

# GLOBAL NETWORK

Common CI equates to visible results for our retailers



UK Arch Retailer Results  
17/18 YOY\*

Enquiry Levels

↑ 7%

New Car Sales

↑ 7%

Used Vehicle Sales

↑ 3%

Conquest Ratios

↑ 22%



• All UK ARCH retailers (Land Rover) that have been in place 12 months or more compared to the national average performance  
• Source: JLR UK Composite and JLR Customer Relationship Management data 2018

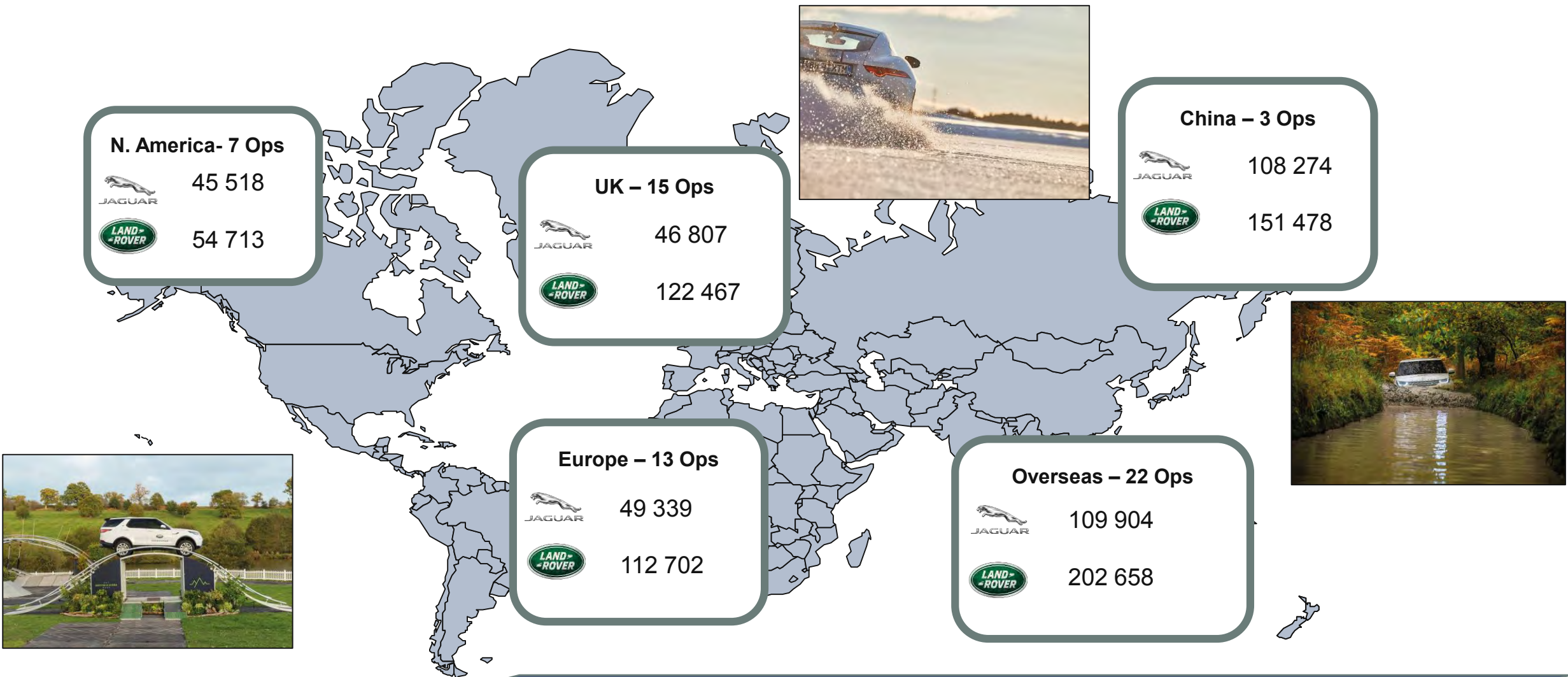
# OUR RETAILERS ARE AN IMPORTANT PART OF OUR NETWORK

...But lets not forget our Experience Centres...



