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LIVE LABS 2 · DECARBONISING STREET LIGHTING

# From road studs to lighting strategy

How Live Labs 2 helped turn a proven safety technology into an industry-ready approach to lower carbon, lower cost and safer roads.



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# We arrived with a safety solution

SolarLite had already spent years helping drivers read dark roads earlier, more consistently and with greater confidence.

**Up to 900m**

visible active delineation compared with around 90m from headlight-dependent reflective studs.

**8–10 years**

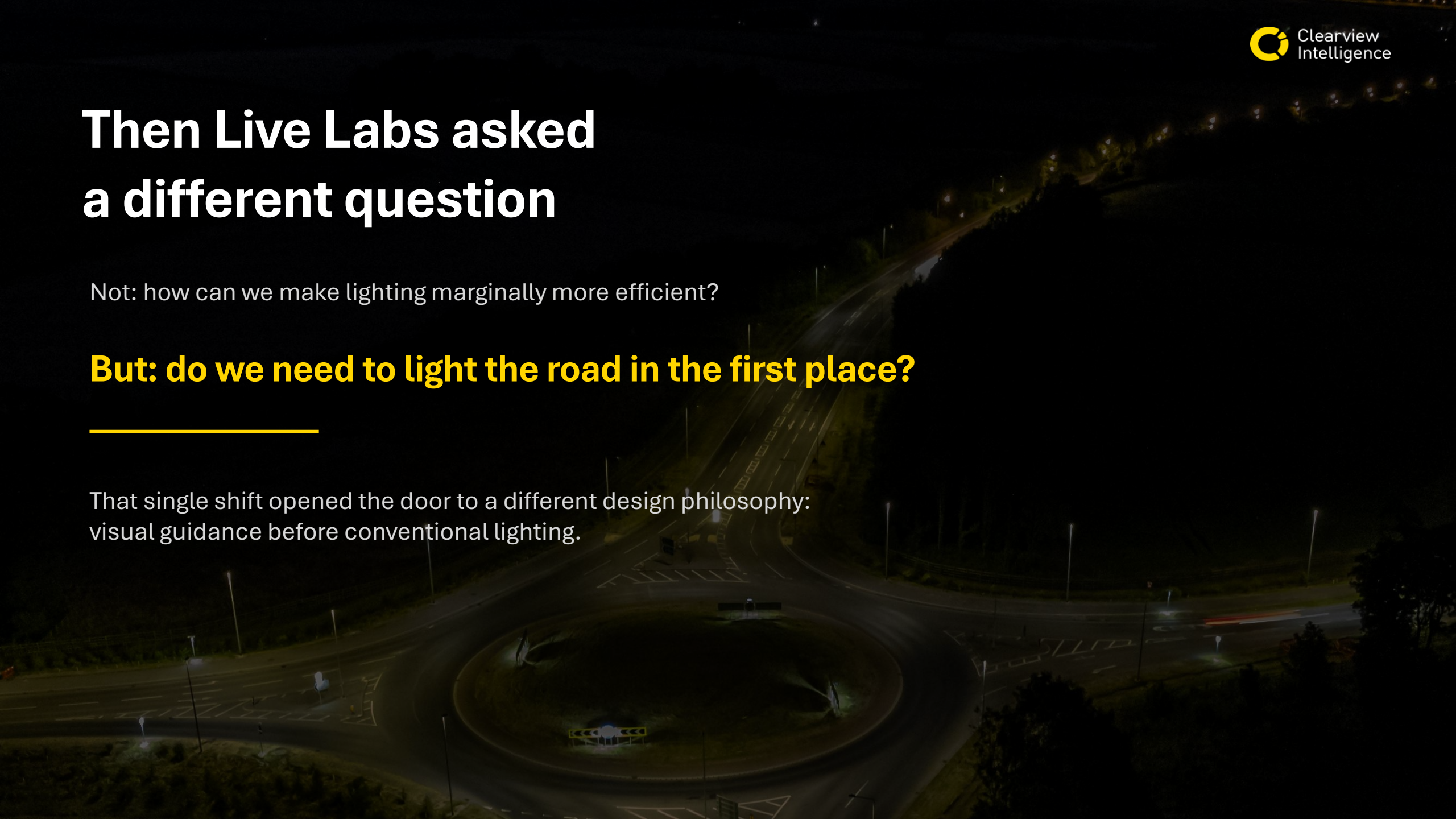
long-life product platform, designed for consistent output and reduced maintenance interventions.

**Safety evidence**

historic schemes show improved confidence, lane clarity and driver behaviour.



## Born from road safety, not decarbonisation



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# Then Live Labs asked a different question

Not: how can we make lighting marginally more efficient?

**But: do we need to light the road in the first place?**

That single shift opened the door to a different design philosophy:
visual guidance before conventional lighting.

