



F R O S T & S U L L I V A N

Mobility Industry & Clean Mobility in the UK 英国のモビリティ業界と クリーンモビリティ

Presentation
by Masaki Honda, Frost & Sullivan
at Clean Mobility in the UK
on 4 March 2021

*The Growth Pipeline™ Company
Powering clients to a future shaped by growth*



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Masaki Honda

Sr. Consulting Director Frost & Sullivan
Mobility Practice Asia Pacific
Singapore

Education

- Master of Business Administration from Bradford University, Bradford, UK
- Bachelor of Arts (Economics) from Hitotsubashi University, Tokyo, Japan

Functional Expertise

- 12 years of marketing and management expertise which include business development and investor relations in automotive and transportation industries.
- 12 years of experiences on consulting and market research in automotive and transportation industry.
 - Mobility, mega trends
 - Market assessment, competitive benchmark, strategy development, etc.
- Public speaking in seminars and conferences

Industry Expertise

- Experiences in marketing and management functions in:
 - Automotive (Vehicle Manufacturer, Tyre Maker)
 - Transportation (Courier and Logistics)

What I bring to the Team

- Broad range of expertise in automotive, mobility and transportation industries
- High analytical and management skills
- Deep knowledge about Japanese business practices

Media Engagements

- Speaker and moderator at Frost & Sullivan's Intelligent Mobility events
- Speaker at public webinar organised by Frost & Sullivan
- Speaker at automotive and ITS events
- Columnist for a Japanese automotive newspaper

Career Highlights

- Business Development in a leading Japanese transportation company in Singapore
- Investor Relations in a leading Japanese tyre manufacturer in Japan
- Overseas (ASEAN) Sales in a leading Japanese vehicle manufacturer in Japan

Japan & UK's Positioning in Global Mobility Markets

UK EV Market

Future of London Smart City

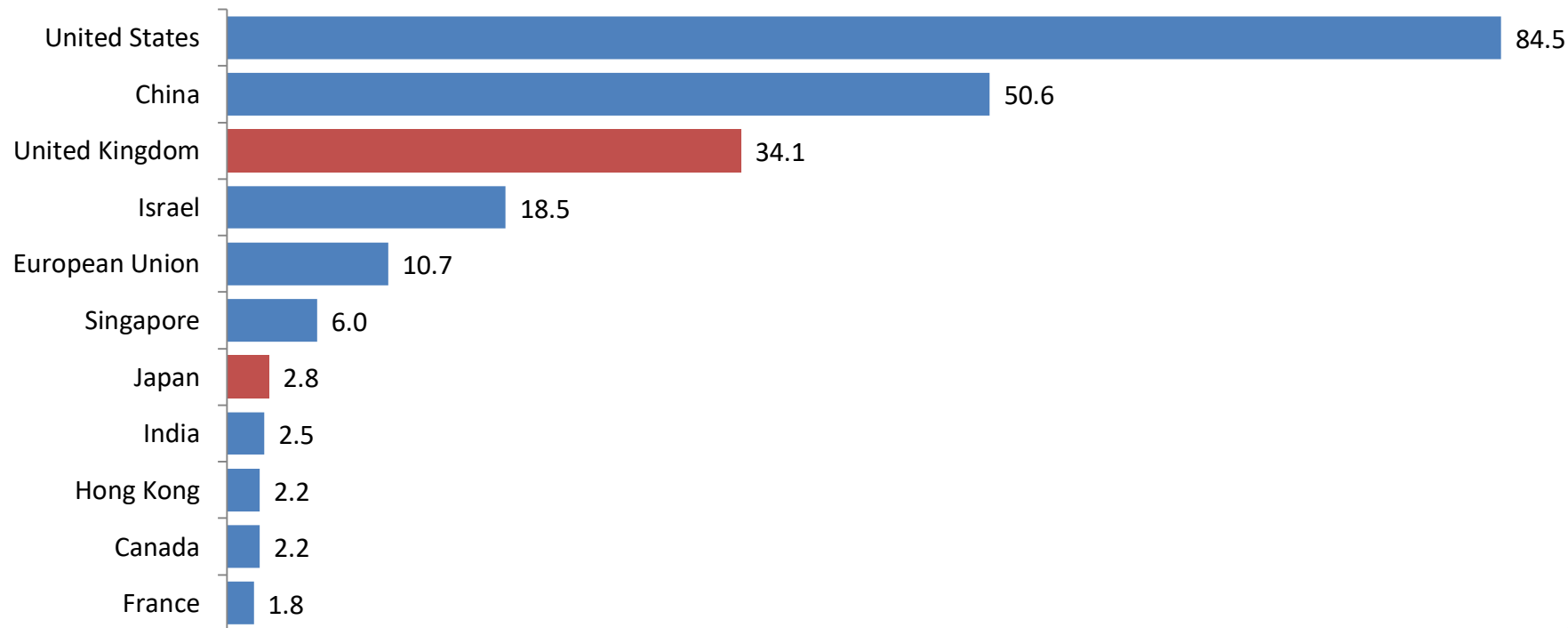
UK's Attractiveness for Japanese Companies



Investments in Mobility: Overview

UK is the 3rd largest country investing in mobility start-ups with \$34.1bn in 2010-2019, while only \$2.8bn have been invested in Japan.

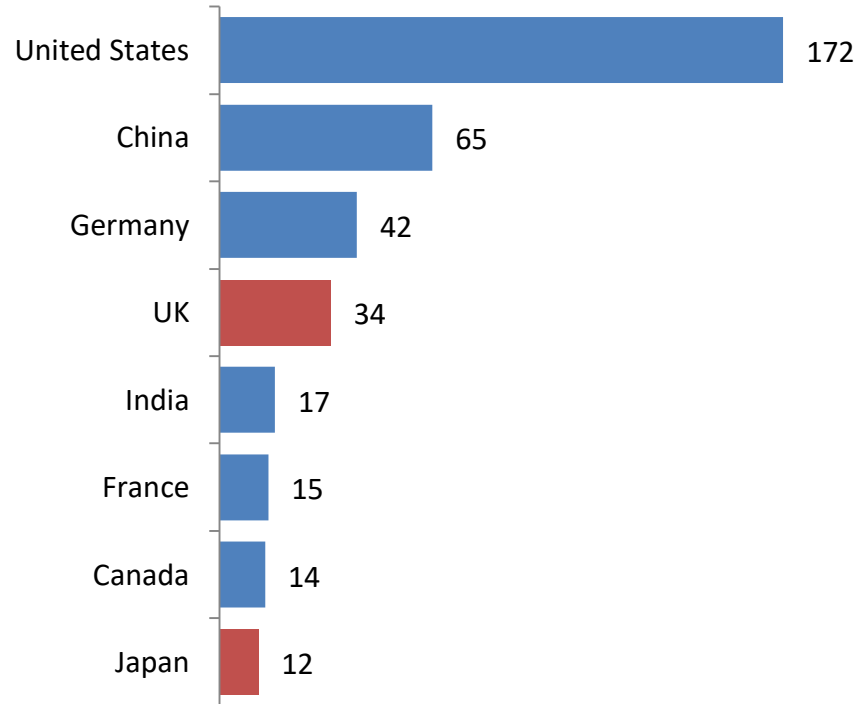
Total Disclosed Investment in Mobility Startups, 2010-2019, (\$Billion)