# GLOBAL JAGUAR LAND ROVER EXPERIENCE NETWORK

60 Operations Globally



In 2017/18 we delivered over **1 Million Guest Experiences**



# THE COMMERCIAL DEPARTMENT

## Agenda



Market Environment

Brands

Communications

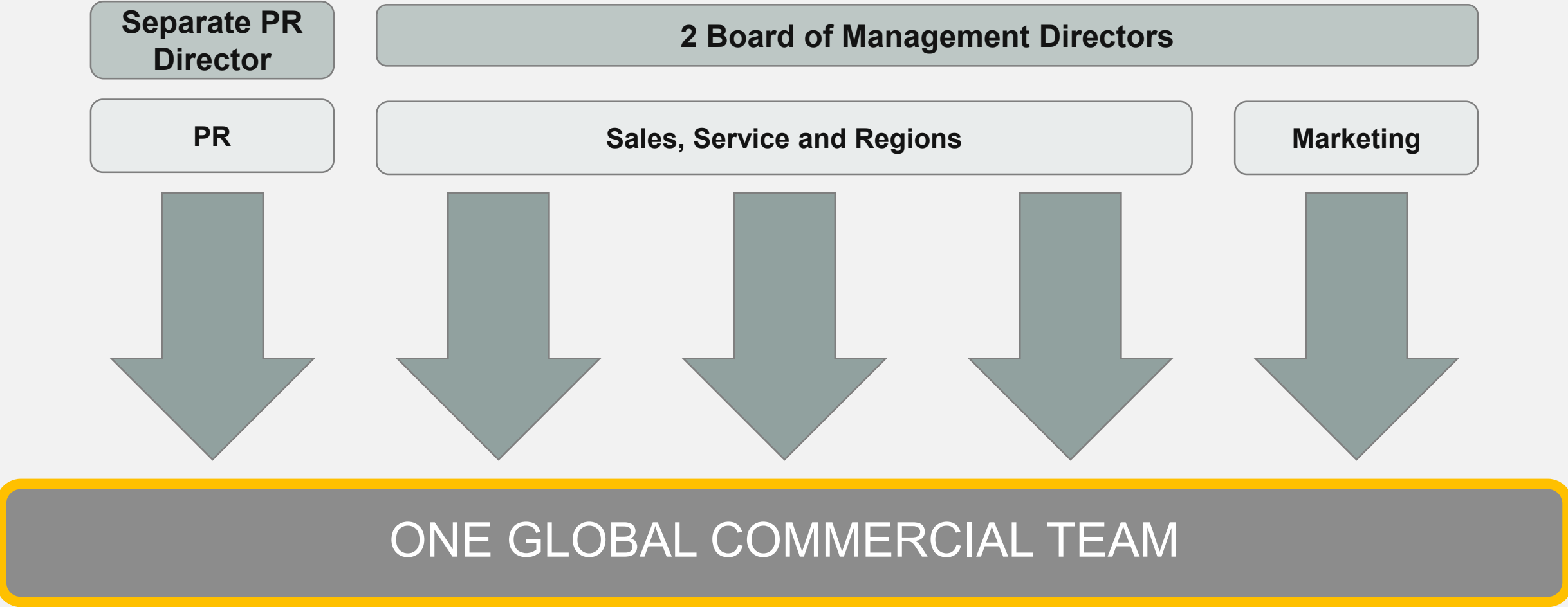
Network

Team



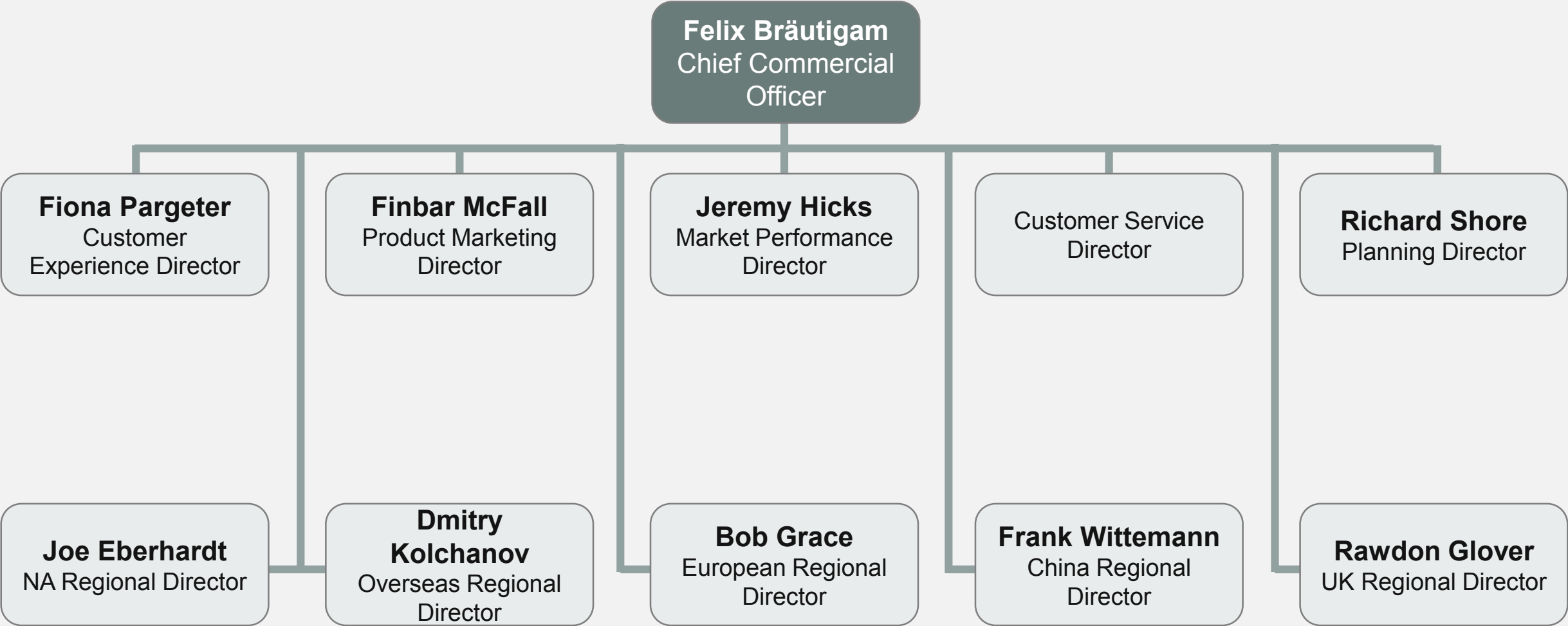
# A TRANSFORMED STRUCTURE

What has changed?



# A TRANSFORMED STRUCTURE

## The New Global Team



# A TRANSFORMED STRUCTURE

## Key Deliverables





# THE COMMERCIAL DEPARTMENT

Concluding thoughts...



Delivering sustainable profitable growth

Iconic Brands, Passionate Customers

Professional Network investing and seeing returns

Communications: Right Person, Right Time, Right Channel

One Global Team rising to the challenge







# ENGINEERING STRATEGY

## **IT'S A CHANGING WORLD – DISRUPT OR BE DISRUPTED**

NICK ROGERS

EXECUTIVE DIRECTOR, PRODUCT ENGINEERING

This year we celebrated the 70<sup>th</sup> anniversary of two icons – born in 1948



First aluminium body  
Top speed of 120mph



First vehicle to explore the world  
Unrivalled off road capability

Creating and engineering pioneering products is in our DNA

# We continue to have a disruptive, pioneering spirit in 2018...



## JAGUAR I-PACE ELECTRIC PERFORMANCE

**90kWh BATTERY**  
The battery is made up of 432 high energy density, Lithium-ion pouch cells, arranged in 36 modules of 12, the best technology to deliver maximum range, performance and efficiency.

