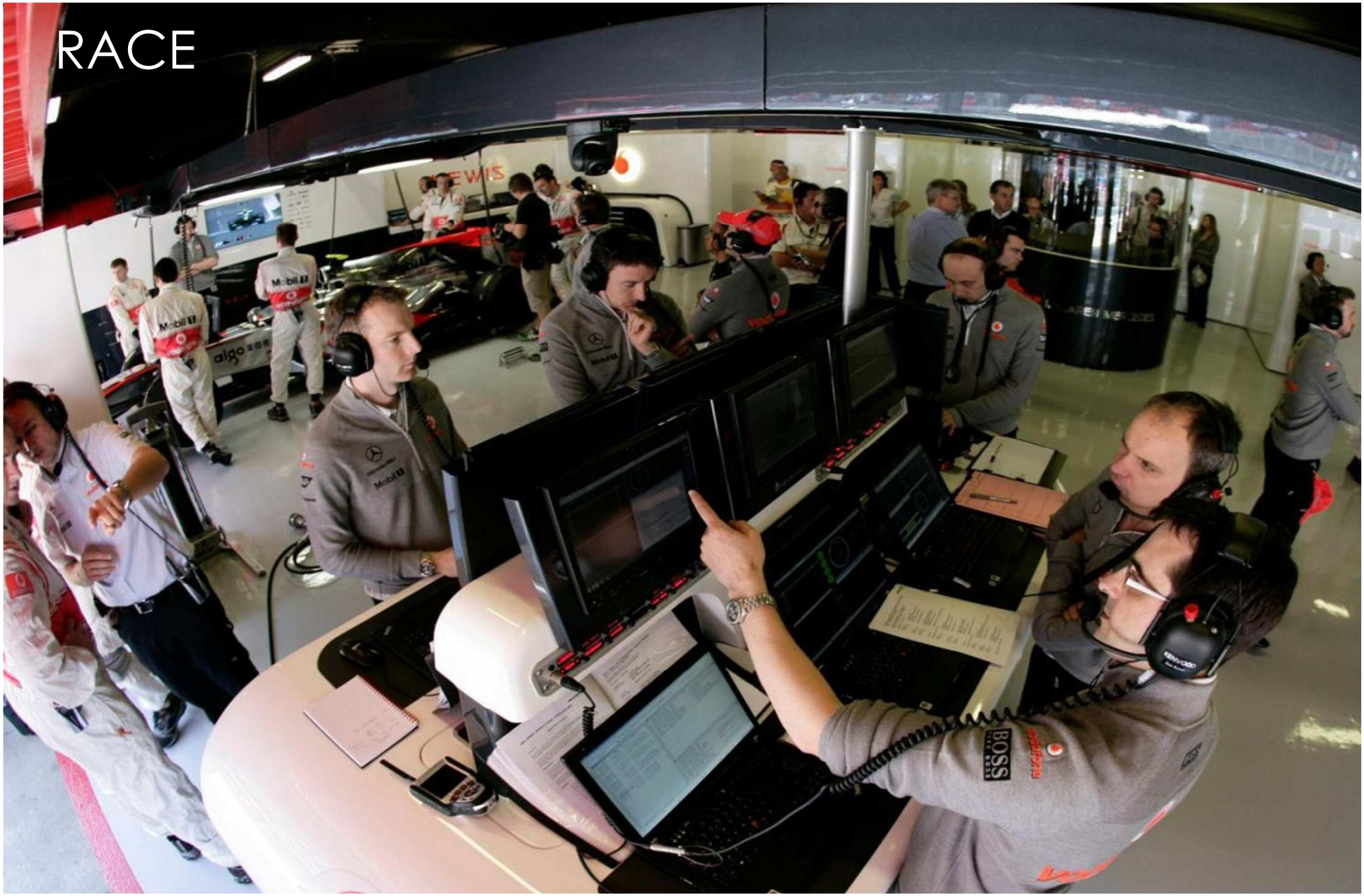
RACE



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RACE SIMULATION