# Permission to challenge the norm

Being part of the East Riding stakeholder group meant we were not just responding to a brief — we were helping shape the direction.

### Run wild

Break down the default answer and explore the art of the possible.

### Challenge standards

Test what is genuinely needed to make a road safer at night.

### Narrow to scale

Select ideas that could be adopted, defended and funded in the real world.

## Innovation starts wide – adoption requires focus

# Innovation has to survive the real world

The selected approach had to be more than clever. It had to be something a highway authority could actually adopt.

- Safe
- Installable
- Scalable
- Maintainable
- Affordable
- Defensible

**The breakthrough was not simply proving that the technology worked. It was proving that the approach could become normal practice.**

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# The answer was not more lighting

It was a toolkit: SolarLite, signs, lines and targeted pedestrian lighting — with columns becoming the last resort, not the default.

**SolarLite**

Continuous route definition and junction delineation without grid connection.

**Signs**

Improved retro reflectivity to support all drivers, not just car users.

**Lines**

High-performance markings for lane and carriageway visibility.

**Targeted light**

Light only where people need it, not across the whole highway.

## Lighting as the last resort
## Time to prove it

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# Dragons' Den forced a sharper argument

The pitch was not just about winning. It made us evidence carbon, cost and scalability with much more discipline.

**Carbon**

New mapping helped us quantify the whole-life carbon case.

**Cost**

Whole-life savings had to stand alongside the carbon argument.

**Scale**

Manufacturing and installation capacity had to be credible.

**We pitched it. We won.**
**But more importantly, we learned.**

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# Innovation changed how we build

If we were challenging the carbon impact of lighting, we had to challenge the carbon impact of our own solution.

### Design

Ultrasonic welding and a 40% reduction in potting material.

### Build

Automation investment and a 400% increase in daily output.

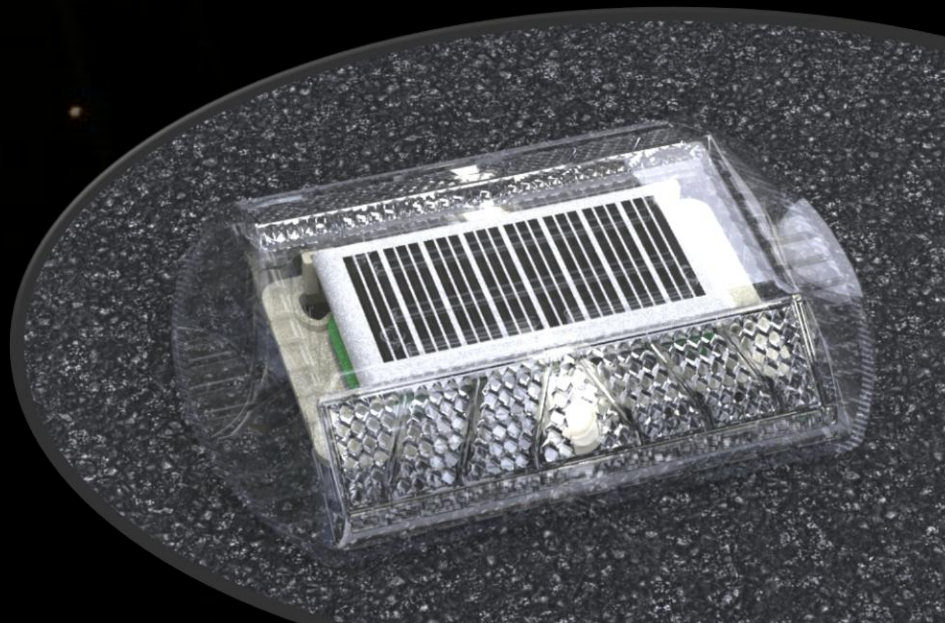
### Install

100% increase in install rate per shift.

### Disruption

50% reduction in traffic management and network disruption.