**SINGLE-PEDAL DRIVING**  
The I-PACE's sophisticated braking system provides regenerative charging power to the battery in all driving modes - maximizing range. And, by selecting the 'High' regenerative mode, it enables intuitive single pedal driving in many conditions. Regenerative braking can produce up to 0.4G of braking force.

**480km (298 miles) RANGE ON THE WLTP TEST CYCLE**

**40 MINUTES RAPID CHARGING**  
Time taken to charge from 0-80% (100kW DC).  
REGENERATIVE CHARGING AT 100kW DC DRIVES UP TO 200km (125 miles) EXTRA RANGE.

**7kW AC WALL BOX**  
Charges the battery from 0-80% in 10 hours - ideal for overnight charging at home.

**TWO ELECTRIC MOTORS**  
The Synchronous Permanent Magnet motor, are light and extremely efficient. Packaging them concentrically with the single-speed transmissions makes them as compact as possible. Their position on each axle delivers all-wheel drive and, together with the underfloor battery, contribute to I-PACE's low centre of gravity to enhance control, handling and agility.

**36kNm/° TORSIONAL RIGIDITY**  
The integral battery structure means I-PACE is the stiffest vehicle in the Jaguar range - optimising handling agility and safety.

**696Nm TORQUE** **4.5s 0-60mph** **400PS POWER**

#IPACE

## THE NEW RANGE ROVER

**BATTERY**  
13.1kWh prismatic cell. Lithium-ion battery mounted beneath the boot floor.

**INVERTER**  
Turns the DC voltage from the battery pack into AC current, which feeds the electric motor.

**PETROL ENGINE**  
Lightweight 300PS 2.0-litre Ingenium Unit.

**ON-BOARD CHARGER**  
7kW charger fed from plug-in point directly located behind front grille.

**ELECTRIC MOTOR**  
85kW motor provides maximum torque from zero rpm giving greater control during low speed, all-terrain manoeuvres.