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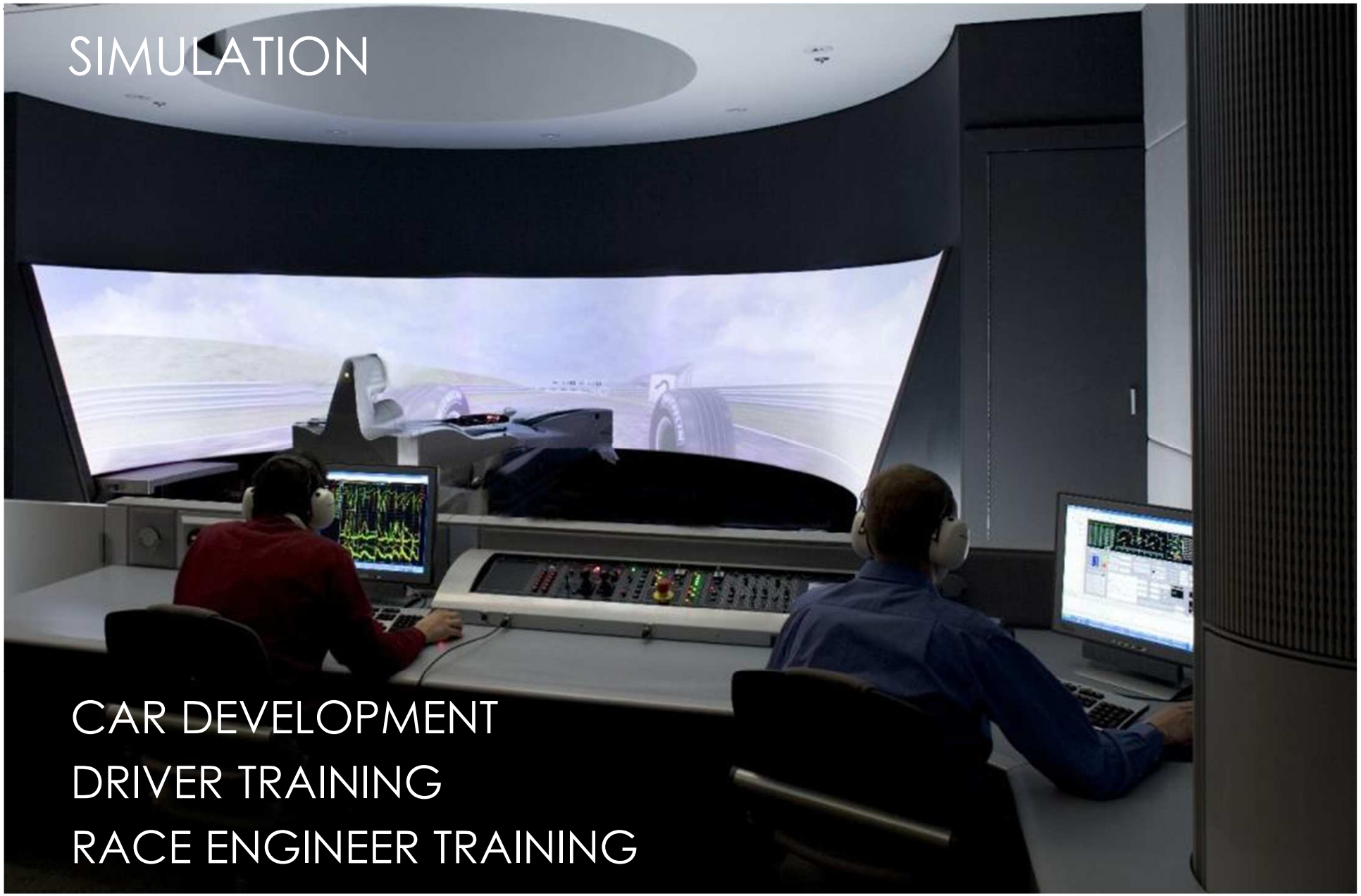

