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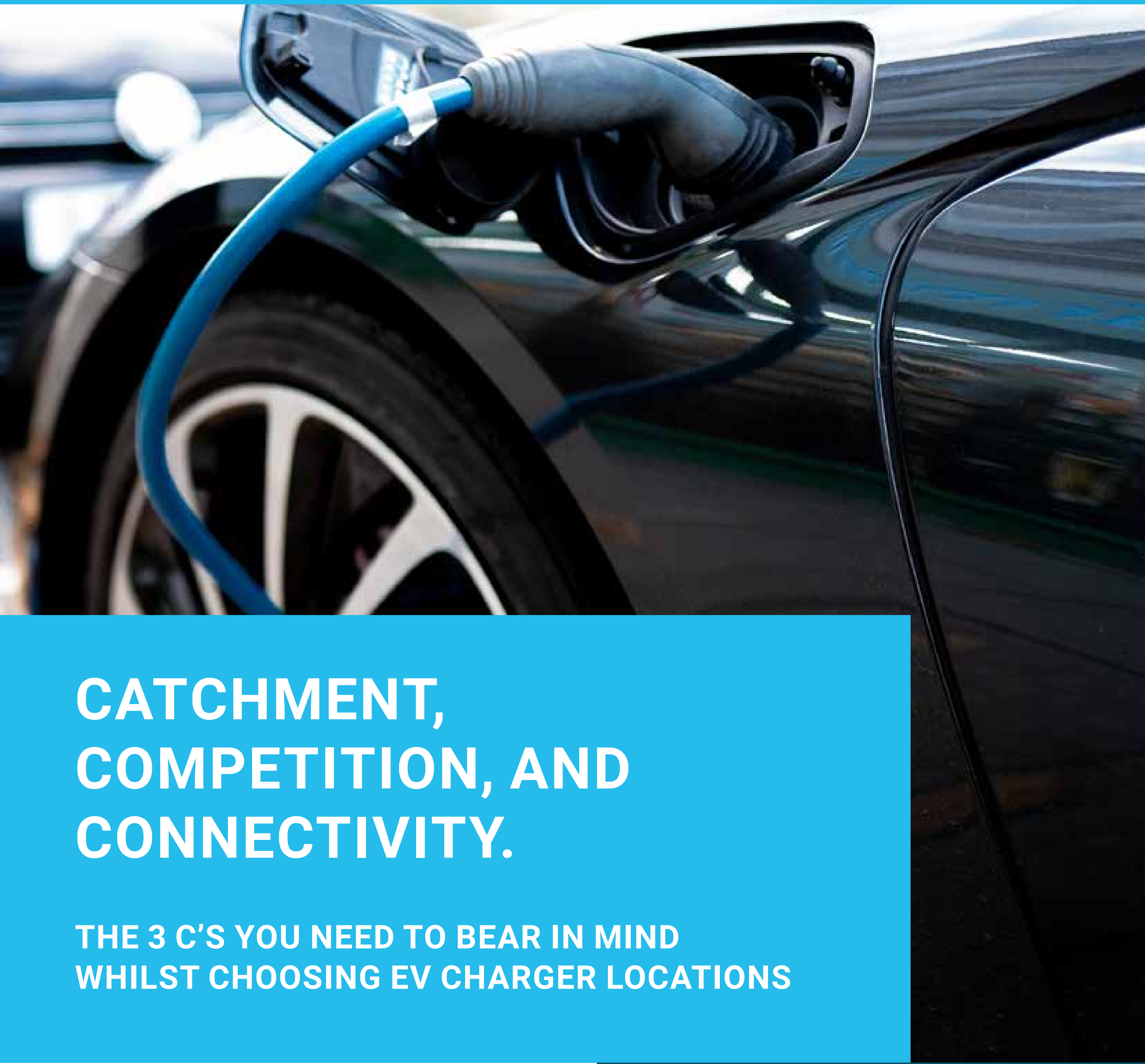

CATCHMENT, COMPETITION, AND CONNECTIVITY.