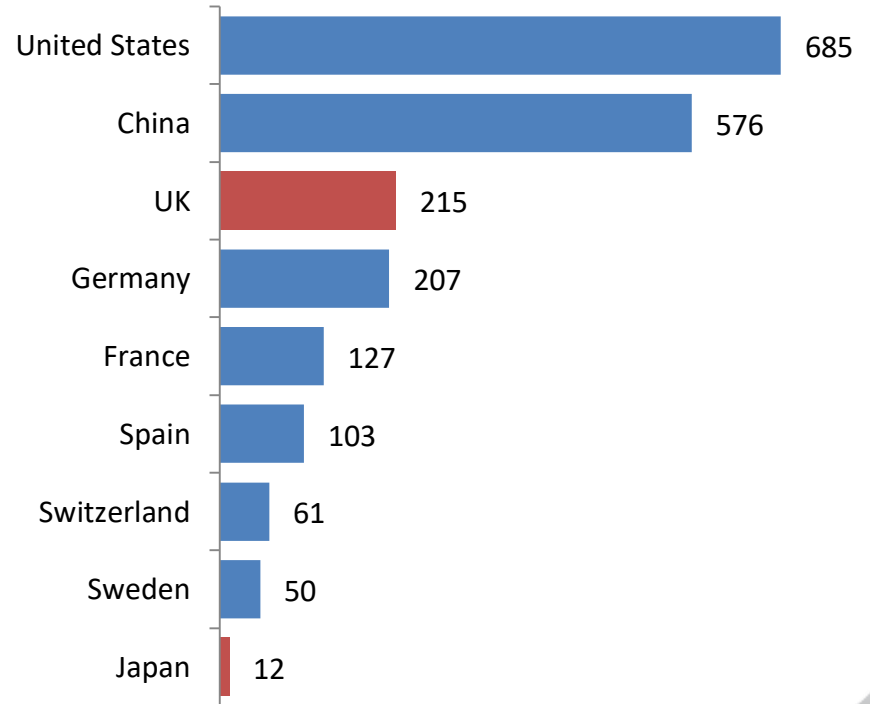
Number of Start-ups

UK is the 4th and 3rd largest country in terms the number of start-ups for autonomous and electric vehicle, while Japan has very few start-ups

Autonomous Vehicle Startups, 2019



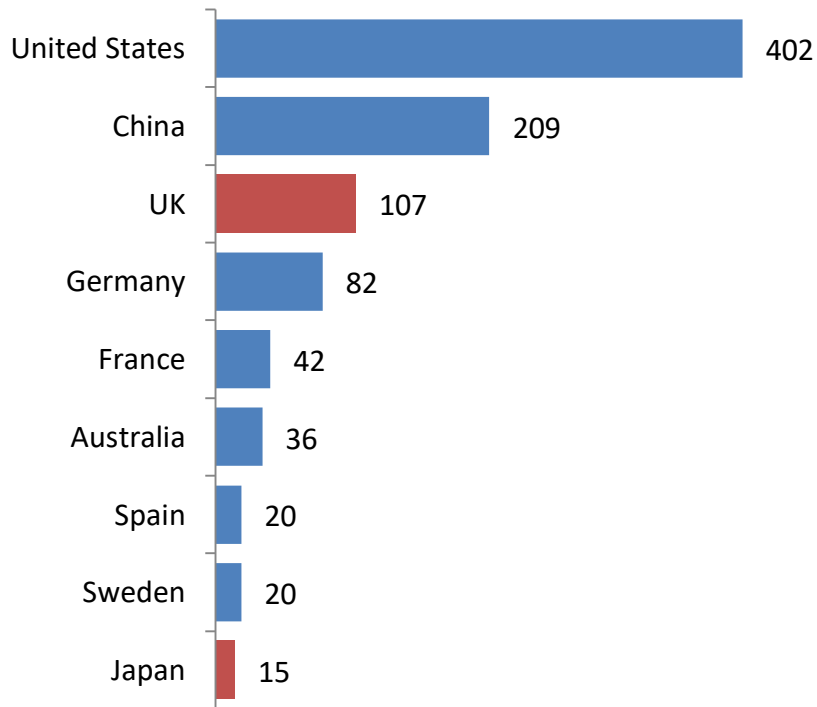
Electric Vehicle Startups, 2020



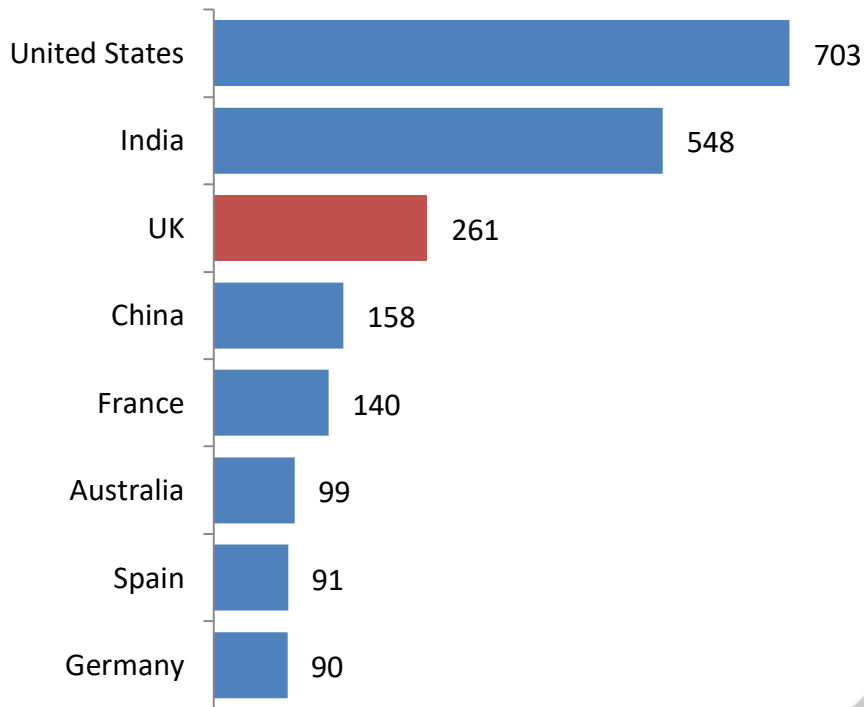
Number of Start-ups

In connected vehicle and shared mobility, UK is also the 3rd largest country in terms of the number of start-ups