## The product evolved because the mission evolved.

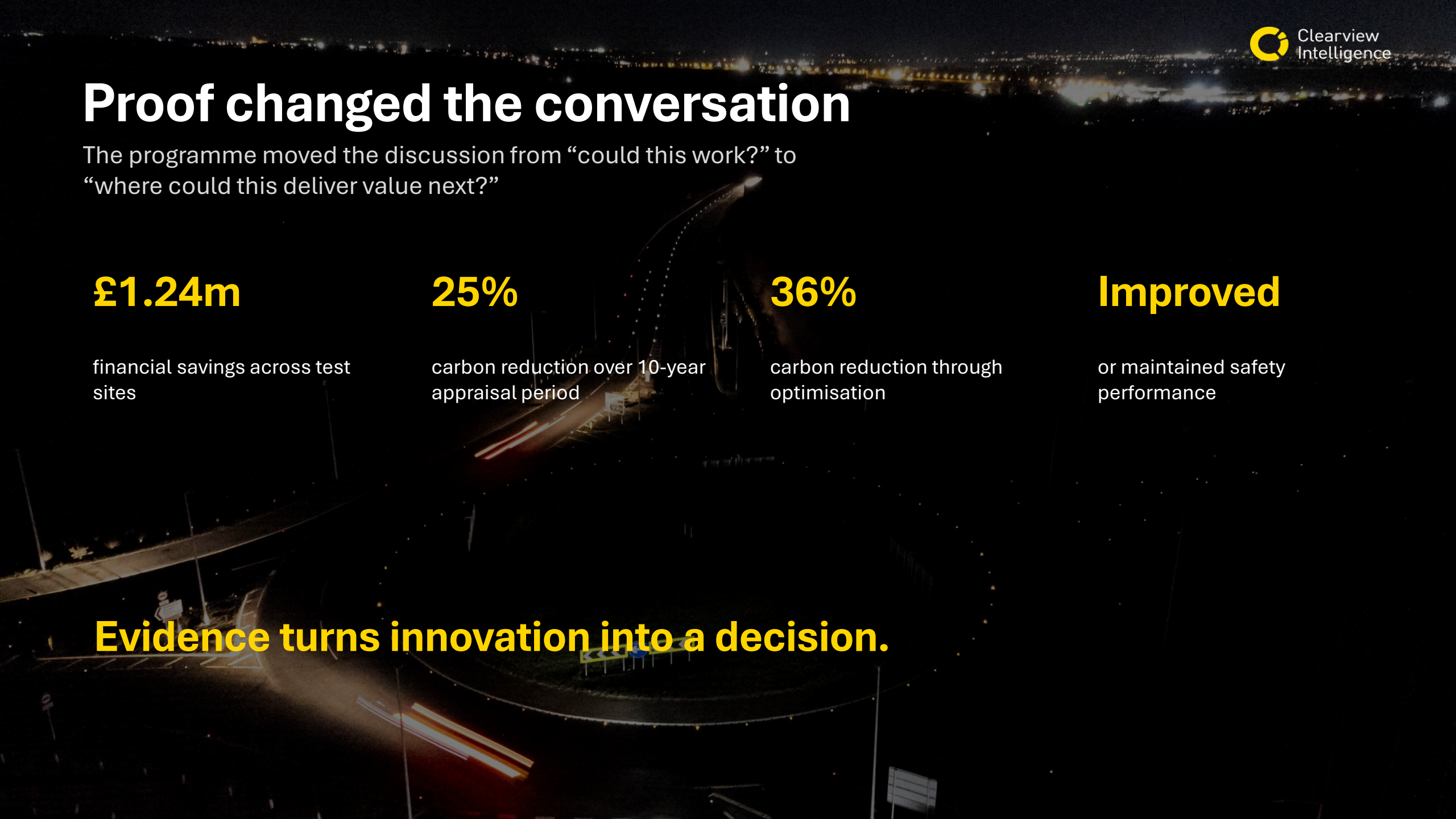


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# But: do we need to light the road in the first place?




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# Proof changed the conversation

The programme moved the discussion from “could this work?” to “where could this deliver value next?”

**£1.24m**

financial savings across test sites

**25%**

carbon reduction over 10-year appraisal period

**36%**

carbon reduction through optimisation

**Improved**

or maintained safety performance

## Evidence turns innovation into a decision.

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# Innovation has to be defensible

A highway authority needs more than a good idea. It needs evidence, liability confidence and a repeatable decision process.

**Evidence**

Three years of monitoring and evaluation provided to DfT.

**Insurance**

Zurich risk management review of liability and monitoring.

**Legal**

Weightmans liability review supporting the decision journey.

Department for Transport

ZURICH Resilience Solutions

Weightmans

**Innovation becomes BAU when the evidence, insurers and legal advisers can all support the journey.**

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# And then innovation became BAU

East Riding has already moved the approach from trial thinking into wider adoption.

**2,500**

lighting columns replaced using the Live Labs approach

**£5m**

projected savings over 10 years

**BAU**

innovation adopted into normal practice

**This is the real outcome: not a report on a shelf, but a changed approach to lighting decisions.**

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# We still aren’t finished

Mainstream adoption meant removing the next barrier: installation confidence on demanding roads.



### S381

Solar powered active road stud in a robust cast iron housing.

### Installer fit

Compatible with industry-standard installation practices.

### Resource

Increasing company resource to support growth of adoption.

### DfT Type Approved

Ready for deployment across the UK highway network.

### Scale-ready

Designed for heavily trafficked areas and lower whole-life costs.

## From trial-ready to industry-ready.

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# What Live Labs really gave us

**Permission**
to question

**Space**
to experiment

**Evidence**
to prove

**Confidence**
to scale

**An innovation that started by making dark roads safer helped change how we think about lighting them at all.**

Make the switch

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