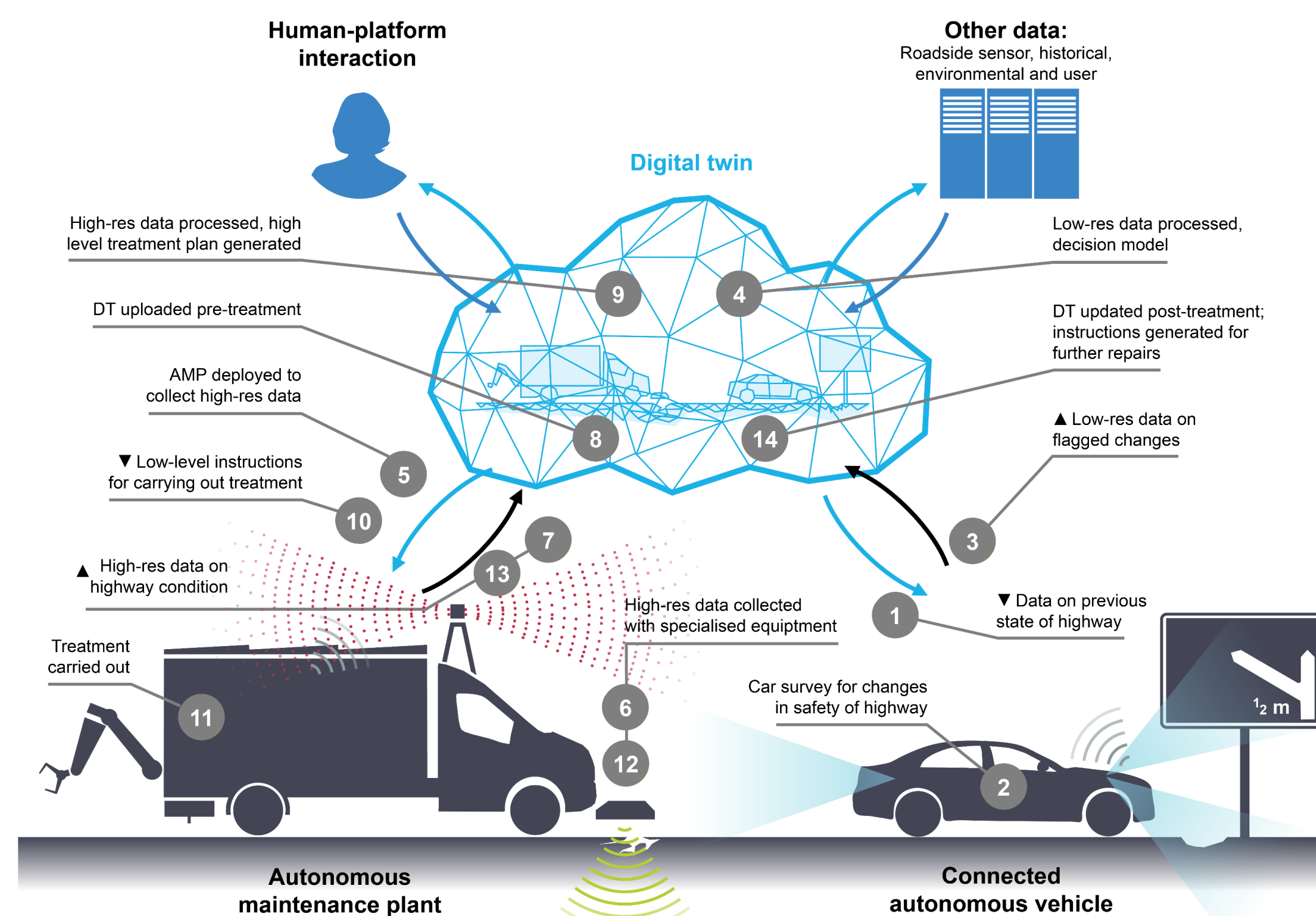


Digital Roads Prosperity Partnership

Lead Business Partner, James Merrett, Costain; Lead Academic Partner, Prof Ioannis Brialkis, University of Cambridge; Business Partner, Phillip Proctor, National Highways; Business Partner, Dr George Economides, Department for Transport; Business Partner, Dr Kyriakos Kantarakias, Didimi

The Digital Roads Prosperity Partnership was formed in April 2022 and is an industry led partnership between Costain Group, University of Cambridge and National Highways, supported by the Engineering and Physical Sciences Research Council (EPSRC) [EP/V056441/1], part of UK Research and Innovation (UKRI). In 2024 we welcomed new partners, the Department for Transport and Digital Roads spin out company, Didimi Ltd, to the Prosperity Partnership.

Our scientific ambition is to rethink roads as the integrated set of digital and physical products and processes, deployed through a product-led approach that offers value, adding choice to client stakeholders yet provides unprecedented life cycle KPIs performance and can scale across the whole road network



The successful integration of Digital and Physical is fundamental for the successful delivery of the project and will enable the Digital Twin and robotics supported processes receiving situational and conditional awareness from smart materials; the data science-supported digital processes informing the robotics and updating the digital twin; a properly curated digital twin serving as a data foundation for the physical asset and its processes; and the robotics-supported processes serving as a vehicle for interrogating smart materials and implementing the data science outcomes on the road. Producing outcomes that will yield substantial cost and time reductions in all associated lifecycle processes as well as quality assurance process improvements.

Digital Roads will provide multi-disciplinary, integrated datasets that can be used to further improve the outcomes or devise alternate strategies;

- exemplar data structures, cloud architectures, algorithms, smart materials and robotic solutions that can underpin a vast array of add-on solutions or solutions for other lifecycle processes; and
- fundamental methods to generate, update, integrate, verify and curate infrastructure data, use it to measure performance and make decisions, and to drive the decisions to the asset.

These outcomes will be detailed in conference and journal papers, online publications in magazines and popular media, and potential patents