Connected Vehicle Startups, 2020



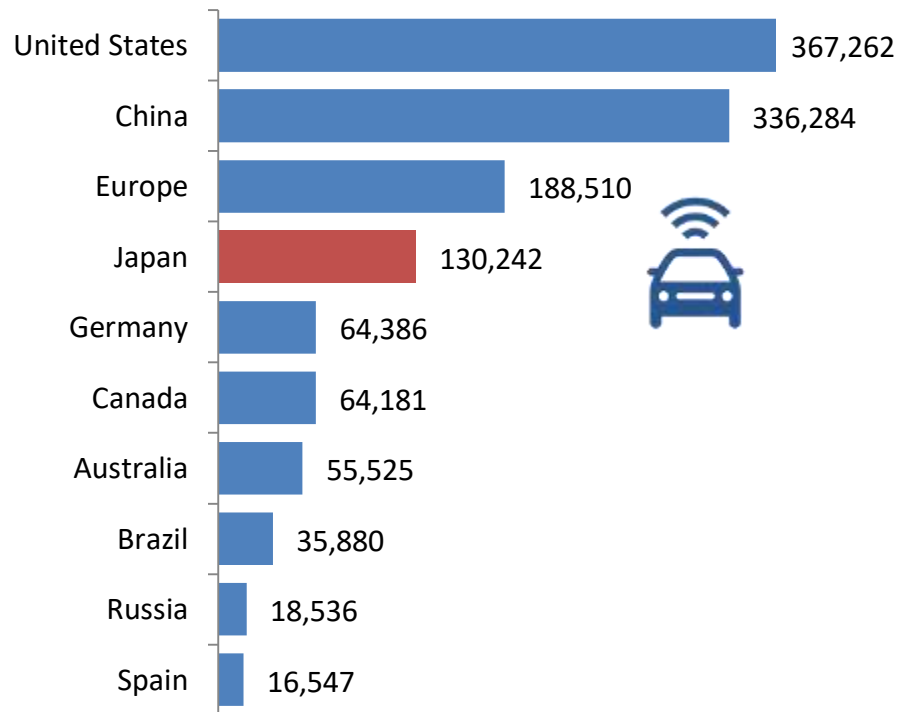
Shared Mobility Startups, 2019



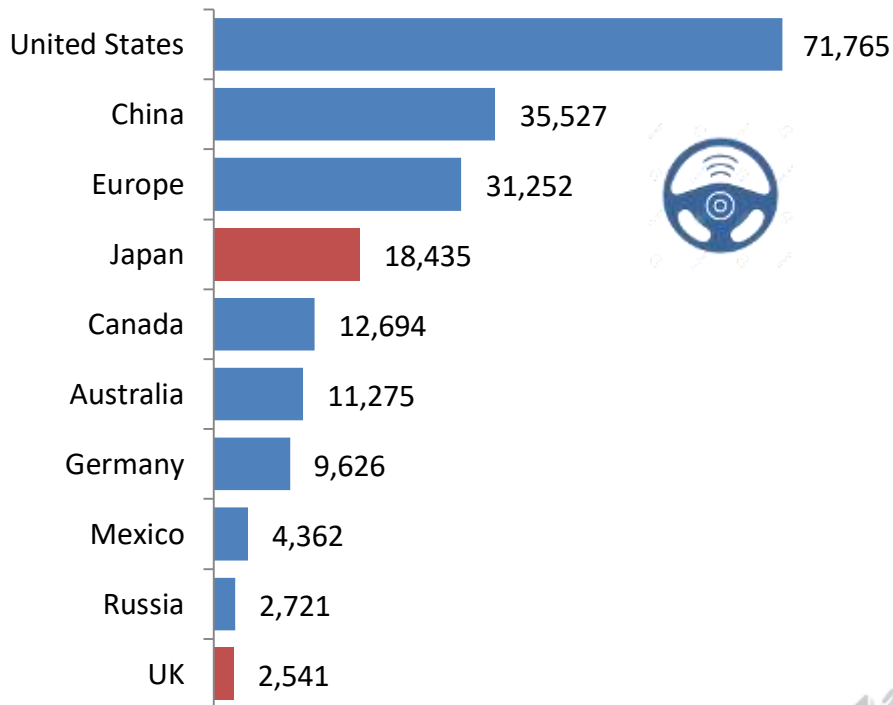
Number of Patents by Country

Japan is one of the largest countries in terms of the number of patents for connected and autonomous vehicle

