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# DIGITISING THE ROAD NETWORK

ABSTRACT:

HOW DYNAMIC DIGITAL RECORDS OF TRAFFIC REGULATION ORDERS AND CONDITIONS OF ROAD ASSETS PROVIDE A 'GROUND TRUTH' FOR LOCAL AUTHORITIES THAT RESOLVE CURRENT PROBLEMS WITH MANUAL AND FRAGMENTED SYSTEMS.

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Dynamic digital records of Traffic Regulation Orders and Conditions of Road Assets provide a 'ground truth' for Local Authorities that resolve current problems with manual and fragmented systems by delivering harmonised, reliable and accurate dynamic records with an efficient, sustainable and accessible methodology for all relevant stakeholders.

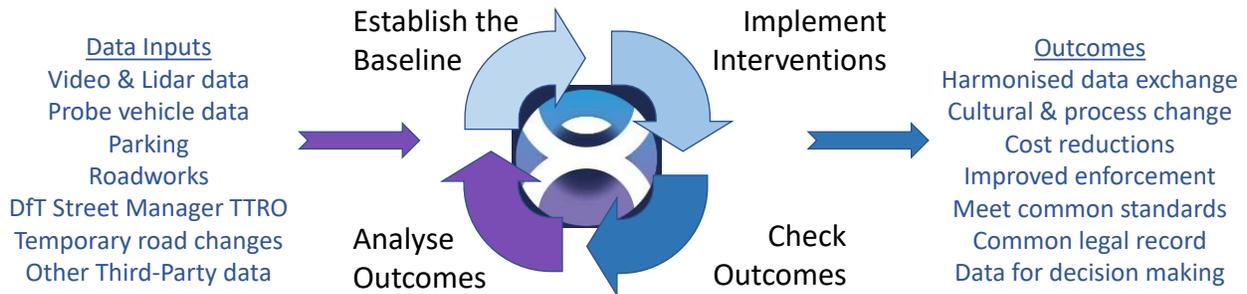
The North Highland report (UK 2018) stated "We need to plan today for tomorrow's world—and better access and use of data is critical to increasing our resilience to congestion, disruption, security challenges and increasingly unpredictable weather. Asset data is considered one of the most important and frequently used datasets given the high costs associated with road maintenance."

Confined static records prevent supplier eco-system exploitation, innovation and revenues (for example by freight, connected vehicles, utility companies and mobility service providers). By harmonising data from a range of pertinent sources it is feasible to create sustainable dynamic digital records that offer cost efficiencies and enable new or improved outcomes, enabled through the ability to selectively share and manage datasets with stakeholders.

### Digital Road Outcomes enabled via Convex

- The ability to take in new forms of real time data that inform on the condition of road assets and harmonising this with data on temporary and permanent traffic regulation orders.
- Expose the information in a format that allows the internal cultural and process transformations to take place that exploit shared data access and digital applications to achieve cost reduction through elimination of lost time, tied up resources, and lost enforcement opportunities.
  - Including:
    - Cost savings from better methods for detecting and managing road asset defects
    - More dynamic management of Kerbside use
- Permit conformation to and evaluation against standards such as TSRDG 2016, The Road Traffic Regulation Act 1984, Alliance of Parking Data Standards (APDS) and the DfT TRO Archive Digitisation (TRO-D); and enabling capability to harmonise data to conform to standards.
- Enables development of a more informed road asset strategy in line with Government plans for levelling up data – supporting tactical and strategic decision making.
- Delivers reliable and accurate Legal Record of dynamic & static, temporary & permanent Traffic Regulation Orders and Traffic Regulation Notices that is efficient to create, store, advertise (between stakeholders), retrieve and update.
- More efficient real time network management (reduced congestion) – data accessible to network Users facilitating knowledge of restrictions and traffic orders which improves journeys and trips.

Convex permits multiple stakeholders to access relevant operational information and the ability to communicate relevant changes to Authority teams - teams preparing regulation orders, parking enforcement and those managing highway assets. The digital service can also provide alerts when variations are identified and expose the information via the geographical scenes tool within Convex making pertinent data easy to identify. Convex offers an open and accessible architecture that enables utilisation by multiple applications and an ability to compare observed data with existing records.



## Digitising the Road Network Service

There are many problems with road and traffic management that local authorities struggle to manage due to lack of information compounded by the needs of a modern and complex society.

There is a strong desire for the need to build and maintain a digital record of the regional road network, the regulations for its use, its state and its' ongoing condition, that can enable a number of new outcomes, both in operating and maintaining the network, and enabling new connected and autonomous services to operate on it efficiently. New technologies exist that can replace existing activities, but a key challenge is the need to identify solutions which can provide this digital information in a way that integrates with transport authority systems and facilitates processes that are cost-effective and sustainable.

## Convex Solution

Integrate, harmonise, process and expose relevant dynamic datasets via APIs and Convex Scenes to build a digital record of road assets and regulations that delivers a single source of truth for legal records. In the process confirming required data detail and exploring how to present information in a useable way for stakeholders so that back-office process and system adaptation transformations can take place.

A key requirement is the aggregation of data into one or more Authority applications that can constructively utilise the information to manage, daily, the digital records of Traffic Regulations and Road Assets.

By building a scalable, sustainable and automatic process the Convex service delivers a consistent and transparent approach for Authorities releasing beneficial value to the Authority – cost efficiencies in data collection and the management of operational services, improved planning and supporting a more robust enforcement regime with less litigation or challenge.

## Data Sources

Digital records are achieved through the collation and aggregation of data from a range of data sources that can exploit the current communications technologies to transmit pertinent information in real time or near real time, e.g. using Vehicle to Infrastructure technologies as well as deployed applications. The core range of useable and valuable data required to create and maintain a dynamic digitised road network system is:

- Digitalised data of road assets and road surface conditions (vehicle and vision technology data)
- Authority TRO data covering kerbside parking regulations
- Department for Transport Street Manager TTRO data
- Car Park data from Authority and local car park operator systems
- Roadwork's data
- Bicycle lane and pop-up cycle lane data
- Additional temporary data, e.g. video and Lidar scans
- Other data considerations enhancing the Convex enabled solution:
  - Integrating data with Geospatial Information
  - Related condition data; weather, incidents and disruptions

Convex is in an ideal position to bring together and share such data sources with Subnational Transport Bodies, Authorities and other agencies that require access to the digitised record information, while also enabling selectively controlled access to the data by third parties for innovation and operational services.

The goal is to deliver a solution that enables the digital information to be effectively used by all Authority users and, by selectively sharing data, relevant stakeholders.

## About Chordant

Chordant provides dynamic data exchange solutions that enable our customers to build and operate new mobility solutions that rely on shared data. Our services power data-driven applications for Cities & Regions, Connected & Autonomous Mobility and Complex Infrastructure & Facilities. Chordant operates Convex ([www.convexglobal.io](http://www.convexglobal.io)), the mobility data exchange for the Connected and Autonomous Mobility ecosystem and is a lead partner in CAM Testbed UK. Chordant has been recognized by numerous analyst firms and organizations for its industry-leading solutions. For more information, visit: [www.chordant.io](http://www.chordant.io)

*For any Local Authority wishing to learn more about Convex, the global mobility data exchange service, please contact Chordant at [chordantsales@chordant.io](mailto:chordantsales@chordant.io)*