McLaren
APPLIED TECHNOLOGIES

CHANGE THE GAME

Using driver-in-loop simulators to accelerate the development of the performance and experience of your future cars

Background

Opportunities Today

Example from the ‘real’ world

Future


vodafone
JOHNNIE WALKER
vodafone
vodafone

2001

Increase testing time

Reduce costs

Maintain secrecy

Introduced a new way of parametric testing

Architecture:

Motion platform – 6 dofs

Driver cueing mechanisms

Vehicle model environment

Motion Controller

Visual and Audio system

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GOING **BEYOND** F1

McLaren Applied Technologies

Newest Company in McLaren

Portal to McLaren Technology and Know How

Developers of products, software and services

Taking techniques into new industries

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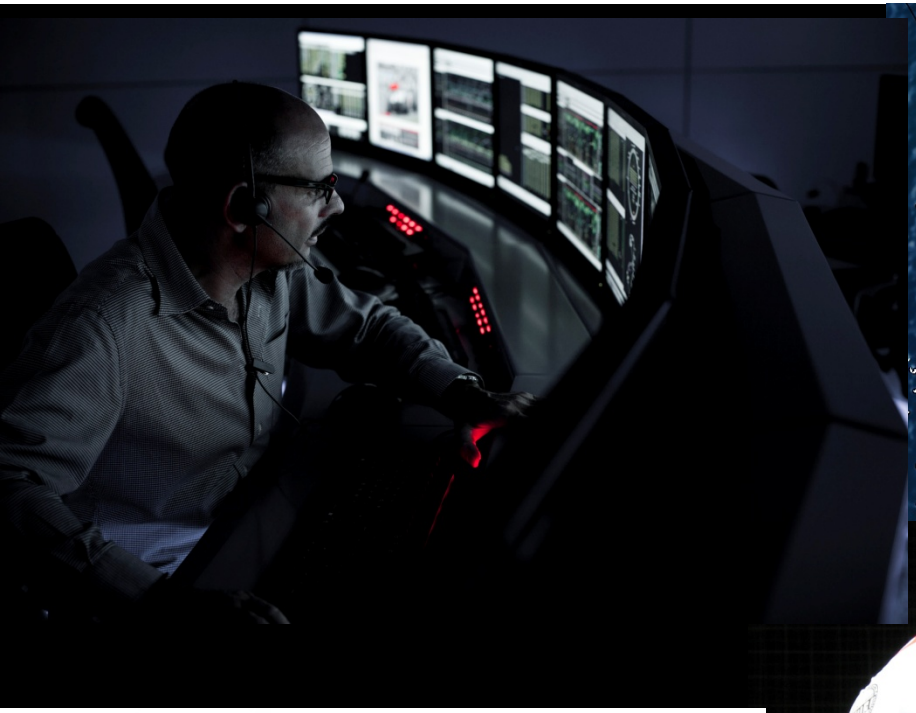
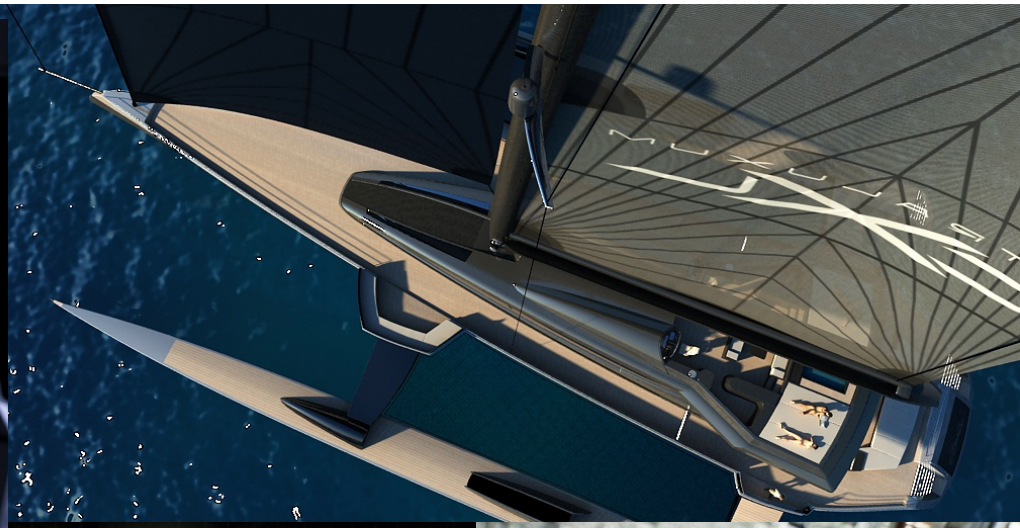
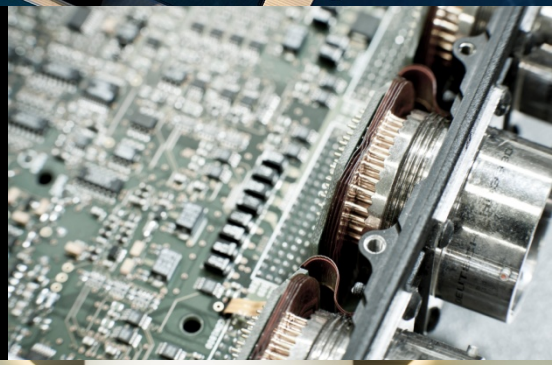
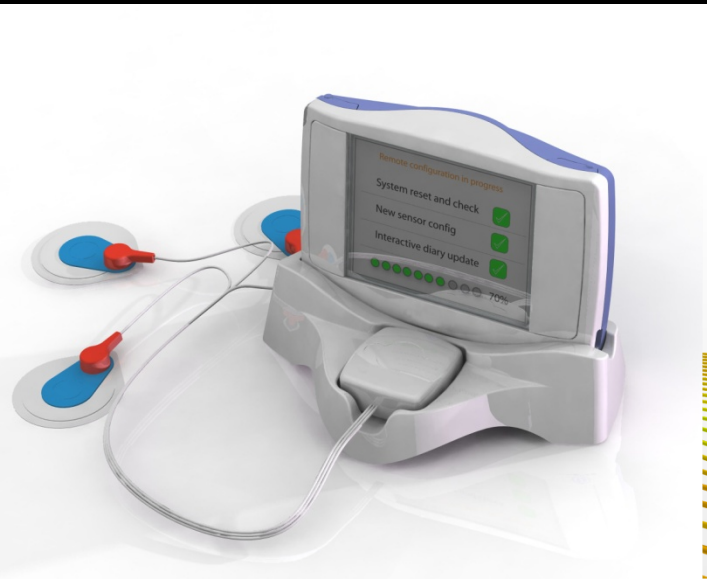
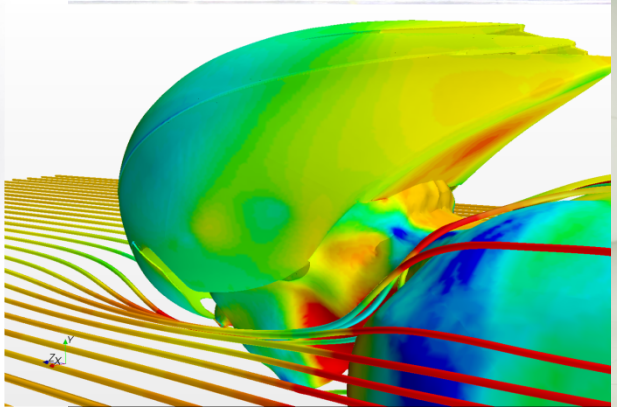