Connected Vehicle Patents, 2019-2020



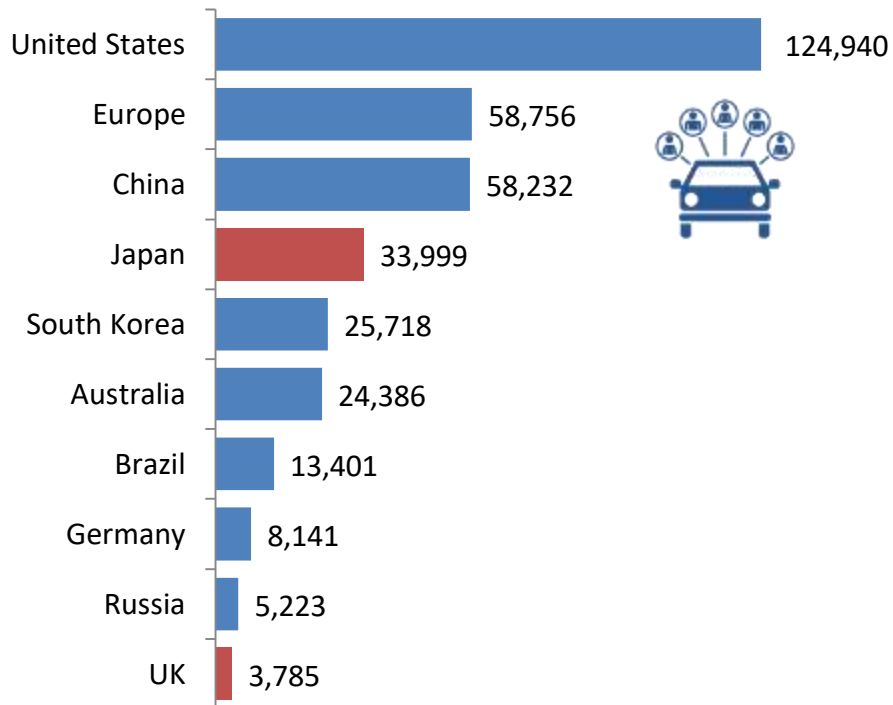
Autonomous Vehicle Patents, 2019-2020



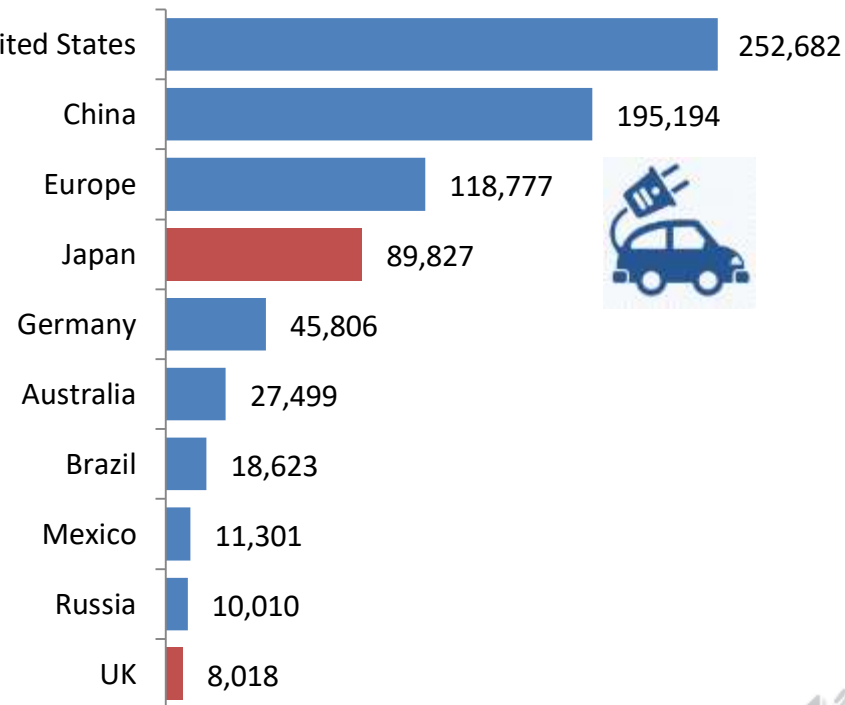
Number of Patents by Country

In shared vehicle and electric vehicle as well, Japan is one of the largest countries for the number of patents

Shared Vehicle Patents, 2019-2020



Electric Vehicle Patents, 2019-2020



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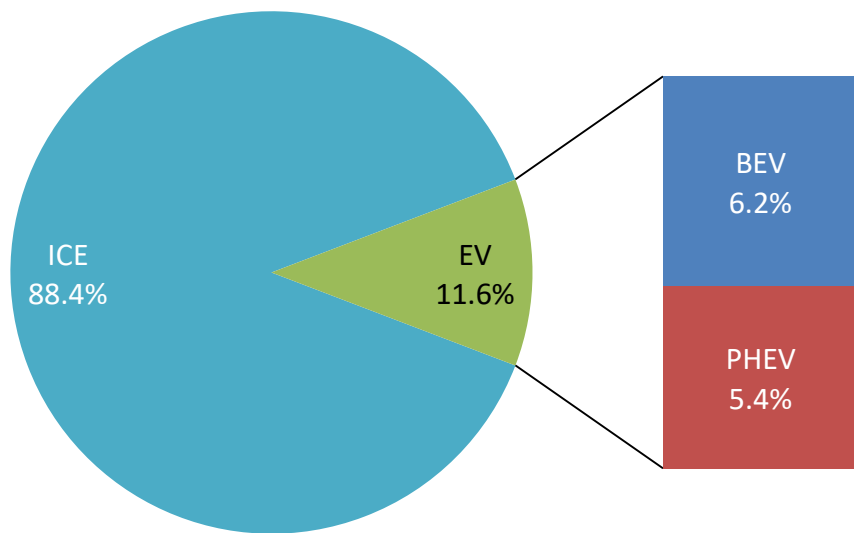


EV Market Overview - Europe

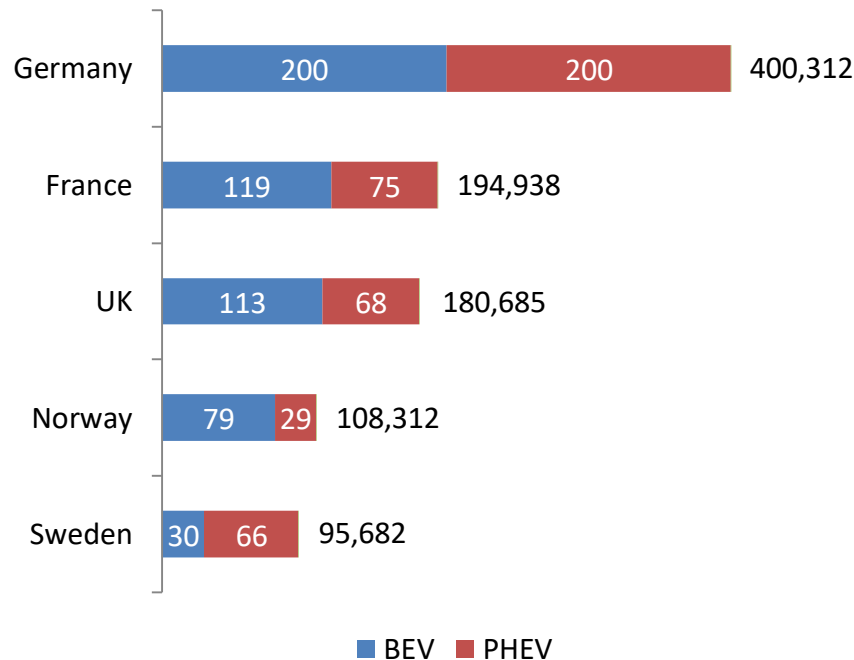
EV accounted for 11.6% of total passenger car sales in Europe in 2020, BEV accounted for 55% of EV