**SILENT LUXURY**

**REDESIGNED CABIN**  
DELIVERS PEARLESS REFinement.

**DIGITAL BUTLER**  
TWIN, HIGH-DEFINITION TOUCHSCREENS.

**WIDER, SOFTER SEATS**  
OFFER SUMPTUOUS COMFORT.

**UP TO 17 CONNECTION POINTS**  
WHETHER TRAVELLING FOR BUSINESS OR PLEASURE.

**404PS COMBINED POWER OUTPUT**  
**2hrs 45mins FULL CHARGE FROM ZERO**

**640Nm COMBINED TORQUE OUTPUT**  
**51km ELECTRIC RANGE**

**64g/km CO<sub>2</sub> COMBINED NEDC CYCLE**  
**101MPG COMBINED NEDC CYCLE**

We are engineering and delivering ACES today with our cutting edge electrified vehicles



# With our new premium BEV, the Jaguar I-PACE, we are dramatically transforming our vehicle technologies



LE FIGARO

"We were able to climb a steep and pebbly mountain road but also cross a ford without endangering ourselves thanks to the AWD system that perfectly manages the distribution of torque to all four wheels." **Le Figaro (FR)**

WIRED

## The Jaguar I-Pace is a game changer for electric vehicles

The new all-electric kid on the block is a thorn in the side of Tesla and arguably the best electric vehicle £60,000 can currently buy

But that's simplifying things too much, as I-Pace is built upon a bespoke aluminium chassis architecture, styled like nothing else in the current Jaguar range and packs technologies that have been conceived and produced solely for this model.

Throw in the cutting edge nickel, manganese and cobalt battery construction, the compact and 95 per cent efficient Jaguar-designed dual motors and you're faced with a package that delivers 400hp and 696Nm of torque, a 0-60mph sprint time of just 4.5 seconds and a battery range of up to 298 miles. A bold move from Jaguar. Another headache for Musk.

wheels24

"As we experienced on the track, the high-torque density of the motors delivers sports car type performance. With the instantaneous torque delivery inherent to an EV, you had to brace when you floored the accelerator, as the zero-emission Jaguar took off like a scalded cat, sprinting from 0-100km/h in just 4.8 seconds. It is smooth and linear, yet to feel that surge, that swoosh, is strangely exciting." **Wheels24 (ZA)**

caradvice

With 294kW of power and 696Nm of torque (combined) on tap, the car sprints to 100km/h in just 4.8 seconds – faster than a Tesla Model X 100D, slower than the Ludicrous Mode-enabled P100D. Both those cars are significantly more expensive – \$60,000 and \$130,000 respectively – than the I-Pace.

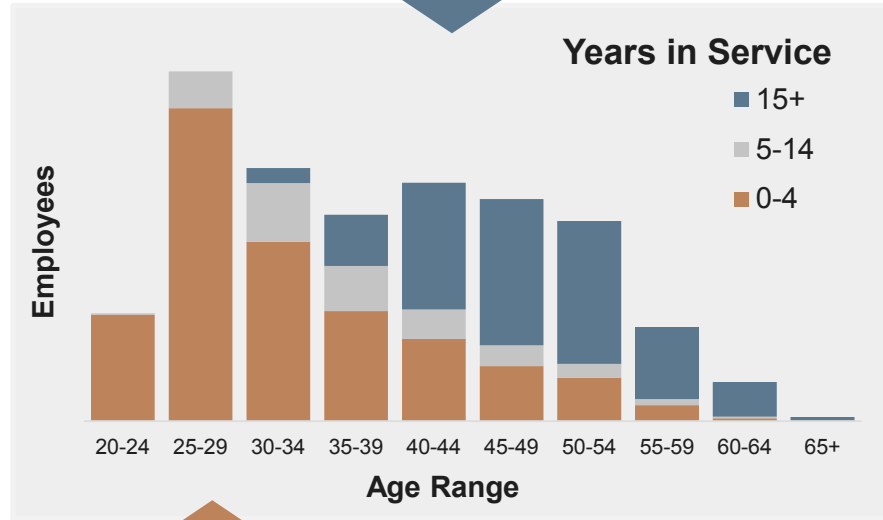
When the time comes to slow down, Jaguar has given the car a 'high-regenerative' mode. When you step off the accelerator, the car can generate up to 0.4G of deceleration as the motor essentially becomes a generator, recapturing energy and feeding it back into the battery.

The Jaguar Land Rover BEVolution is already a reality

# Our people are our biggest asset – our Engineering team has a diverse demographic giving us both experience and new skills