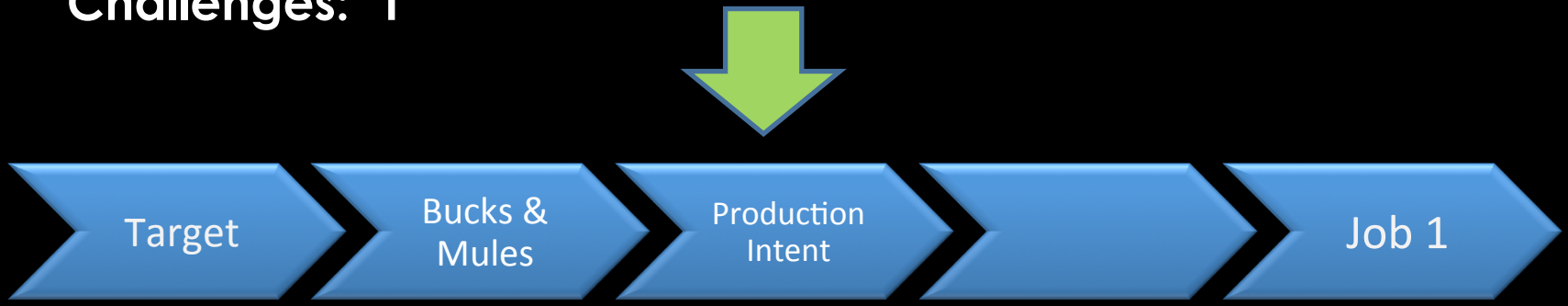
Movie

Introduction to McLaren's High Performance Programme

Reducing time and cost in road car development programmes

The opportunities

Challenges: 1



Developing Performance Road Cars

Hard point targets set early in concept stages

Driver interface – static bucks and mule cars

Representative hardware arrives later

Challenges: 2

Building and testing prototypes is expensive

Access to cars not always possible – spec is constantly changing

Real world variables


MP4-12C

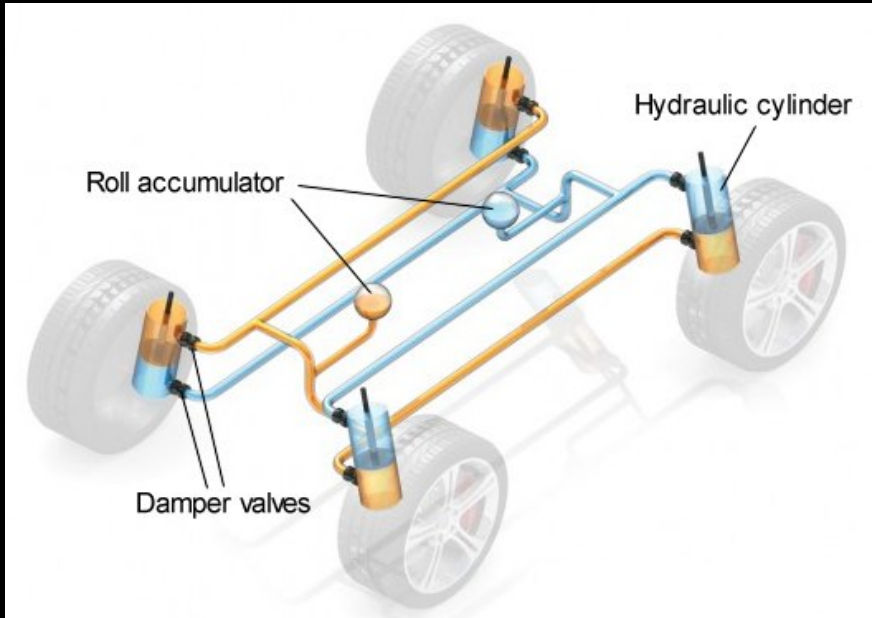
Example – MP4 12C Suspension Systems

Critical to dynamic handling, comfort and driver perception

Down selection of technology – passive, active

PCC – Proactive Chassis Control

Combination of hydraulics, mechanical and software



Chassis Balance

AKA – Roll Moment Split Front to Rear

Relationship between corner springs, geometry and hydraulics – multi variable problem

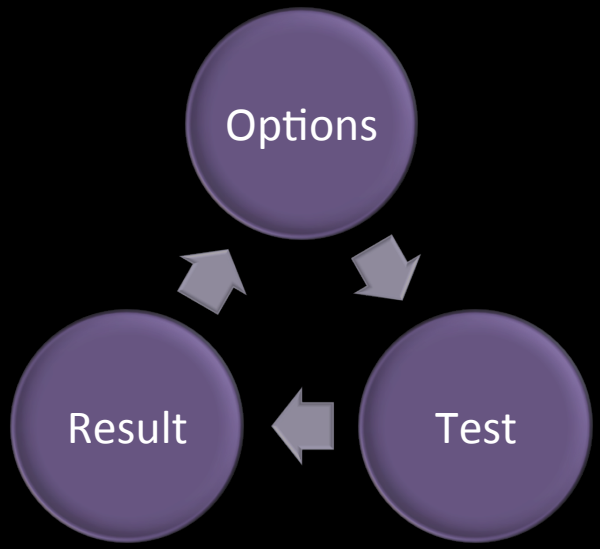
Optimised computer model might not suit driver

TWO WEEKS

Simulator - 1 days work

Advantages

- Integration with existing HIL & SIL models
- Driver inputs to decision system
- Range of options tested
- Variety of environments / test cases
- Isolated variables – better data
- Fast feedback loop to engineering



Compact design…

Integrates into the design office

The future

- Researching the ‘next generation’ of DIL simulation now
- Clear direction in Formula 1
- Open mind for road cars

End

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Questions