FROST & SULLIVAN

Connected Kerb

2022 NEW PRODUCT INNOVATION

European Electric Vehicle Charging Equipment Industry

Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Connected Kerb excels in many of the criteria in the electric vehicle charging equipment space.

Industry Challenges

The European charging equipment market comprises many new entrants offering different solutions such as home charging or motorway fast charging. There have been numerous challenges in developing charging infrastructure to date, such as proximity of chargers, roaming between different charging providers, and network reliability, all of which are critical decision factors in an electric vehicle (EV) purchase. Something that notably lacks in the shift to electrification so far is on-street charging solutions. A 2016 English housing survey found that 34% of homes rely on on-street parking[1], with a further 28% facing challenges with access and power supply. All of this creates a large requirement for this charging type to meet the needs of over 60% of the UK population. With its accessible and affordable on-street charging solution, this is a challenge that Connected Kerb hopes to solve.

Match to Needs

Connected Kerb focuses on several customer types, including residential developments, commercial, public sector, local authorities, and workplaces. With each customer, Connected Kerb aims to satisfy a need to improve the charging offering at the respective location, with the solutions aimed toward long-dwell charging.

[1] English Housing Survey, Ministry of Housing, Communities & Local Government, 2016 (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/880323/Stock_condition_-_REVISED_APRIL_2020_FINAL.pdf)

Whether installing or upgrading the charging infrastructure, Connected Kerb can support the whole process, including the planning, funding, installation, maintenance, and customer service. Helping customers with grants, private funding, and return on investment analysis is a way for the company to differentiate from competitors and ensure that customers see the full potential of their charger investment.

One of Connected Kerb's focus areas is on-street charging solutions. Since many UK homeowners are without private driveways for charging, this is a significant challenge. Off-street parking is particularly limited in city centers where air pollution is also a major concern.

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>
> ***- Robert Camm, Senior Consultant***

Figure 1: Connected Kerb Charging Coverage, UK (Source: Connected Kerb LinkedIn)

An example of Connected Kerb's success is the installation of 22 on-street 7 kW chargers in Lambeth, London. This installation aims to provide affordable and accessible chargers to residents and enable a switch to electric.

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Reliability

Reliability is central to Connected Kerb's customer experience. Out-of-order chargers were a common pain point for early EV adopters, and for many, this is still a reason to avoid switching. To tackle this, Connected Kerb emphasizes improving the charger uptime so that when an EV owner needs to charge, the charger is operational. Connected Kerb quotes approximately 98% uptime for chargers, about 20% greater than one of its largest competitors.

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One way the company addressed the charger reliability challenge was with the implementation of predictive analytics. Through the Assure Charge project with PNDC and Innovate UK, Connected Kerb uses connected data from existing charging infrastructure to develop the platform and refine predictive and preventive maintenance models. The long-term goal is for the model to be accessible to all charge point operators, contributing to a more reliable network and using larger amounts of data to refine this over time.

Design

Connected Kerb offers three main charging solutions: Gecko (floor-mounted on bollards or parking posts, see Figure 2), Limpet (the wall-mounted solution), and Chameleon (floor-mounted and with 2 sockets integrated into a bollard or parking post). Connected Kerb manufactures each charger from recycled materials (plastic, tyre rubber and/or metals), enabling a positive impact on the environment.

Figure 2: Connected Kerb Gecko Charger (Source: https://www.connectedkerb.com/products/gecko)

The system design is unique, with the core components for the charger stored underground in a protective unit and only the socket installed above ground. Each of the three solutions follows the same approach. The design aims to reduce the chargers' visual impact, particularly when multiple chargers are installed along the same street.

Another important design aspect is the charging solution's modularity. This has several purposes, such as improving charger uptime and reducing the overall cost. Should one component in the system fail, it is possible to replace it rather than replace the whole unit. Although sockets are one of the most common failures across charging solutions, in Connected Kerb's system they can easily be replaced, reducing repair time and cost. Modularity also allows them to be upgraded over time, enabling charger upgrade from 7 kW to 22 kW or upgrading the chargers' connected features.

Connected Kerb uses the installation of charging systems as an opportunity to install other infrastructure to the area to offer customers additional value and reduce overall work in a given area. This could include the installation of fast fiber or the routing for a later installation. The company can also fit chargers with environmental sensors such as parking sensors and traffic or air quality monitors to improve local data collection.

Connected Kerb recognizes the importance and potential of connected vehicles and has equipped its chargers with 3G/4G and Wi-Fi capability. In the future, it can fit chargers with 5G repeater cells and fast fiber to increase vehicle connectivity and for data download or transfer while charging.

Having a design that meets current and future requirements is vital to increasing adoption and delivering suitable payback for customers. Connected Kerb also anticipates wireless charging as a future technology trend and ensures that even this would be compatible with the base units installed today.

While there are many elements to the Connected Kerb charging design, the company offers customers a tailored approach to capture requirements and ensure each installation meets their specific needs.

Price/Performance Value

Connected Kerb aims to deliver value to both customers and end users of charging points.

The company provides customers with durable and reliable products that it can easily repair and upgrade, reducing the need for expensive infrastructure works during the product life cycle.