THE 3 C'S YOU NEED TO BEAR IN MIND WHILST CHOOSING EV CHARGER LOCATIONS

0121 232 8050
info@field-dynamics.co.uk
www.field-dynamics.co.uk

Discover the 3 key things you need to consider when planning the deployment of electric vehicle chargers.

THOUGHT LEADERSHIP

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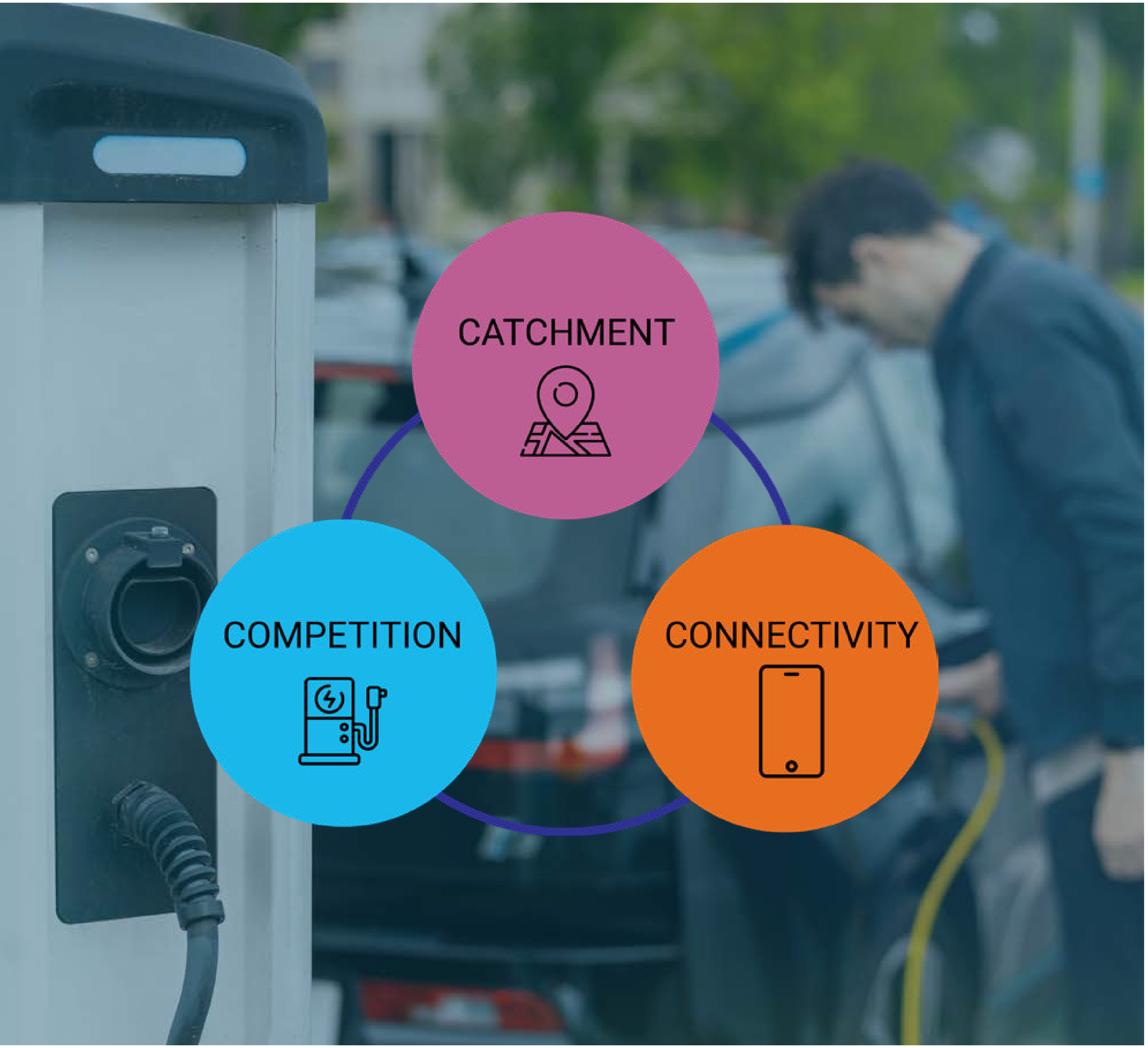
AUTHOR

CHARLIE GILBERT
PARTNER
charlie.gilbert@field-dynamics.co.uk



CATCHMENT, COMPETITION, AND CONNECTIVITY.

