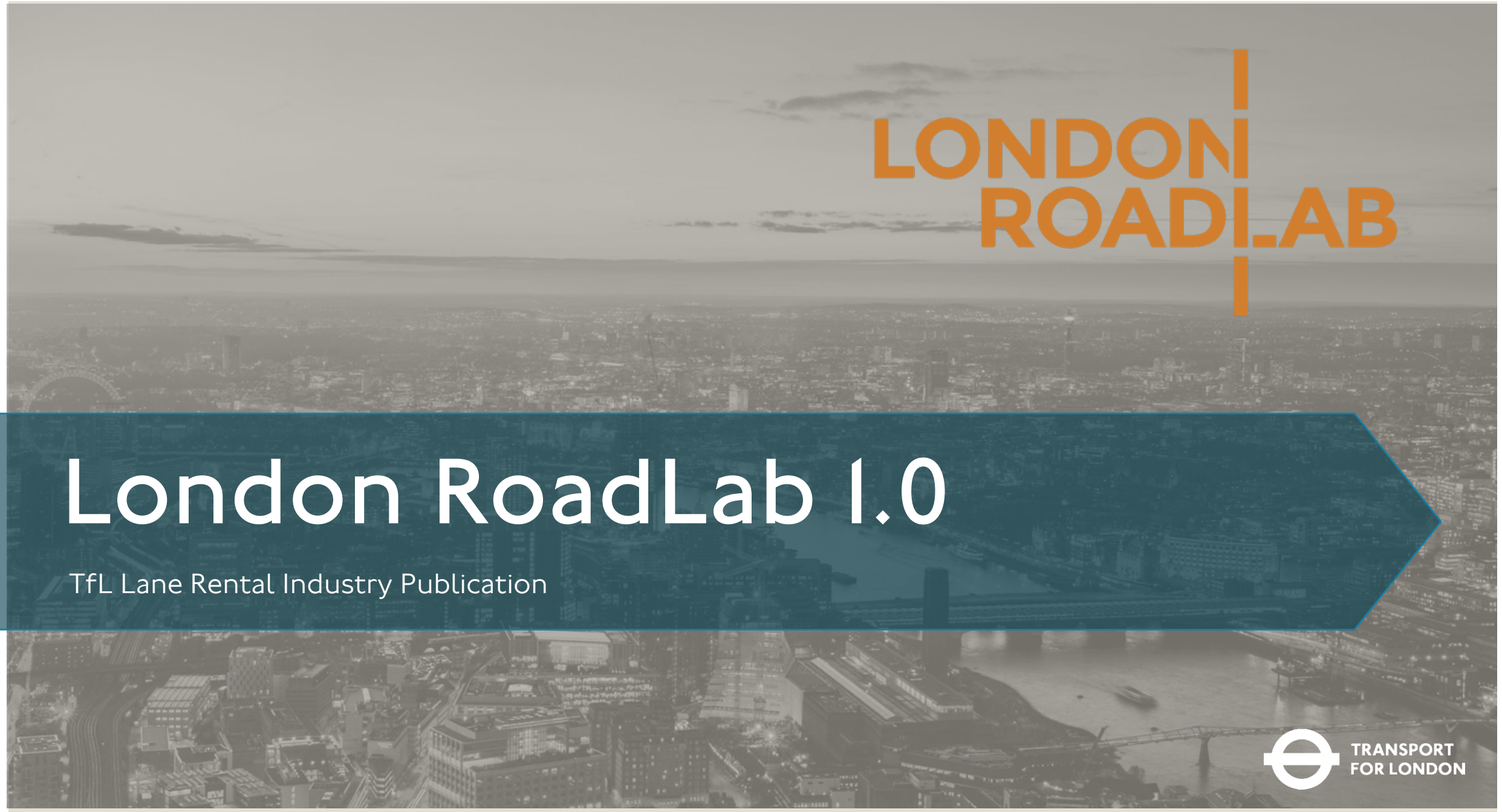


London RoadLab 1.0

TfL Lane Rental Industry Publication

TRANSPORT
FOR LONDON

Introduction

Road works form an essential part of daily life to deliver vital services for all the people that live, work and visit the capital each year. They also enable much needed development and improvement to the road network. However, road works cause disruption to all road users, causing frustration and contribute to the overall delays experienced on London's roads, which is estimated to be £2 billion a year. In addition, extra time spent at works has a wider societal cost by increasing the risks, emissions and reduced air quality associated with their undertaking.