EV Sales by Vehicle Type, Europe, 2020

ICE BEV PHEV



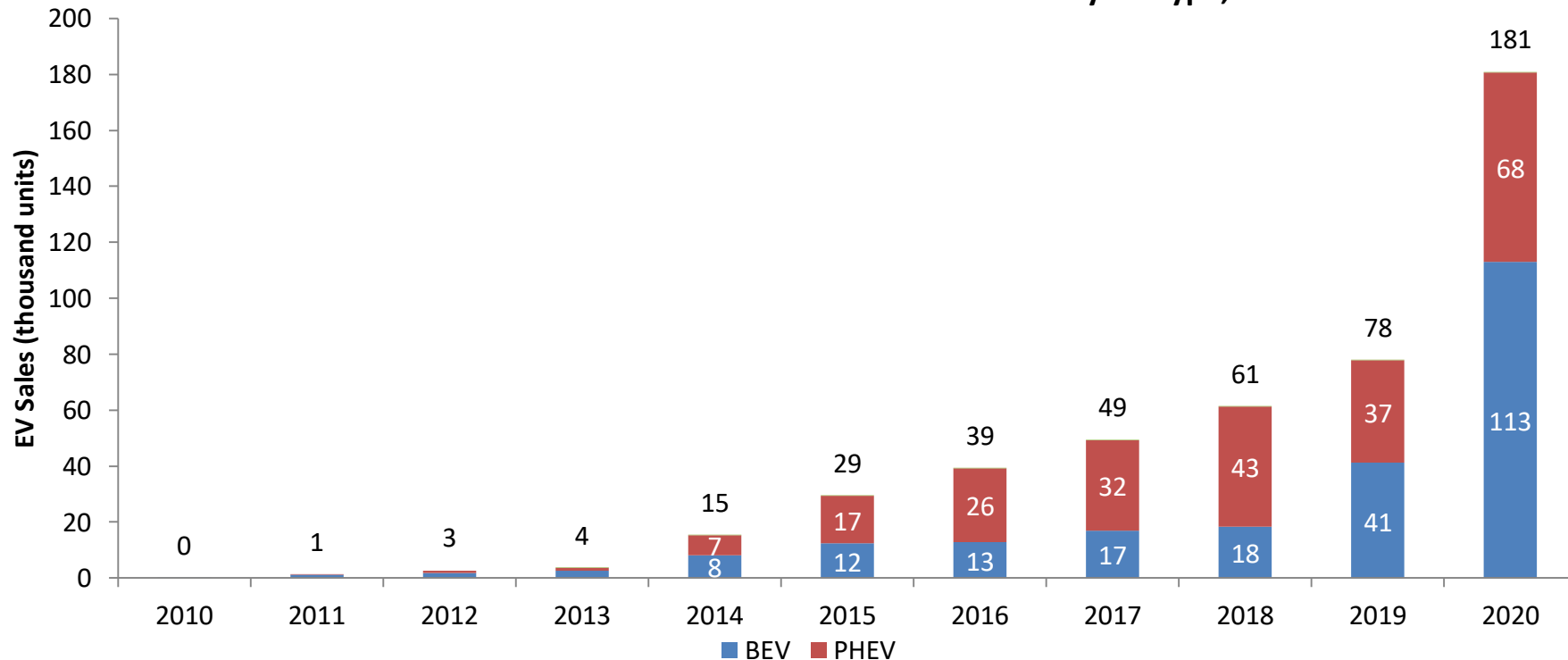
EV Sales by Country (Top 5) by Vehicle Type, Europe, 2020



UK Electric Vehicles Market

Over 180,000 EVs were sold in UK in 2020, 62% by BEV and 38% by PHEV

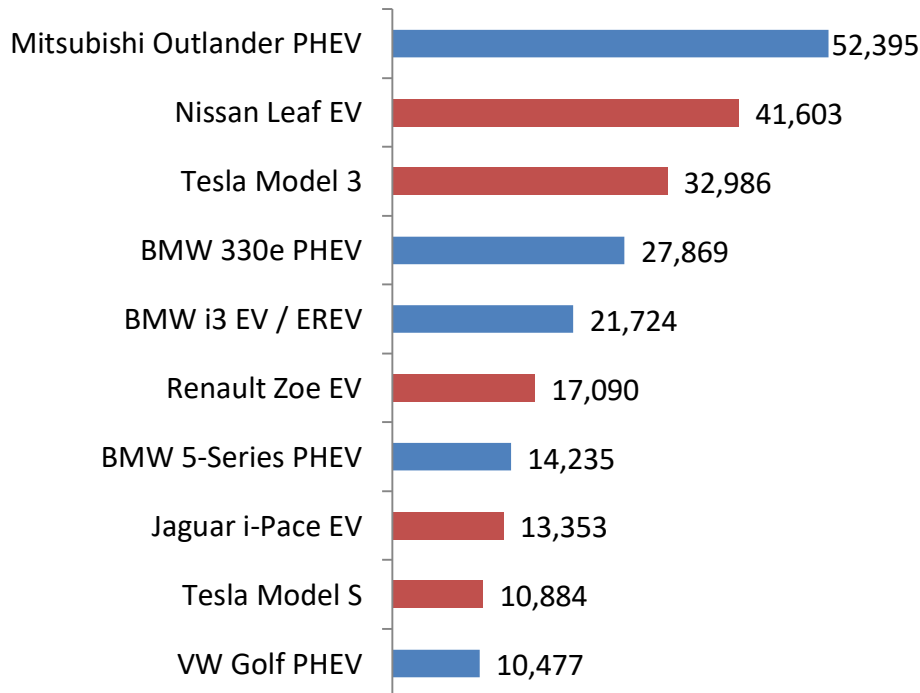
UK Electric Vehicles Market: EV Sales and Penetration Rate by EV Type, 2010-2020