INTRODUCTION

There is no doubting the value of getting "where" right when it comes to EV charging infrastructure. The placement of your charger will continue to be the key factor in ensuring the best possible chance of high asset utilisation and that all important return for you and your investors.

With the continued uptick of all speeds of charger going into the ground, new national agreements formed, and pent-up demand for EVs from both households and businesses, there are still many opportunities to develop new and existing locations. Saturation point is currently almost unimaginable.

We have looked at the three most important location-based factors to help with network planning and roll out prioritisation for CPOs - Catchment and Competition and Connectivity.

Across all these categories, its important to be able to attach a metric to them, so you can directly compare and contrast the relative strengths and weaknesses of locations in a consistent manner that allows for easy refresh.

THE 1ST C

CATCHMENT

The concept of charger catchment was introduced by Field Dynamics in our on-street household research (2020), with a comparable conceptual metric being the catchment area of a bus stop or a school (e.g. 1-2 miles).

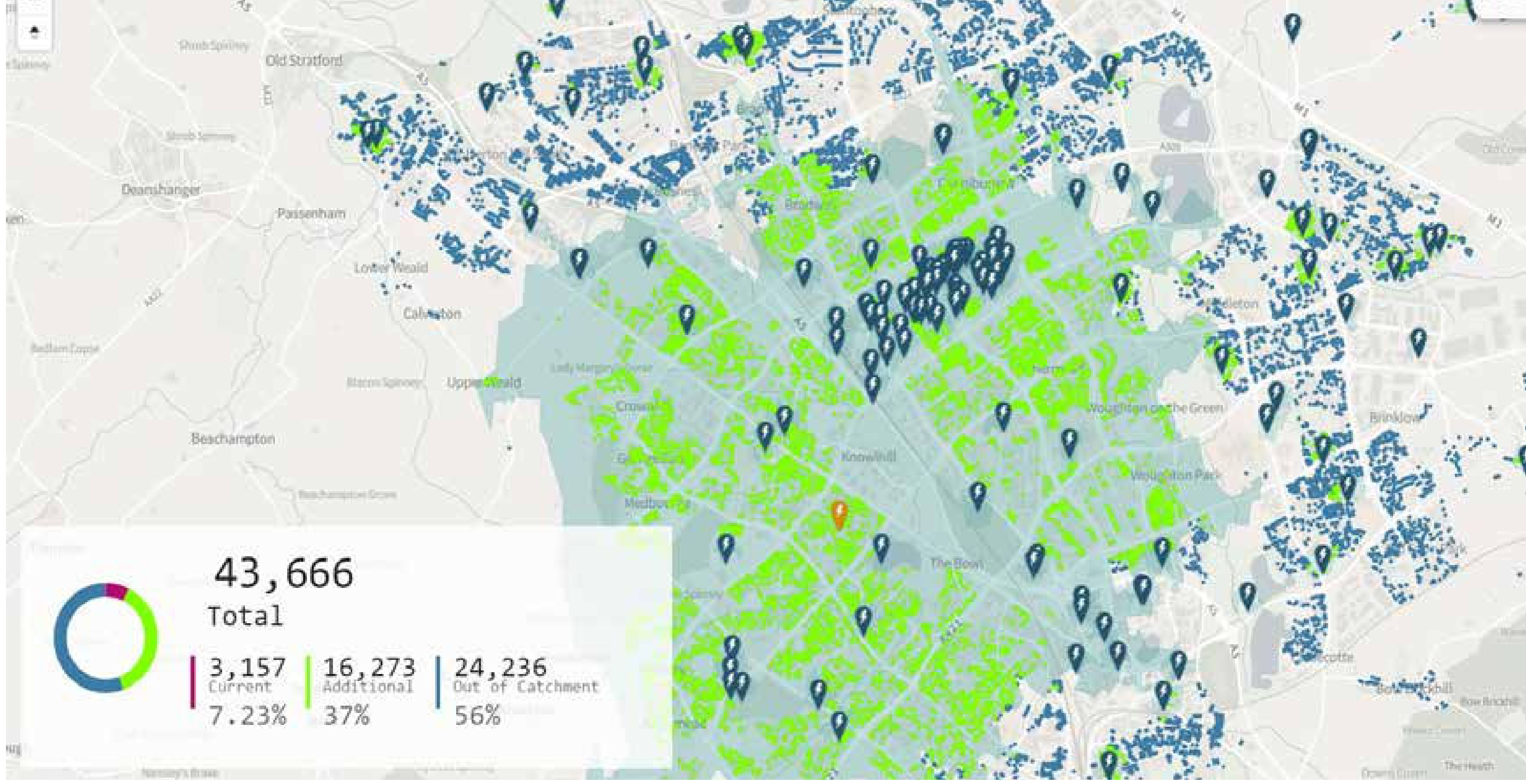
The advantage of having a catchment based on time is that it will generate isochrones that vary according to the nature of the road network (or urban path network if you are walking). Catchments create polygons, and you can then count up what is inside each one.