Around 10 million car trips, half a million cycle trips and six million bus passenger journeys take place on London's roads every day, with almost all freight carried by road. Overall, four out of five journeys in London depend entirely on its smooth operation. Ensuring this smooth operation, while enabling approximately 500,000 works to take place, is therefore critical.

To help improve London's roads during works, TfL launched the London RoadLab, an innovation challenge aimed at developing technology to make road works in the capital safer, smarter, more inclusive.

The Project

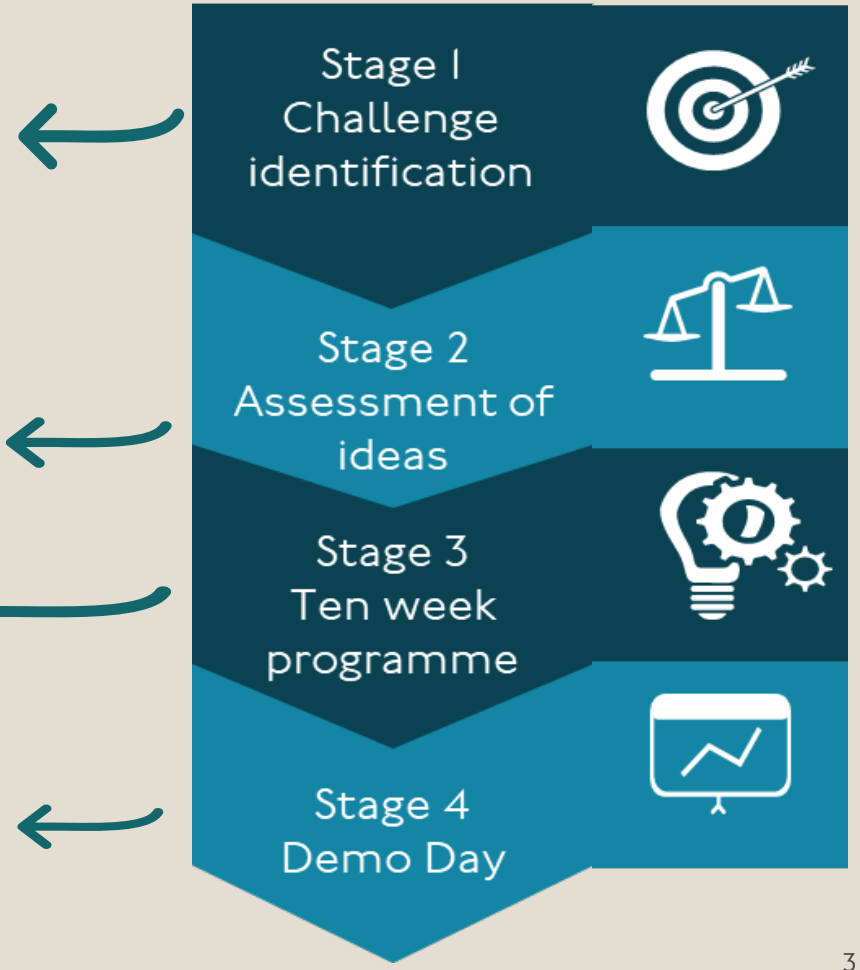
Stage 1: Working in collaboration with project partner Plexal, a challenge was set to market innovators to make road works in London:

- Safer
- Smarter
- Inclusive

Stage 2: Predetermined criteria was then used to select ideas to progress to the ten week programme.

Stage 3: During this ten week programme, the finalist worked with TfL and other stakeholders to help develop these ideas into minimal viable products (MVPs).