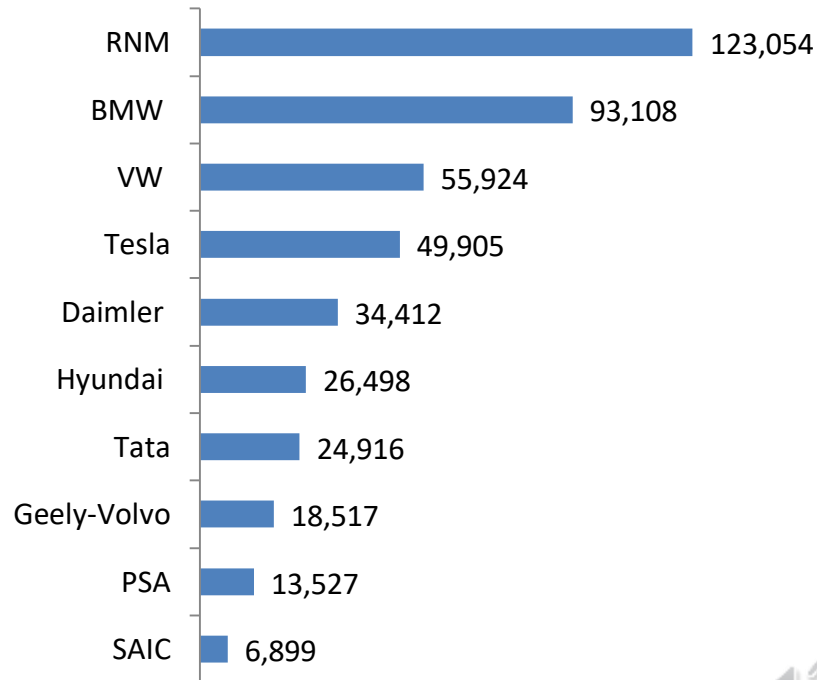
Cumulative BEV & PHEV Sales

More EV models are ranked in the top 10. RNM is the top EV maker which sells EV in different brands

UK Electric Vehicles Market: Cumulative EV Sales by Top 10 Models, 2010-2020



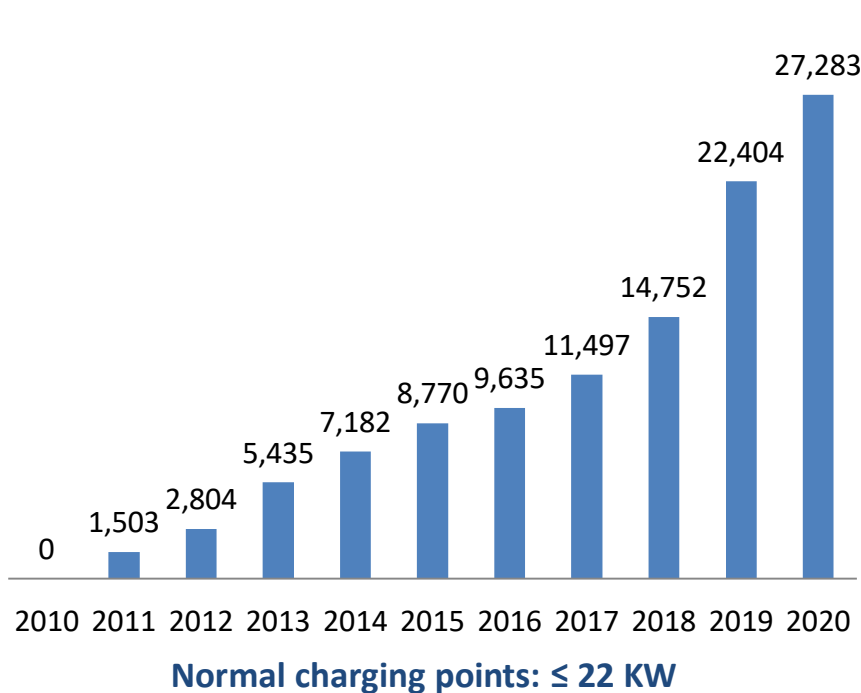
UK Electric Vehicles Market: Cumulative EV Sales by Top 10 OEMs, 2010-2020



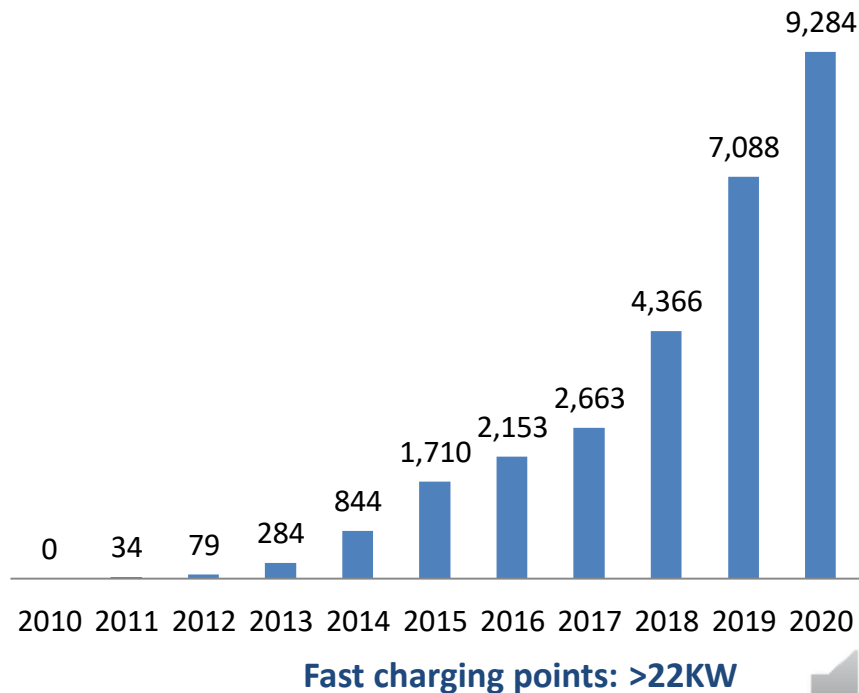
Normal & Fast Charging Points (2010-2020)

UK has over 36,000 charging points in 2020, increased by 24% from 2019, fast charging accounts for 25% of total charging points.