An acceptable walk-time to a nearby charger from an on-street household was originally set at five minutes. As there was no 'standard' or 'official' metric at the time we sensibly invented one! This allowed us to derive statistics – e.g., 90% of non-London on-street households were not within a 5-minute walk of a public charger.

However, this value is already reducing and becoming ever more nuanced. Whilst drivetimes and walk times are useful and provide consistency, we often need to consider other factors.

Many local authorities now view 3 minutes as being the accepted time to walk to a public charger. Recent DfT research[1] suggests 79% of current non-EV drivers walk less than two minutes to their ICE vehicle. However, it's not just the time, there are also other considerations. Do drivers really want to walk three minutes at night, in the cold? There is also the layout of the road network to consider.

The significance of what is near is also becoming increasingly more nuanced.



THERE ARE 3 CATEGORIES:

01 WHAT IS IN THE IMMEDIATE VICINITY? WHAT ELSE CAN I SEE?

02 WHAT IS WITHIN A SHORT DRIVE? MAYBE 5 OR EVEN 10 MINUTES? THIS COVERS THOSE DRIVERS WHO WANT TO MAKE A JOURNEY FOR BOTH PRIMARY (I GO TO CHARGE) AND SECONDARY (I DO SOMETHING ELSE WHILST I CHARGE) PURPOSE.

03 WHAT MIGHT BE IN A BROADER CATCHMENT – THIS WILL DEPEND ON WHAT THE TYPE OF LOCATION IS – E.G., AN ATTRACTION HAS A MUCH LARGER CATCHMENT THAN YOUR LOCAL SUPERMARKET FOR INSTANCE.

5 STEPS IN THE PROCESS

01 Decide the type of catchment you want – drivetime or walktime.

02 Decide the time you want to model travelling – time is the best option. Distance skews results – especially in busy urban areas

03 Decide what you want to count that is inside your catchment e.g. on-street households, fleet footprint, length and type of road, number of substations

04 Run this analysis across all your locations (you will need to consider an approach when catchments overlap each other)

05 Undertake variance analysis

IMAGE: Real life example – CatchmentModeller tool used by over 80 Councils to help support Charger funding applications

1: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1061865/public-ev-charging-infrastructure-research-report.pdf

THE 2ND C

COMPETITION

In Stourbridge, West Midlands, there are three fuel forecourts (Esso with a Tesco Express, BP with M&S and Shell with a convenience store, all within 200m of each other. Currently no sites offer EV charging.

Will they all offer EV charging? Will one of the pubs opposite the garages provide charging also? If so, what type will it be? The train station 500m further on has space for over 1,000 vehicles. Surely that will offer something too. The reality is that in time they probably all will, for different use cases, but who will get there first?

