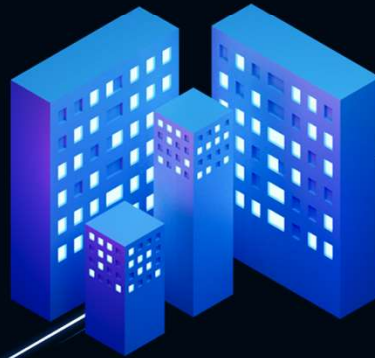


HackZurich 2022

Converge x Holcim MAQER

Introduction to challenge



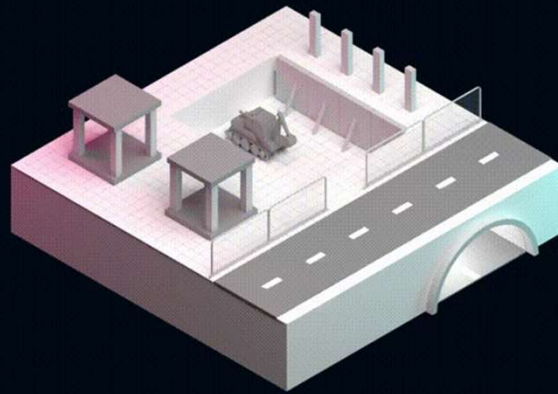
Despite its merits, concrete has a huge impact on the environment

**Cement is the key factor contributing to CO₂
Minimising its use is essential to lowering global emissions.**

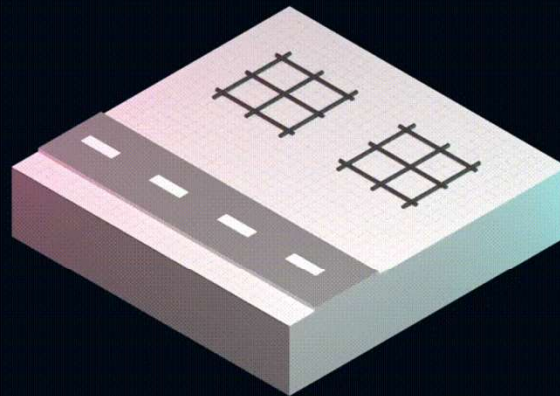
**For this challenge, you'll be provided data relating to the
production & logistics around concrete production**

in addition to its composition & performance in the field.

What can you build with this data to lower this impact?



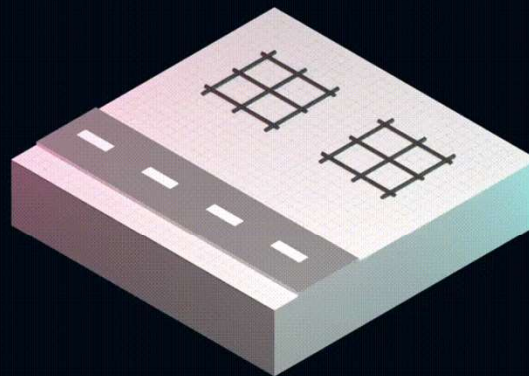
Get the chance to have your **solution** deployed onto a real construction project





Converge Background

The platform



The sensor

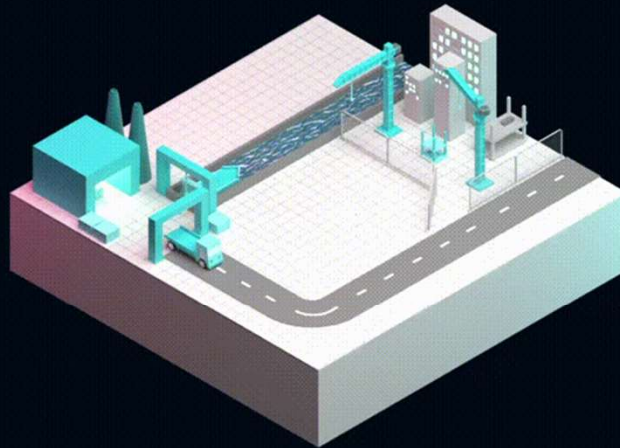


Converge **Signal** sends real-time temperature and concrete strength data directly to the **ConcreteDNA™** platform via the cloud.