**UK Electric Vehicle Market: PEV Normal
Charging points, 2010-2020**



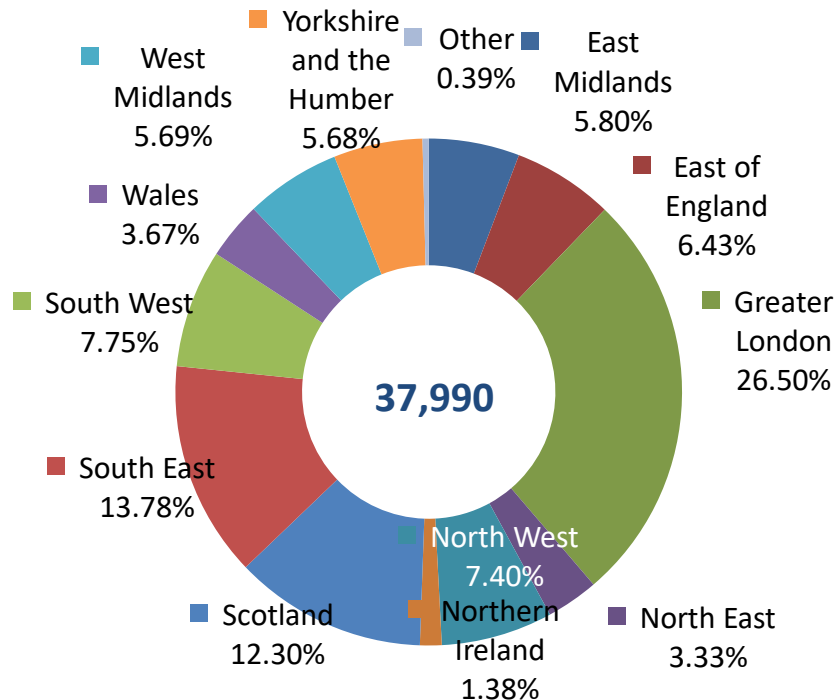
**UK Electric Vehicle Market: PEV Fast
Charging points, 2010-2020**



Charging Connectors by Location

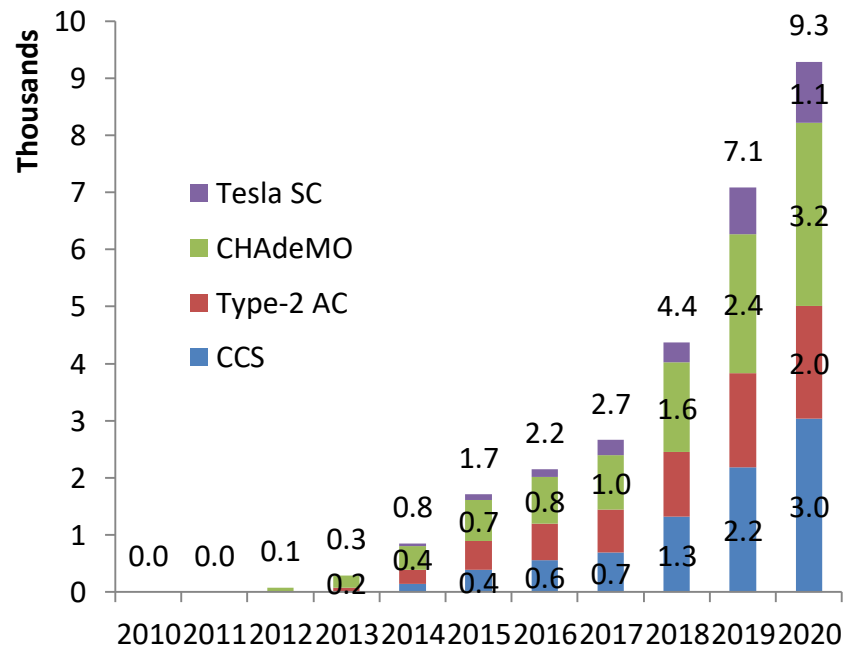
CCS has been increasing the charging points, and close to CHAdeMO in terms of number of charging points

UK Electric Vehicle Market: Charging Connectors, by Region, 2021*



*as of 16 Feb. 2021

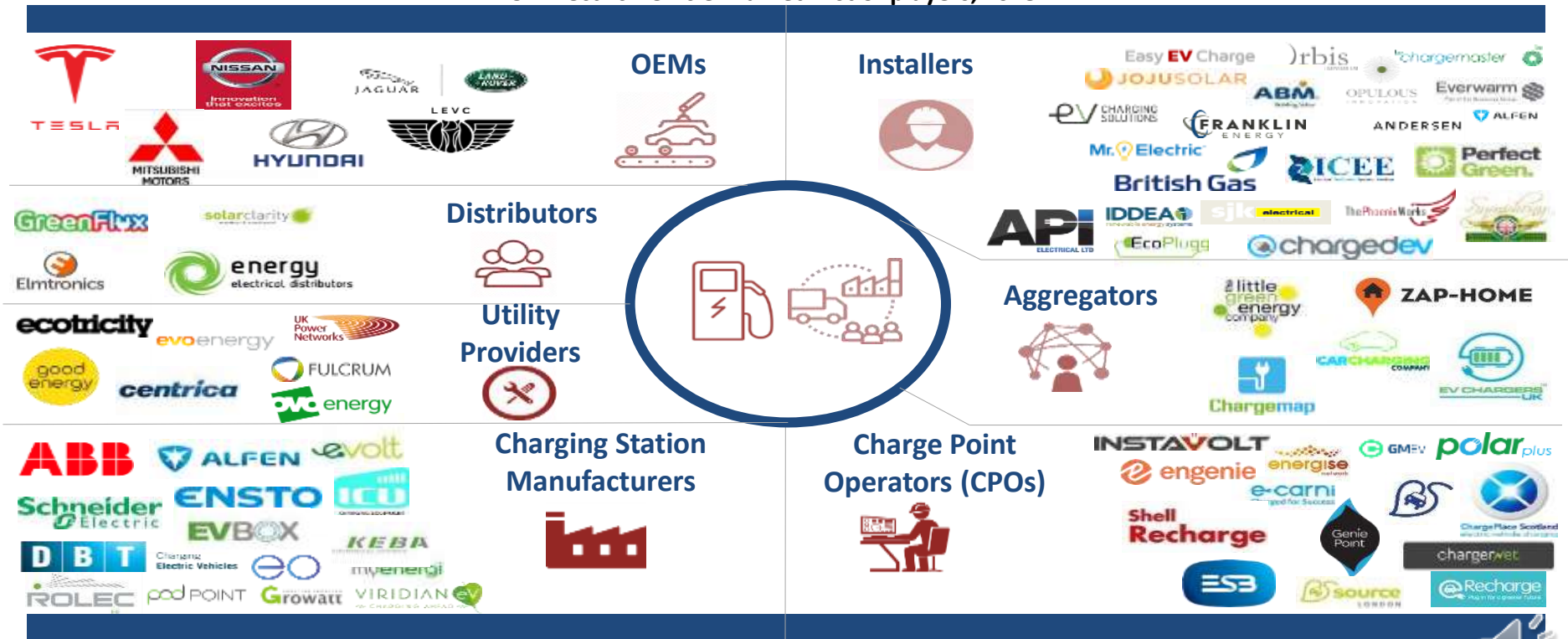
UK Electric Vehicle Market: Type of Fast Chargers, 2010-2020