With over 8,000 additional chargers so far this year (ZapMap, December 2022) understanding what the competitive landscape is will become ever more important. Will prime locations become "locked out"?

Land grabs from "first mover advantage" providers will make some target areas higher risk or may provide an opportunity for new entrants to deliver newer and faster technology first and become the dominant go-to provider in an area.

With fewer locations to choose from, suppliers will eventually need to start to differentiate from each other by offering different service offerings (price, convenience, and on-site services) as fuel forecourt providers always have done.

Even so, there are still a number of stellar existing and greenfield locations up for grabs – they will all need evaluating in relation to each other.

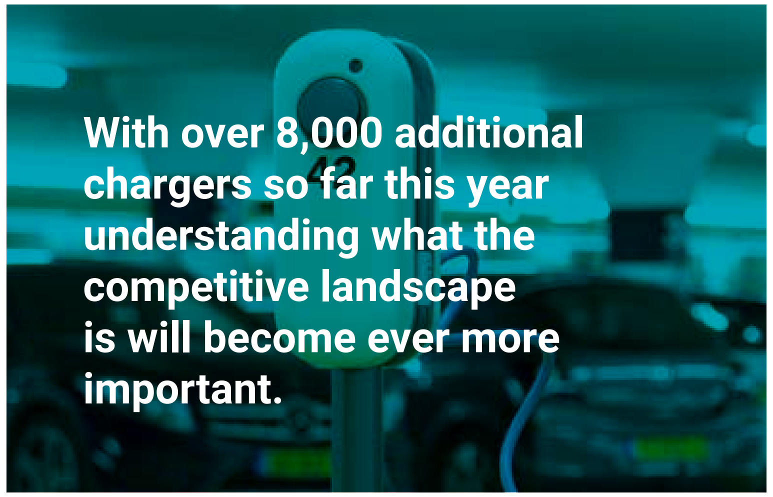





IMAGE: Potential Charging Points within a close proximity to each other - Stourbridge. Images from Google Street View.

5 STEPS IN THE PROCESS

01 Tightly define competition in terms of market segment – off-street households, actual competitors or future competitor points of interest may be examples.

02 Source data (addresses or coordinates) and create truly comparable options. Comparing on-street and ultra-rapid may not be that valuable as they serve different use cases.

03 Analyse the proximity to competitors in your proposed locations (as the crow flies or using routing data). You can also calculate additional metrics - e.g. avg. minimum distance from one charger to another within catchment.

04 Aggregate other datasets – may require other spatial queries e.g. proportion overlaps / weighted distributions.

05 Undertake variance and correlation analysis to determine attractiveness groups you can then segment for discussion and internal stakeholder engagement.

THE 3RD C

CONNECTIVITY

Grid connectivity is viewed as a fundamental data point. With data not yet uniform, it is difficult to obtain an indication of headroom and capacity without submitting a connection application or a manual trawl around various opendata or notsoopendata portals hosted by the Distribution Network Operators (DNOs).

This is an area where great efforts are being made to make this data more accessible, but it is still a challenging area for many.

And it is not the only connectivity challenge. Just as there is a no single dataset that tells us where all the substations are, there is also no single dataset that tells us how much traffic flows the end of a proposed site on the road network. Mobile Network Data (MND) does offer a specific location approach and whilst we may be able to determine how many cars go passed the site at 10am on a Tuesday vs 10pm on a Thursday, this comes at a cost when we may be evaluating hundreds or even thousands of sites. Choosing the right datasets to use at the right time, at the right level of detail and aggregation is key.

Finally, in rural areas in particular we need mobile connectivity. It is frustrating not being able to pay for a car parking if your mobile signal is poor. The same will apply for EV charging in destinations, which will be in real need of charging with visitors travelling long distances and staying for long periods of time – a perfect opportunity. The example shown (Bigbury-on-Sea in Devon) has a paid for car park which uses an app, all good except where users have a one-bar mobile signal and and their relaxing day on the beach starts with a frustrating search for signal before they can charge their car. And the last time I looked, I haven't come across an EV charger that has a coin slot.