End users' concern is on the charging cost rather than for the charger itself. Connected Kerb aims to offer competitive energy prices without the need for additional subscriptions, bespoke charging hardware, or minimum charge quantities to maximize the value for end users. While the energy price can vary by installation due to multiple local factors, the average price offered is ~£0.23/kWh, one of the most affordable compared to competitors. In the case of public installations, Connected Kerb and the local authority agree on the tariff, with a profit share agreement in place. By removing the subscription and minimum charge times, the cost is transparent for users and fully accessible. In comparison, char.gy offers pay-as-you-go 7 kW charging for £0.33/kWh, reducing to £0.195/kWh with a £38.99 monthly subscription. Ubitricity's pay-as-you-go tariff costs £0.24/kWh, which reduces to £0.162/kWh with membership. However, this requires purchasing the £299 charging cable and a £7.99 monthly subscription.

> *"Connected Kerb is conducting the Agile Streets project to test smart metering for chargers to further drive customer value. This project involves 100 on-street chargers across East Lothian, Glasgow, Hackney, and Shropshire in collaboration with Samsung and Octopus Energy. The Connected Kerb application gives users the option to optimize their charging across the expected dwell time. The total cost of charging can be reduced using live energy pricing and charging at the lowest energy prices, with an estimated saving of up to 40%."*
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Customer Ownership Experience

Connected Kerb aims to deliver the best-in-class customer ownership experience. A key metric in measuring this success is charger utilization. They drive high utilization through several methods, including improved network reliability and offering quality customer service. Another way is through community engagement to promote electric vehicles and charging capability in a given area.

Examples of how Connected Kerb engages with the community include hosting launch events to promote the installation of chargers to the local community and through the EV trial program. The trial program involves loaning residents electric vehicles for free to experience EV ownership. This can help to overcome purchasing barriers such as a perceived lack of chargers or range anxiety. When expanding into a new area, the company may place several vehicles in a community. After one resident has trialed the vehicle for one month, the company will give it to another resident for trial. This engagement aims to create EV ambassadors in the community, increasing adoption and network usage over time.

Customer Service Experience

Connected Kerb emphasizes customer service and strives to support customers with any inquiries and resolve issues they might be experiencing. The company offers direct support through call centers, operating a '5 ring' policy to answer all calls promptly. It aims to set itself apart from larger competitors who may have long telephone queues to resolve issues with charge point operation.

The company resolves over 85% of inquiries directly through the call center, enabled in part by the system's connected features for remote repair. A key differentiator of the Connected Kerb customer service is that the operator will escalate calls directly to more senior team members if they cannot resolve the issue. This shows the attention placed upon delivering excellent customer service.

Connected Kerb also monitors chargers 24 hours a day with its software. This means that in some cases, the company can resolve the charging network issues before customers discover them, contributing once again to an enhanced customer service experience.

Conclusion

Connected Kerb launched various products that support the expansion of charging infrastructure, establishing itself as an innovator. The company designs its products to be cost-effective and reliable during the lifecycle. The ability to upgrade the chargers shows forward planning and is one of the reasons councils across the UK select Connected Kerb as a charging partner. Beyond simply offering charger units, it established leading connected features and data collection ability to deliver added value for customers. The Agile Streets project demonstrates a commitment to deliver continued value for end users, providing a considerable cost-saving potential. Connected Kerb continues its expansion, focusing on increasing charging accessibility for those most in need while delivering best-in-class customer services. With its strong overall performance, Connected Kerb earns Frost & Sullivan's 2022 European New Product Innovation Award in the electric vehicle charging equipment industry.

What You Need to Know about the New Product Innovation Recognition

Frost & Sullivan's New Product Innovation Award recognizes the company that offers a new product or solution that uniquely addresses key customer challenges.

Best Practices Award Analysis

For the New Product Innovation Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

New Product Attributes

Match to Needs: Customer needs directly influence and inspire product design and positioning

Reliability: Product consistently meets or exceeds customer performance expectations

Quality: Product offers best-in-class quality with a full complement of features and functionality

Positioning: Product serves a unique, unmet need that competitors cannot easily replicate

Design: Product features an innovative design that enhances both visual appeal and ease of use

Customer Impact

Price/Performance Value: Products or services provide the best value for the price compared to similar market offerings

Customer Purchase Experience: Quality of the purchase experience assures customers that they are buying the optimal solution for addressing their unique needs and constraints

Customer Ownership Experience: Customers proudly own the company's product or service and have a positive experience throughout the life of the product or service

Customer Service Experience: Customer service is accessible, fast, stress-free, and high quality

Brand Equity: Customers perceive the brand positively and exhibit high brand loyalty

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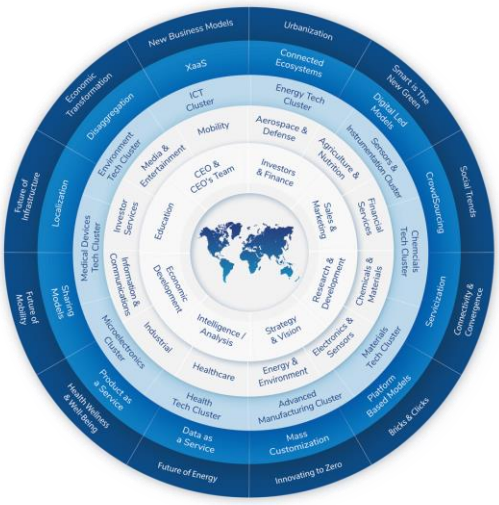
- **Innovation Culture:** *Optimized Customer Experience*
- **ROI & Margin:** *Implementation Excellence*
- **Transformational Growth:** *Industry Leadership*

The Innovation Generator™

Our 6 analytical perspectives are crucial in capturing the broadest range of innovative growth opportunities, most of which occur at the points of these perspectives.



Analytical Perspectives:

- Mega Trend (MT)
- Business Model (BM)
- Technology (TE)
- Industries (IN)
- Customer (CU)
- Geographies (GE)