List of Players within Identified Value Chain in UK

Currently, UK is home to a lot of charging station manufacturers but many more installers are expected to rise in the future

UK Electric Vehicle Market: List of players, 2018



Source : Frost & Sullivan



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London Electric Vehicle Strategy



TfL currently offers 225 rapid charging points



London offers over 300 rapid charging points in collaborating with public and private sector



New licensing requirements for PHVs since January 2020



LoCITY: Industry led programme to support fleet and logistics sector



Zap-Map for locating charging point



Exclusive charging points are dedicated for 3,000+ electric taxis



Source London (Bolloré Group), ESB EV Solutions, GeniePoint, POLAR to install public charging points



Road side NO2 levels reduced by 36% in ULEZ in 2019

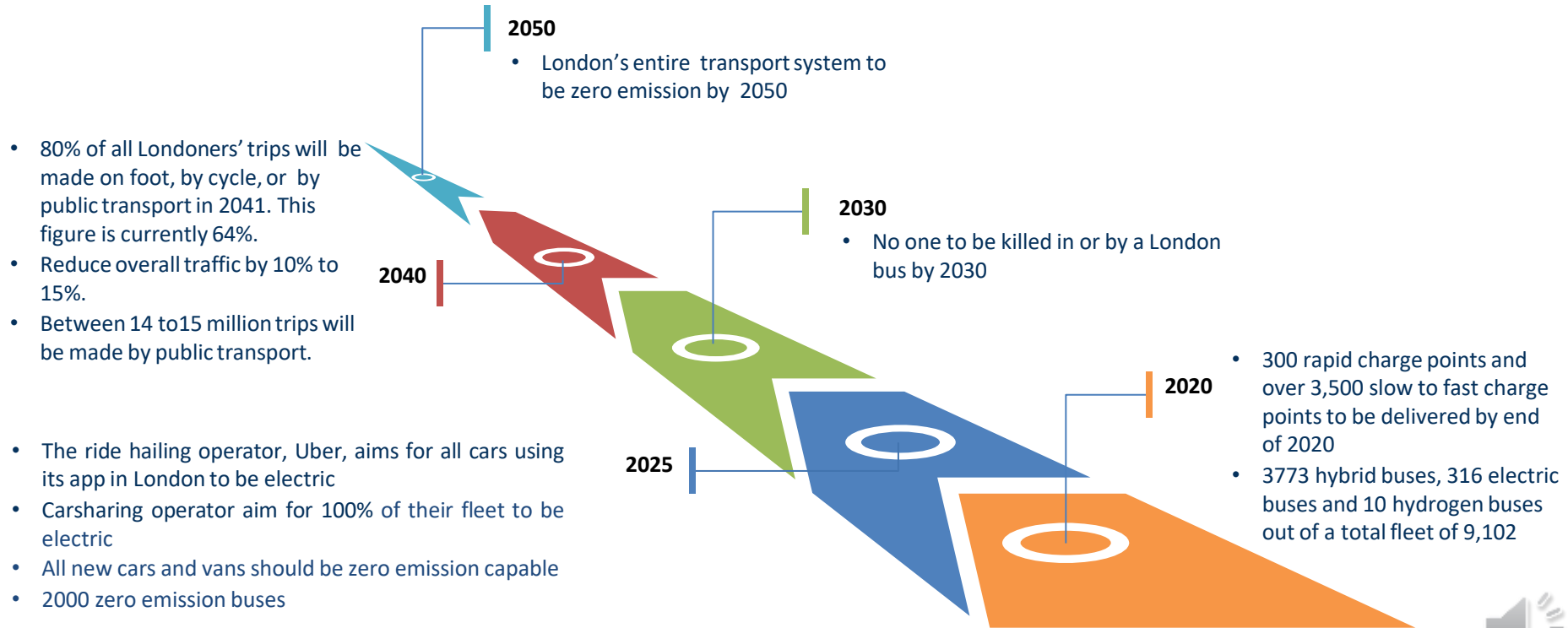


Dedicated e-taxi bays being installed for push towards Black e-cab fleet as part of Mayor's Taxi and PHV Action Plan

- The city received £4 Mn investment in Q4 2019 towards development of EV infrastructure which includes installation on over 1,000 EV charging points across 29 boroughs expanding the overall charging network in addition to the existing 1,500 charge points.
- The Go Ultra Low City Scheme (GULCS) for push towards Low Emission Vehicle Infrastructure aims to increase adoption of EVs while supporting the overarching goals set by the Mayor's Transport Strategy to drive 80% journeys through public transit, cycling and walking by 2021.

London Growth Environment- Roadmap to Smart City Mobility

The mayor of London has chartered a roadmap which has set out regulations and key targets to steer London towards greener transport solutions



Source: Frost & Sullivan

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UK's Attractiveness for Japanese Companies in Clean Mobility

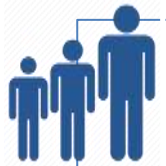
Large number of mobility start-ups can be attractive for Japanese companies to invest in UK



Positive image on UK, familiar, friendly



Similar value on society



Similar social status & structure



Strong academic and research base



Large number of Mobility start-ups



Larger EV markets and ecosystem



Strong government policy on Clean Mobility



Attractive incentives for investments



Attractiveness of Japanese Companies for UK Business

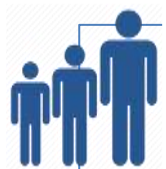
Japan's large automotive industry and players can be attractive for UK businesses to partner with



Positive image on Japan



Similar value on society



Similar social status & structure



Large automotive industry & players



Large number of Mobility patents



Advance EV technologies



High level of craftsmanship



Summary & Conclusions

UK has a number of mobility start-ups which have attracted \$34 billions (world No. 3 after US and China) in 2010-2019.

Japan has filed a number of patents in mobility (connected, autonomous, shared and electrification).

The EV market in UK is one of the largest in Europe, and both the number of EVs and charging infrastructure have been growing rapidly in the past decade. The UK EV market is expected to grow further by the government strong policy and incentives.

The UK EV market can be attractive for Japanese companies to invest because of large number of mobility start-ups and attractive incentives.

The UK business is expected to benefit from Japanese companies investing in mobility, especially Clean Mobility, thanks to Japan's large automotive industry base.



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