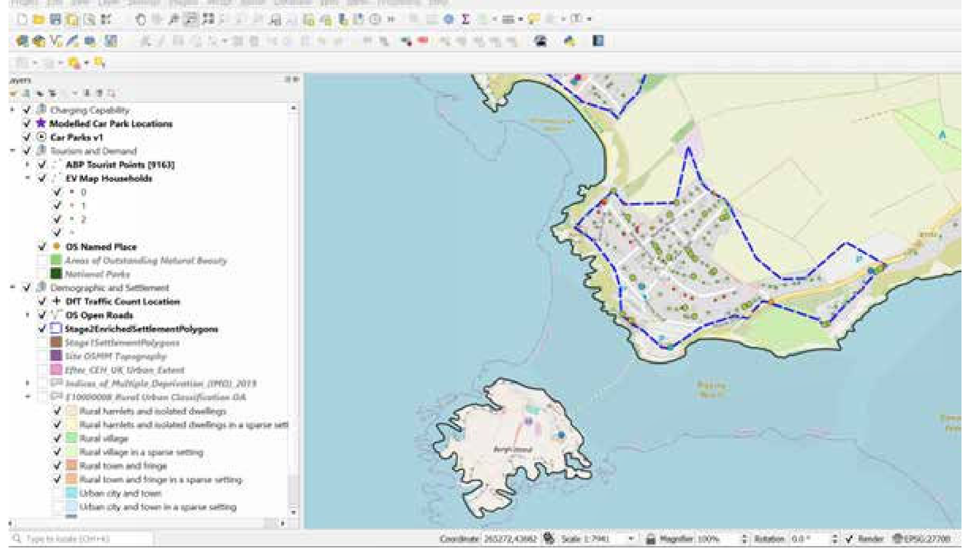


IMAGE: Bigbury-on-Sea, Devon – example from REME Innovate UK project focussed on solving the challenges of EV charging in rural areas. Image from Google Street View.