## Experience - Expertise



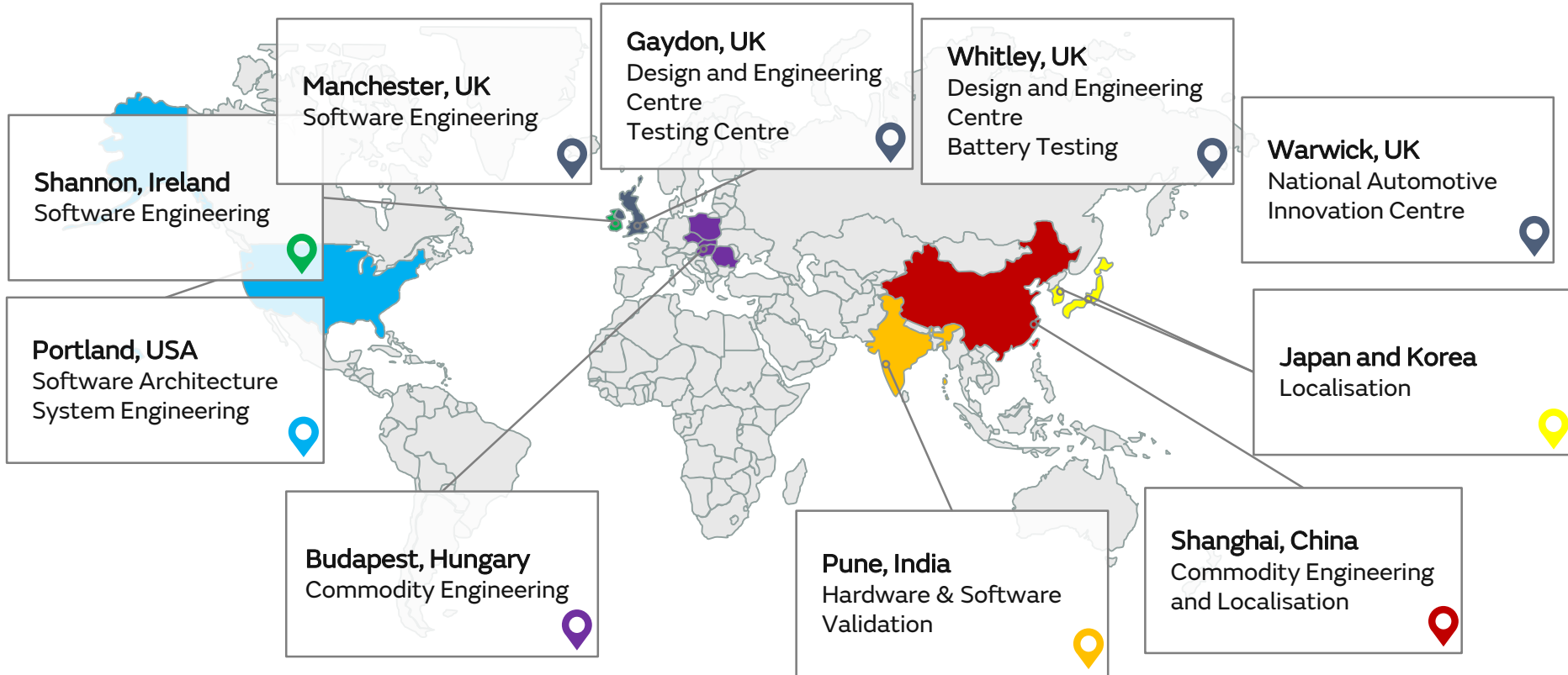
## Traditional Attributes



## New skills - Technology Innovation

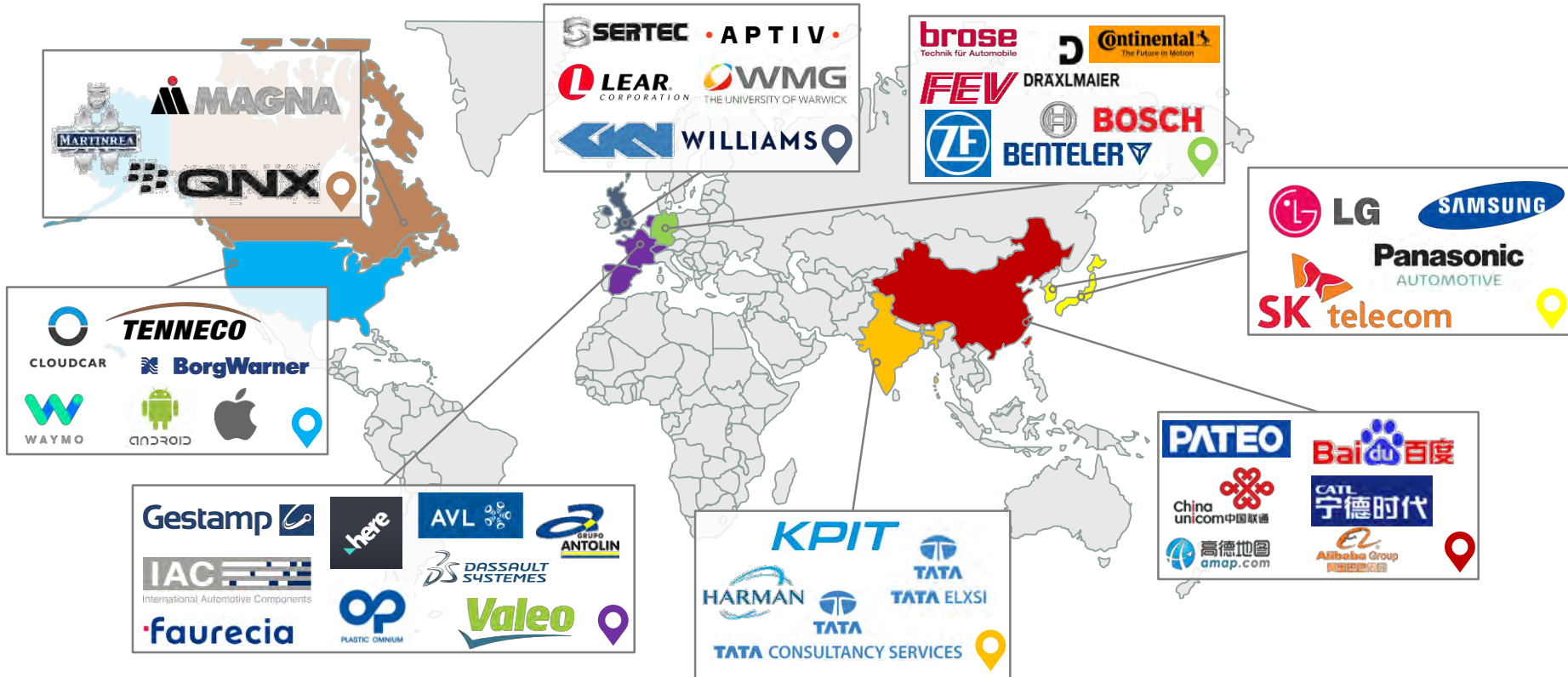
We have a demographic to die for, with a global team that can innovate products with expertise