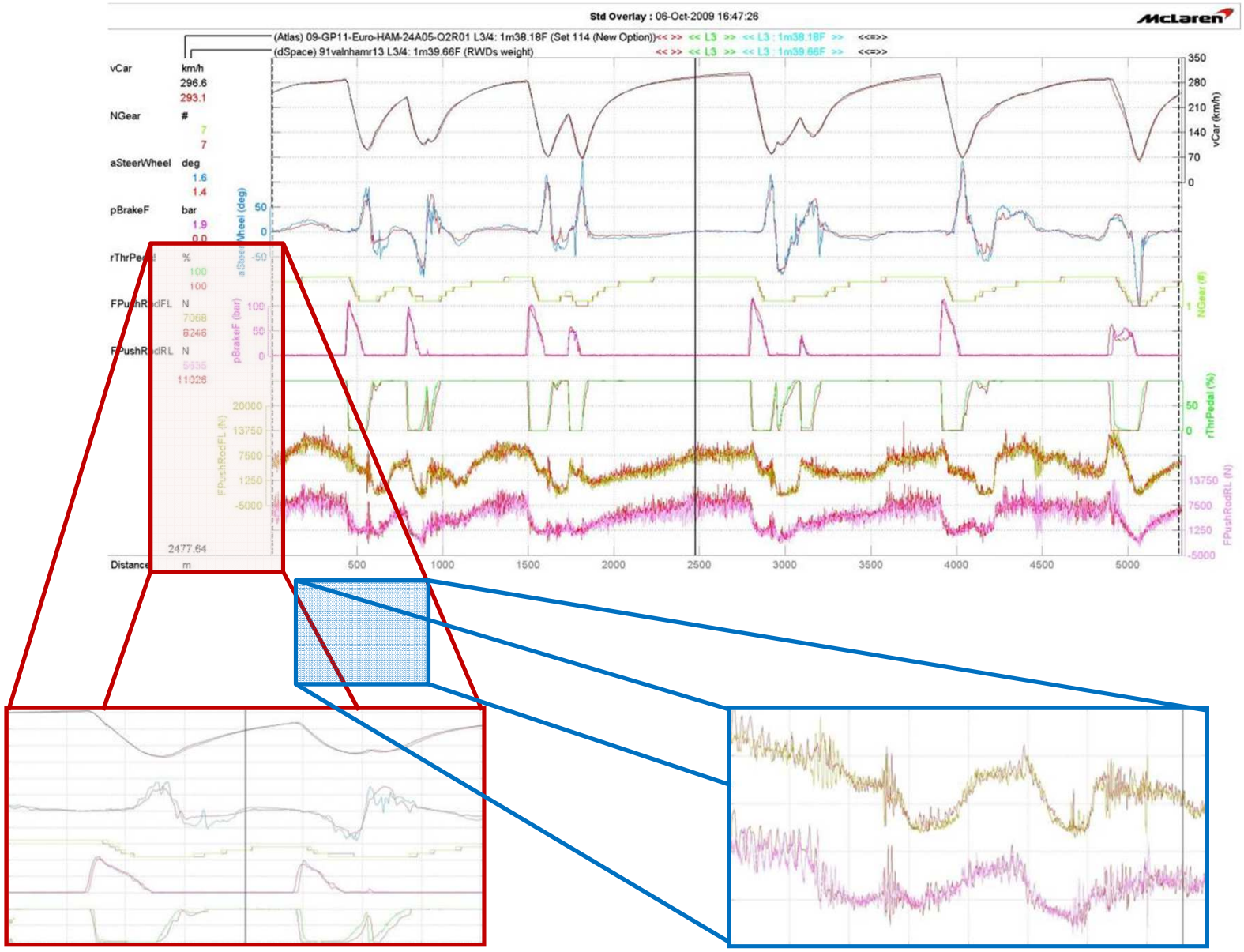

Driver controls

Model validation

RACE STRATEGY

OFFLINE DRIVER TRAINING TOOLS

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APPLIED TECHNOLOGIES

HUMAN HIGH PERFORMANCE

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Health & Fitness

Mental Energy

Skill Acquisition

HUMAN HIGH PERFORMANCE

Health & Fitness

Mental Energy

Skill Acquisition

Collect general health & wellbeing data

Nutrition questionnaires

HRV monitoring and questionnaires for recovery

HUMAN HIGH PERFORMANCE

Health & Fitness | **Mental Energy** | Skill Acquisition

Mood questionnaires
Correlation with performance

HUMAN HIGH PERFORMANCE

Health & Fitness

Mental Energy

Skill Acquisition

Simulator
Analysis tools
Race performance analysis
Pit-stop practices
Video analysis

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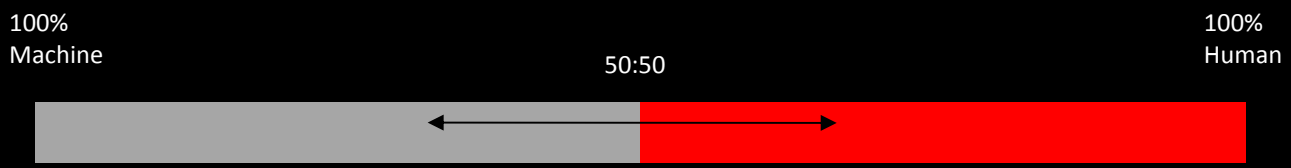
APPLIED TECHNOLOGIES

