

# Hypervine

Turning site activities into standardised metrics



Hypervine.io



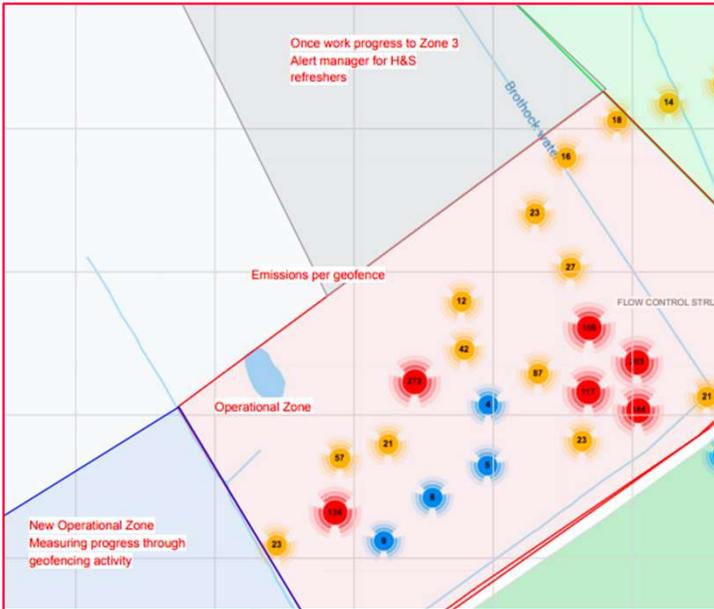
Manufacturer	Hypervine
GT Business Unit	Environment - Scottish Water
Site of testing	Arbroath, Scottish Water
Testing period	February 2019 - December 2020

Hypervine utilises blockchain technology and 4G data in order to quantify site related activity, providing high quality data regarding efficiency and emissions. Hypervine data collection is achieved through a bespoke app, with which operatives can track emissions of their vehicles, their actions on site, measure machine runtime, accurately report delivery tickets and a variety of other data types. This data is displayed in real time and brought together in 'end of day reports', allowing for analysis of fleet data, hotspots of activity onsite, operative check in/out, with many more geospatial solutions planned. Splitting sites into defined areas, or 'geofencing', according to variables including work type, or construction programme, allows for monitoring of work process, improved security, better performance on SHE metrics, and management of workers and plant to assure compliance to a project runtime and sequence of tasks.

### Key Findings and Recommendations

- Hypervine has a multitude of uses and benefits to offer Galliford Try moving forward, with the company and technology further gaining recognition through their association with Climate TRACE. Primary benefits come through the ability to accurately measure all fleet emissions, carbon intensive work on site, and the analysis of workflow over time on a site to recognise inefficiencies improve these.
- Despite Hypervine still being in trial phase at the point of this case study, it was shown that the technology and expertise on show can align well with Galliford Try's operations, assisting with the path to green construction, improved efficiency and operative safety.
- The ability to view real-time data on a smart device or laptop even whilst on site could be a great asset across Galliford Try, allowing for immediate changes to workflow to combat inefficiencies and hotspots.





## Background Information

There are a variety of on-site activities that are not usually measured or quantified, resulting in potentially useful data being missed. Hypervine is a solution to this, utilising an accessible mobile phone app, satellite tracking and blockchain data in order to provide metrics regarding operatives, fleet, plant, materials, time and location. Geospatial data can be used to measure site activity and compare productivity on repeated tasks over different timeframes in order to assist with increased efficiency, and project forecasting.

One aspect is for operatives to record their commute to work, including time, journey and particular emissions associated with their vehicle, allowing for accurate Scope 3 carbon emission accounting. Another key use of the technology is for health and safety, with the 'Geofencing' application allowing for digital 'fences' to be placed around hazards, for example the body of water shown above, which, when operatives entered the area, would provide a warning of the existence of the hazard. Geofencing also allows for the accurate calculation of CO<sub>2</sub> emissions per zone, with the potential to calculate emissions at different stages of work on a project if a site was split into sections reflecting the workflow of a project.

## Details

Operatives on the Arbroath site were introduced to Hypervine, with the initial trials undertaken with tracking watches, and updated to include a bespoke phone application and specific tags for equipment throughout the trial period. The project was a WWPS for Scottish Water, one of multiple Scottish Water projects that Morrison Construction were undertaking in the Arbroath area. The primary functions trialled were the monitoring of live site movement through satellite tracking, allowing for viewing of site activities and work order in aid of spotting inefficiency hotspots and improving these, recording of operative commutes to work with the emissions linked to both their vehicle types and travel times, and delivery ticket recognition AI with recording and reporting software.

This technology works by reading the handwriting on the delivery tickets, and converting it to formatted data, able to be immediately input into spreadsheets, and directly into Oracle, improving time taken to complete the task, and allowing for a 'paper trail' of operations and deliveries. It was recognised across site that, whilst Hypervine was still at trial level, the benefits were already clear, with future integration of features such as Geofencing and a more accessible dashboard for the access of real time data analytics

Whilst the usefulness of measuring GT operative fleet emissions cannot be overstated, it was recognised that this data is already accessible for the team, with on-site emissions also calculated for every element aside from Plant already. The team at Arbroath viewed the primary function for the technology as embodied carbon recording and measurement in plant and tool via tagging of equipment, allowing for recording and analysis of plant usage data. The operatives also highlighted the importance of the ability to assess embodied carbon through delivery of materials, with this covering not just fleet data but third-party suppliers.

## Conclusions

It was recognised that Hypervine has the potential to aid in meeting a variety of important KPIs within both Morrison Construction, and the Scottish Water framework, improving likelihood of continued work. These ranged from 'Beyond Net Zero' through the use of fleet telematic information and on-site plant movement data, 'Circular Economy' through improved transparency and record keeping of AI Delivery Ticket analysis to highlight circulatory opportunities, through to 'Safety, Health and Wellbeing, with the Geofence application allowing for digital boundaries for hazardous equipment and locations on site. Whilst these are Business Unit and client specific, the potential for Hypervine to assist in meeting KPI's and important targets and goals across the entire Galliford Try group is evident, from Building to Highways to Environment.