# We are sourcing skills in places that are most effective at being technology disruptors



Our global Engineering footprint allows us to leverage all regions for technology and efficiency

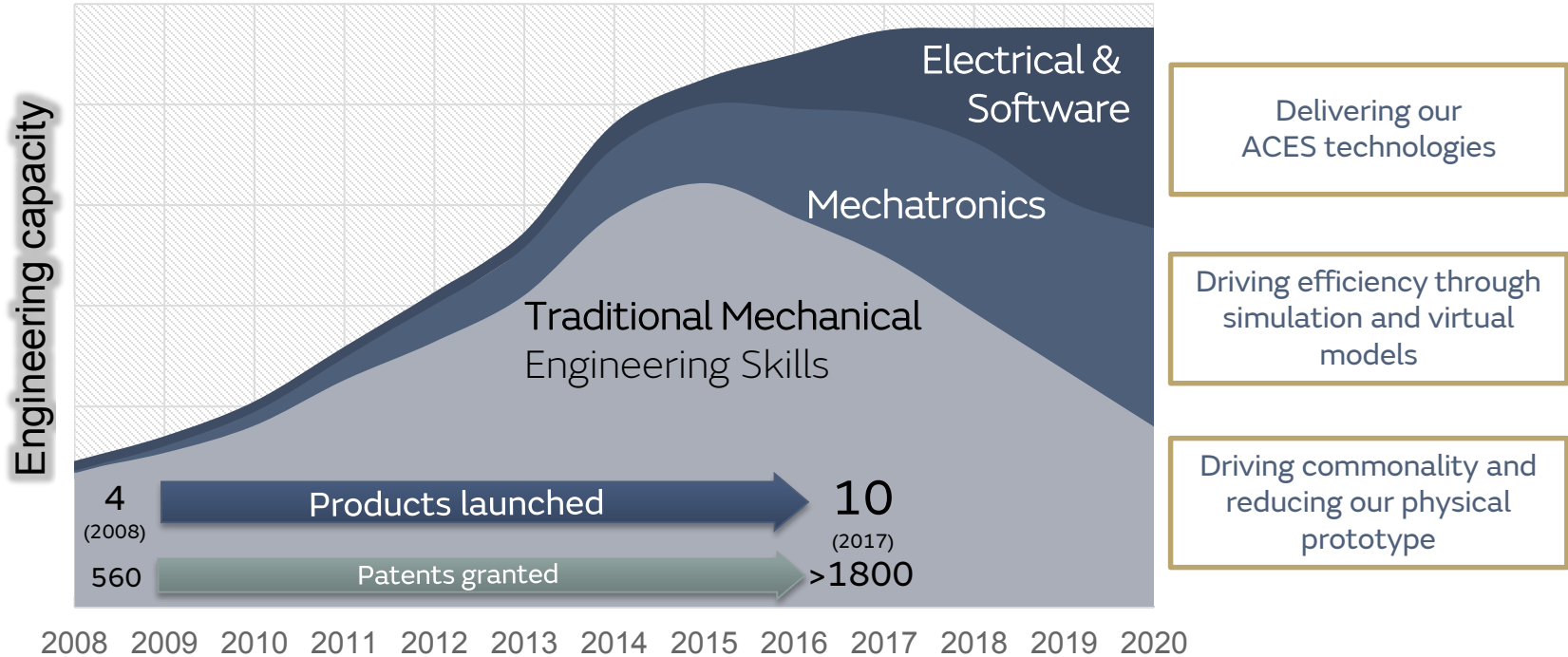
# Our engineers are collaborating with global partners to leverage pioneering new technologies