GOING **BEYOND** F1

OPTIMAL **EQUIPMENT** PERFORMANCE

OPTIMAL **HUMAN** PERFORMANCE



Balance varies with Application & Sport – same principles apply

SPORTS

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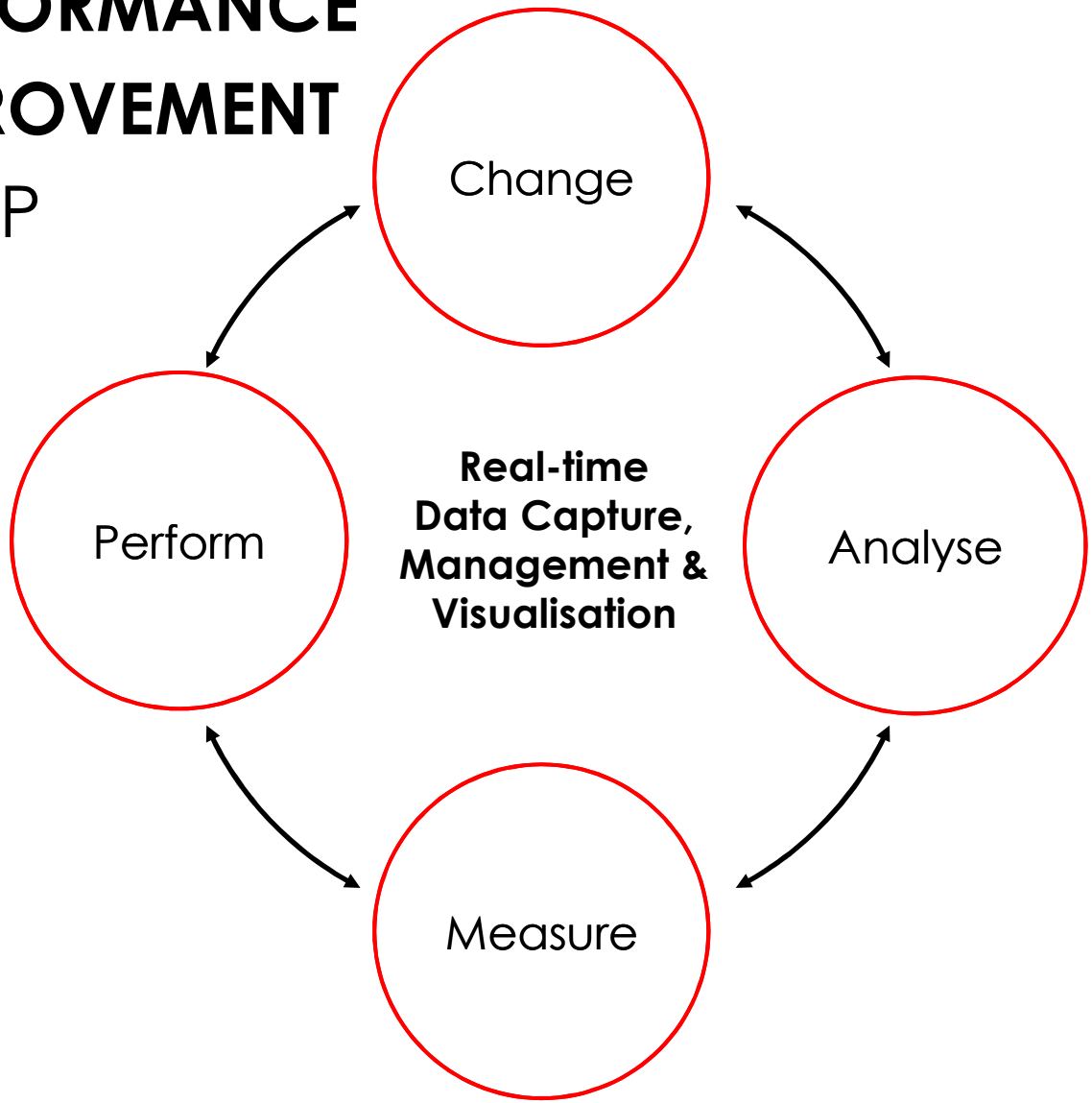
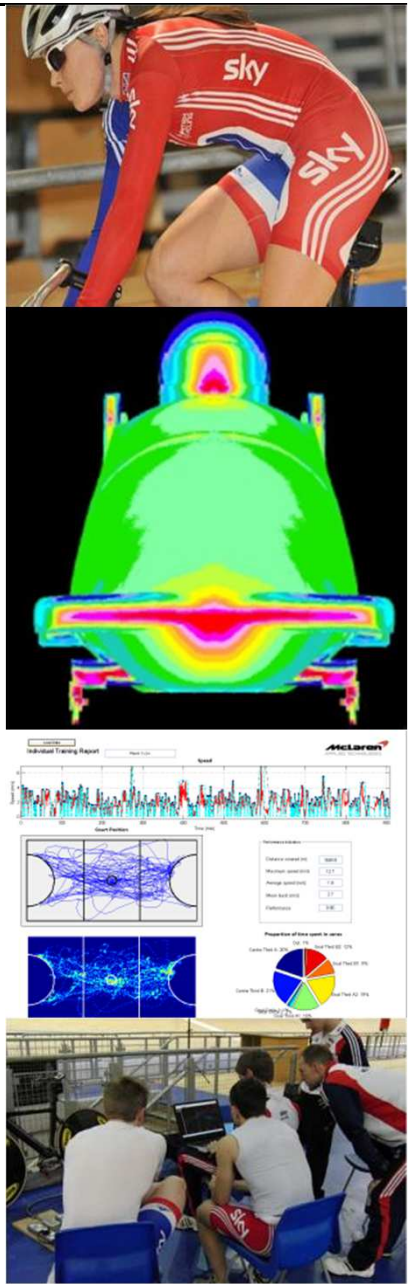
HIGH PERFORMANCE EQUIPMENT