5 STEPS IN THE PROCESS

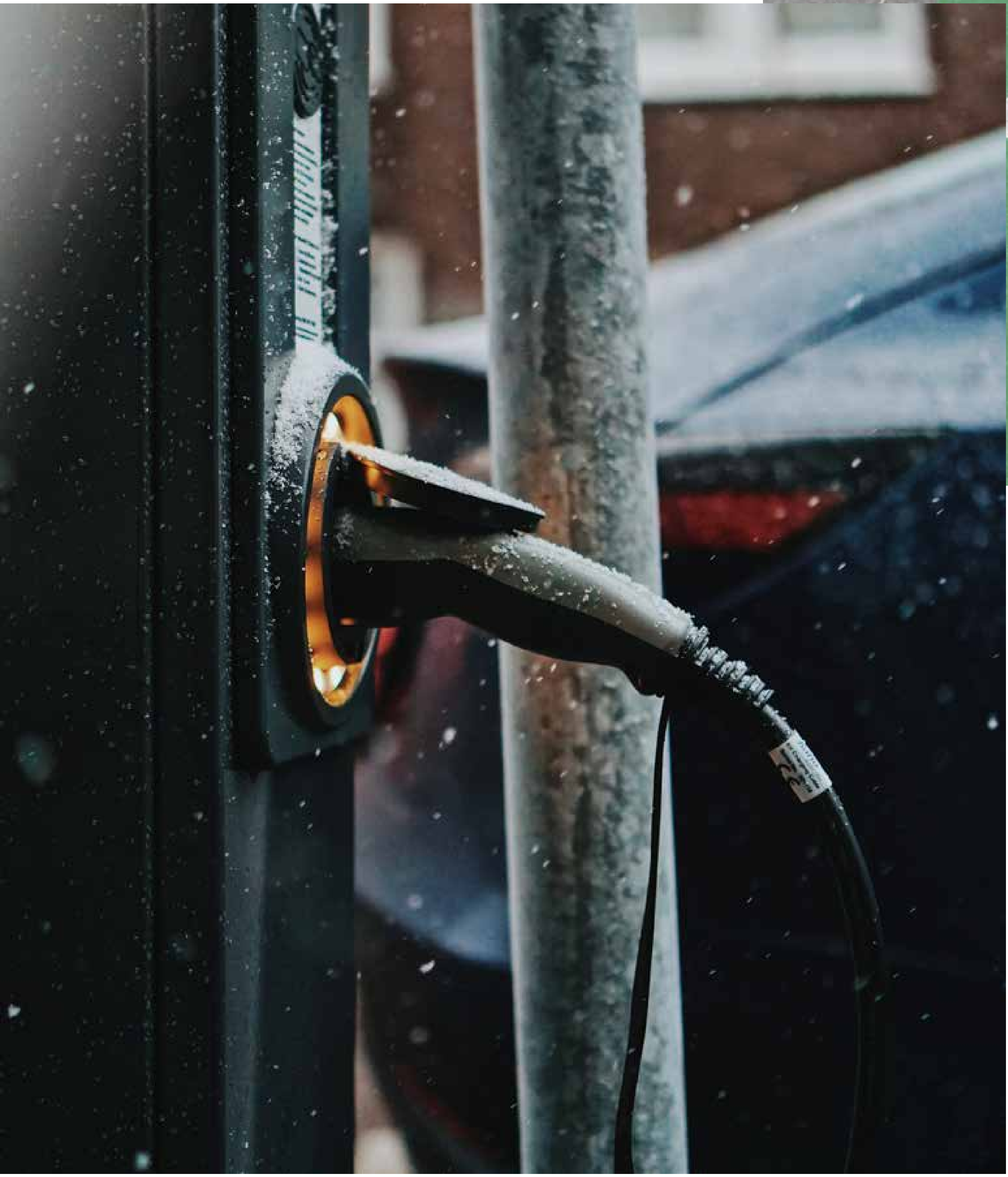
01 Decide what connectivity measures you require

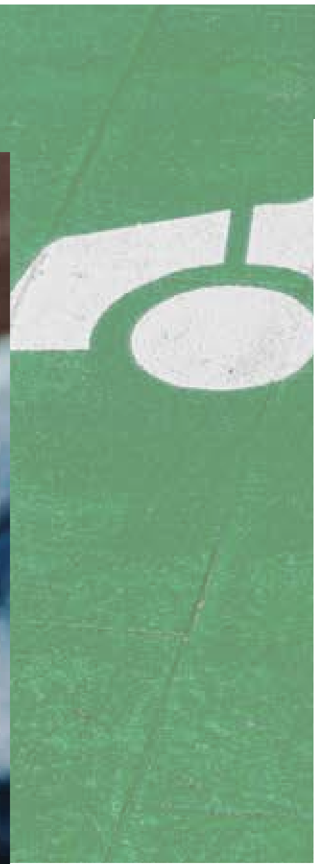
02 Consider options for sourcing data e.g. mobile coverage data, network headroom, traffic and road network data

03 Agree methodology for linking metric to site – e.g. nearest, postcode link, aggregated stat within a catchment

04 Collate data manually for one site

05 Consider automation process of connecting and retrieving data for multiple sites





THE 3 C'S

CONCLUSION

Catchment, Competition and Connectivity represent the three categories of location data that are becoming mainstream data items in the analysis of locations for EV charging.

As the market becomes more competitive with fewer prime locations, suppliers will be looking to differentiate more, the quest for more accurate, timely and granular data will no doubt continue.

Once you have collated all the data for your three areas there is then the challenge of bringing them together and deciding which of the factors you have measured are most significant. What is more important – what's in or not in your catchment, your competition, or your connectivity? This very much depends on your target market.

However, once you decide this you can then obtain a complete and empirical assessment of all of your locations in scope and iterate your parameters.

For more information about Field Dynamics and our work, please contact us.

Phone: 0121 232 8050
E-mail: info@field-dynamics.co.uk
www.field-dynamics.co.uk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