We are investing wisely through intelligent partnerships



# We are embedding the engineering skills required to pioneer new technologies

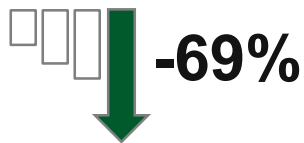


We are enabling electrical and software growth by using techniques to drive efficiency in traditional engineering

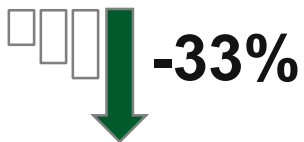
# We are leveraging our engineering skills, allowing us to do more in-house for less



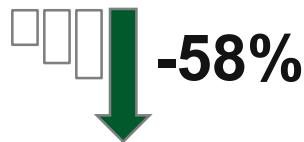
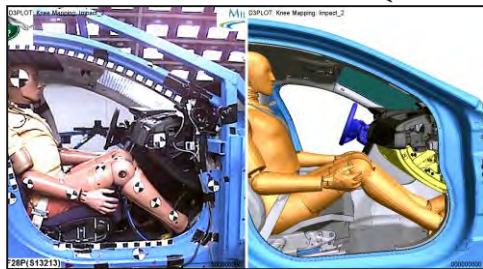
Design & development costs



Vendor tooling costs



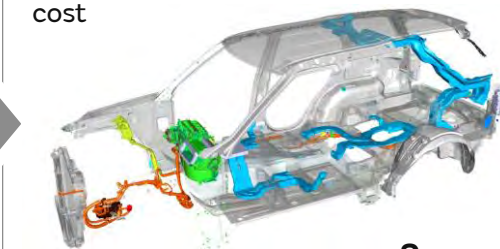
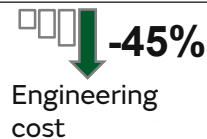
Cockpit lifetime costs



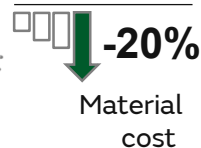
Material costs

We do this across all our commodities ...

Climate Systems



Suspension Systems

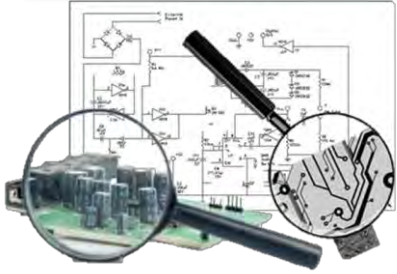


Dramatic efficiency reduction in engineering mechanical systems

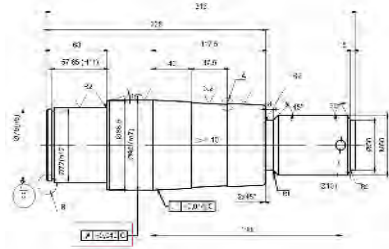
# We are reskilling our Engineering from the top down in addition to the bottom up



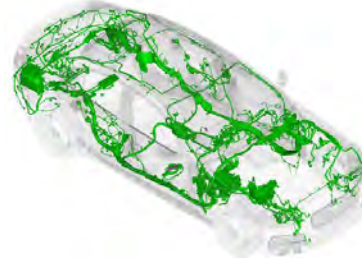
## Engineering and Development of Electrical Hardware