PERFORMANCE IMPROVEMENT LOOP





CRITICAL **SUCCESS FACTORS**

MAKING CHANGES
In Game tactical Changes

In Training
Defining areas for improvement
Setting & Measuring
Progress towards goals
Preventing Injuries

DATA COLLECTION
Un-obtrusive
Convenient

VISUALISATION
Simplified & customisable
Real-time + post-event

DERIVATION/DISTILLATION
Innovative/Customisable
Real-time + post-event

HEALTH & WELLNESS

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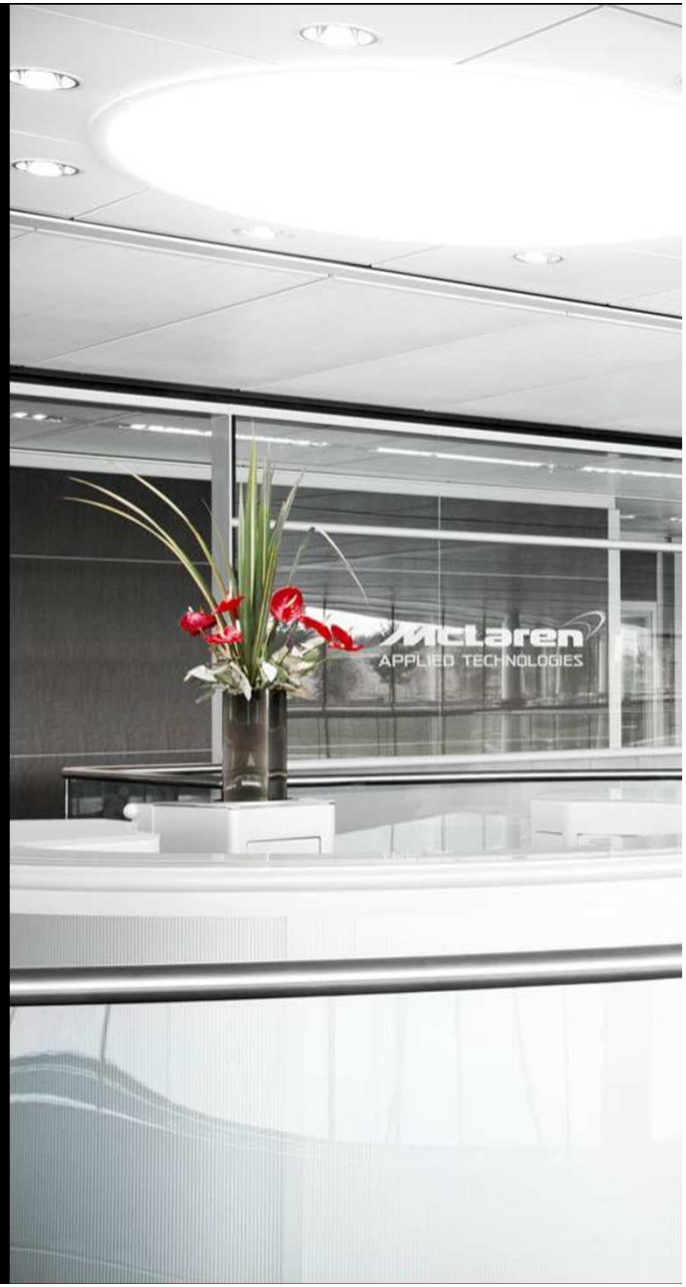
SUMMARY

Technology and **Data** underpin everything we do
Optimal **Equipment** Performance
Optimal **Human** Performance