Stage 4: A demo day followed, offering the opportunity for the ideas/MVPs to be showcased to investors and stakeholders.



Outcomes

Over 100 expression of interests and 23 applications were received, with stage 2 shortlisting the following nine innovative solutions:

EMU Analytics:
- Visual mapping software enabling public visibility, contextualising information on how journeys might be impacted by works

Geve:
- Onsite communication app for contractors and operatives that integrates with in-house visualisation tools and map

Grid Smarter Cities:
- Traffic management system to identify and manage virtual holding bays for freight vehicles around sites

Immense:
- Simulation-as-a-service platform that automates modelling to understand the impacts of works on traffic

Mobilized Construction:
- High-frequency, network wide road quality data and analytics to monitor road health and deterioration in real-time using retrofitted devices on vehicles

Oxford Plastic:
- Physical works barriers and safety products, which feature anti-climb capabilities

Route Reports:
- Vehicle fitted devices to collect data on road quality and potholes, then analysed using AI analytics platform.

.RSK Environment
- Deployment and advanced processing of Ground Penetrating Radar (GPR) technology to detect water leaks and collect information about the subsurface prior to digging.

Social Asset Management (SAM):
- Artificial intelligence (AI) to monitor social media to identify incidents and emergency events to enable quicker responses to incidents.

These nine innovators were given access to pilot sites, £20,000 of funding to develop the MVPs and expert advice to assist them in development. This included access to data mentors from TfL, who helped cohort members test their ideas, guided them through TfL's rich data stores and provided lessons from previous TfL projects. This was followed by the demo day.

Final Products Selected

Four products were chosen to be taken through to the contract negotiations stage with a total value of up to £2m:

- **Immense Simulations:** Developing an automated way of modelling the impacts of roadworks before they are done, which will improve the flow of traffic and reduce disruption. This modelling is traditionally a very time-consuming process
- **Mobilized Construction and Route Reports:** Two different solutions that fit internet enabled devices to TfL buses and Dial-a-Ride vehicles and collect data on road quality. This would allow TfL to identify where the road surface is wearing out in real-time and would make it much easier to predict where maintenance will be needed ahead of time. This data could also help the London Boroughs with their highway maintenance activity
- **SAM:** Using artificial intelligence (AI) to monitor social media to identify incidents and emergency events on the roads. This could make it easier for TfL to respond to incidents more quickly

The other five solutions were also of interest and TfL has continued discussions with Oxford Plastics who produced road barriers that could improve safety, and RSK who demonstrated an innovative solution to detect water leakages underground.

Lessons Learnt

The project was a first of its kind for TfL, providing the following lessons being learnt during the process:

Problem statements were too broad: This made comparisons and the stage two selection process difficult. It is recommended that future challenges have a specific aim in mind, while still enabling flexibility for innovators to explore ideas.

Better and earlier engaged with stakeholders: Internal teams weren't engaged early enough during the project which made collaboration more difficult. Stakeholders should be engaged at project initiation to ensure maximum benefit.

Network Management (NM) sponsor needed: Give the umbrella of improving road works, a key sponsor from the NM senior management team would be required earlier in future projects to ensure buy-in.

Business change: When establishing a new technology, it's not a case of simply 'plug and play', so greater work would need to be done while establishing products on the associated requirements to move to 'business as usual'.

Lengthy procurement documents: Given the funding involved, a shorter more suitable procurement process should be investigated to streamline the method use in this challenge, along with the use of plain English to enable clarity on behalf of all parties involved.

Conclusion

TFL LANE RENTAL SCHEME

The London RoadLab programme was the first time TfL used an innovation partnership procedure, a new way of working with the private sector which allowed TfL to find ways of tackling some of the biggest road works challenges faced in London. This procedure was developed to make it easier for the public sector to encourage innovation from start-ups or large companies without hampering competition or transparency. To build on the success of RoadLab, TfL is continuing work with innovative companies to minimise the impact of road works in London.

Author

Transport for London

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Email: LaneRentalFunding@tfl.gov.uk