## Efficient Geometric Control



## Networks and Electrical Distribution Systems



## Software Engineering and Delivery



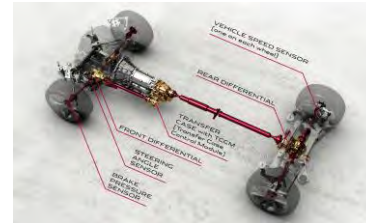
## Thermal and Aerodynamic Engineering



## Leveraging Digital Engineering



## Systems Engineering

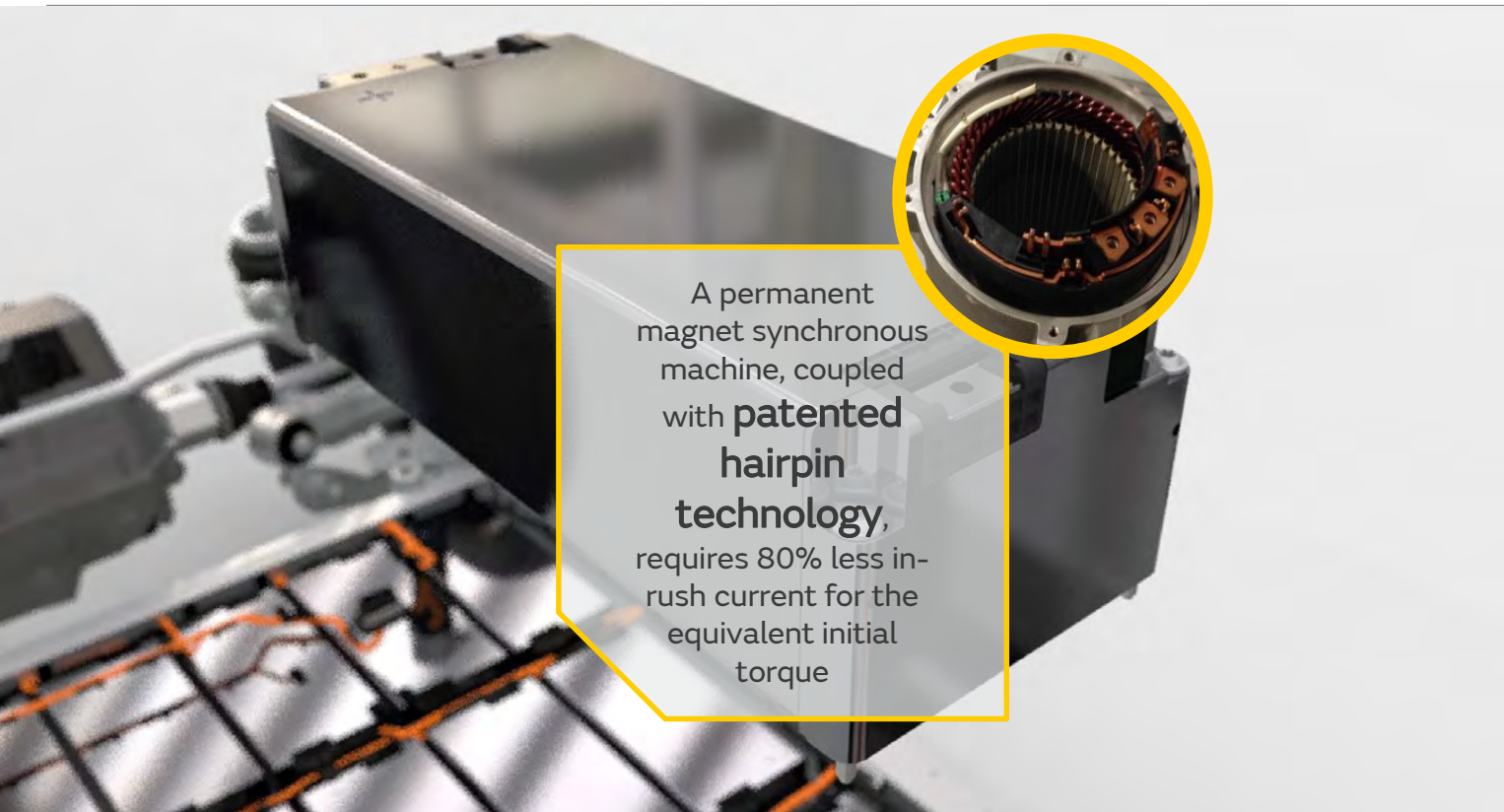


## Engineering Structures Efficiently



Licence to Lead Engineering is mandatory for all engineering leaders to enable robust delivery of our products

# By reskilling our engineers, we have designed and engineered our I-PACE batteries in-house



A permanent magnet synchronous machine, coupled with **patented hairpin technology**, requires 80% less in-rush current for the equivalent initial torque

I-PACE has  
**432 Lithium ion  
Nickel Manganese  
Cobalt cells**  
in 36 modules

It is the first electric car  
to have a **unique  
cooling circuit**  
dedicated to the  
battery pack

The cutting edge technology engineered by our innovative team has been captured in numerous patents



# I-PACE is the only electric vehicle that can decelerate 0.4g without applying friction brakes



Our control system ensures the synchronous machines and battery system work in harmony, harvesting **3 times more regeneration**



300km



Over 95% of braking events can be completed using **regenerative braking**, seamlessly blending into friction brakes in dynamic situations

I-PACE is also the only car that can complete EPA, NEDC and WLTP drive cycles without using friction brakes

# We have engineered I-PACE for convenient, rapid charging



The 432 Lithium ion Nickel Manganese Cobalt cells can receive an **incredible amount of energy** due to its innovative cooling system

70kWh of energy can be taken on board in less than 40 minutes, giving up to 380km of range



# Each I-PACE can identify you as an individual and learn how to help you every day



I-PACE can learn your preferred...

- Temperature settings
- Media settings, including Apple CarPlay and Android Auto
- Seat settings

And...

- Analyse your driving attributes and use of energy
- Predict who you'll phone next
- Share journey information
- Optimise precondition settings
- Allow you to remotely set charging times to maximise off peak energy use



...It even tells you when you've **forgotten your phone!**

We are passionate about delivering maximum efficiency for our customers