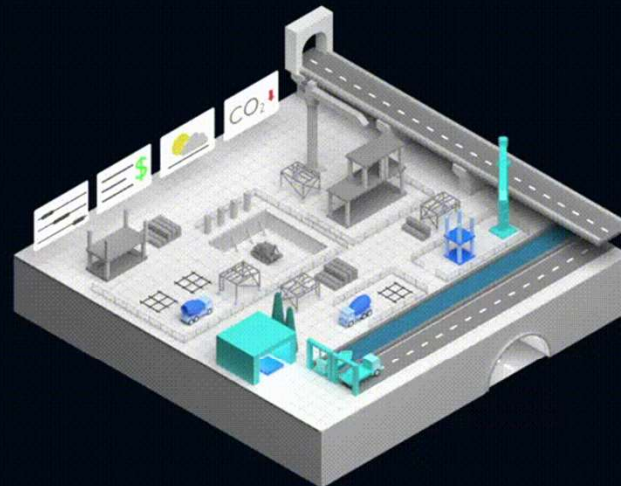
Converge Data

Data from 5 construction projects



Mix designs

Schedules

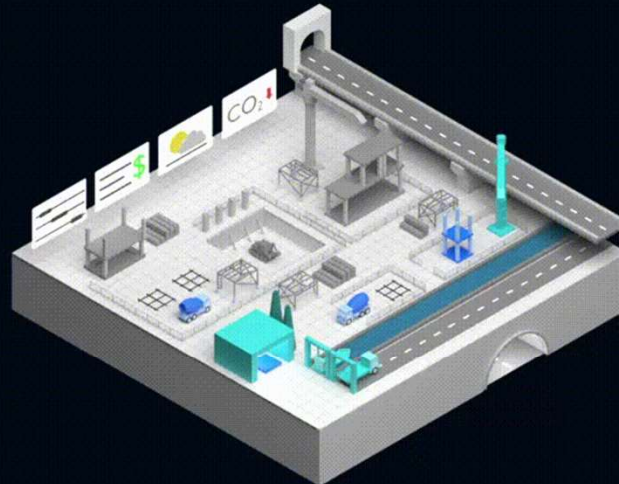


Mix properties

Sensor data

Mix designs

What does the concrete contain?



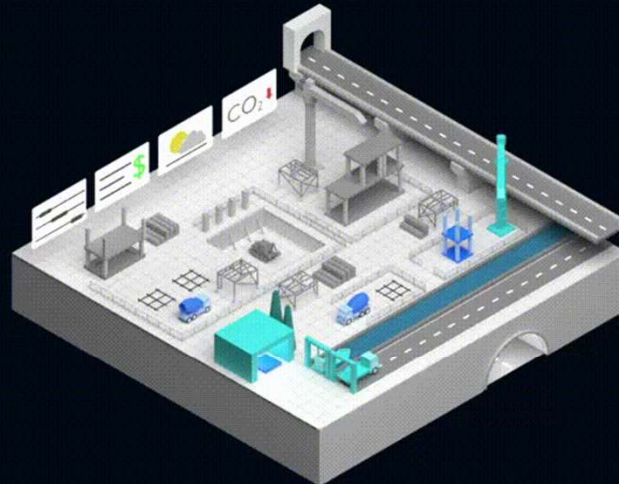
Schedules

Mix properties

Sensor data

Mix designs

Schedules



Mix properties

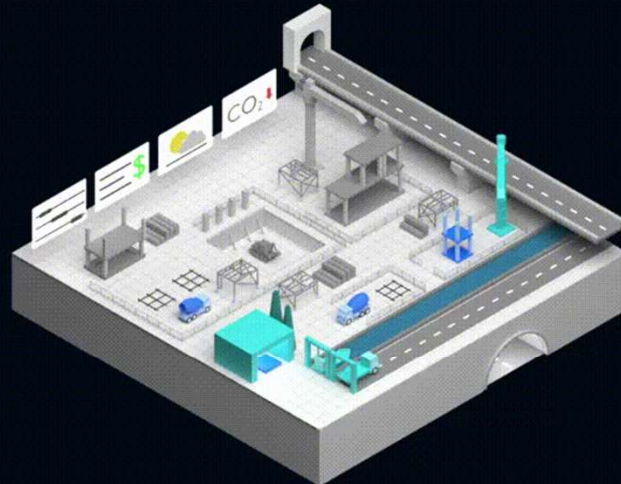
Sensor data

Embodied carbon

Mix designs

Schedules

Time & date of each pour

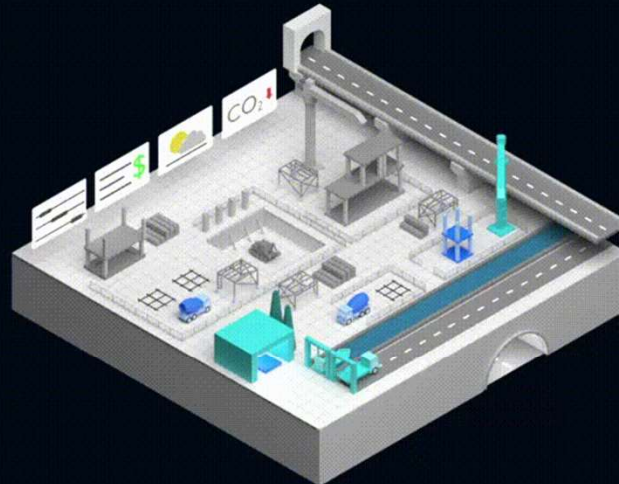


Mix properties

Sensor data

Mix designs

Schedules



Mix properties

Sensor data

Temperature and strength of a pour over time

A dark purple silhouette of a concrete mixer truck is centered in the background. The truck has a large rotating drum and four wheels. The background is dark blue with a subtle white grid pattern.

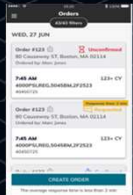
ConcreteDirect

Data

Concrete Direct

Provided Data Sets

68 Different Projects
Most in the D.C. Area, US



orderLevel

- Order day, intervals of delivery requested
- Type and of additives ordered
- Type of structure and pour method

batchMixLevel

- Type and quantity of additives put into a truck
- Ratio of components required vs actual quantity batched for each payload

pourLogisticsLevel

- Truck loading time
- Concrete load quantity
- Type and quantity of additives used per payload

truckPlantLevel

- Specific truck data assigned for each of the payloads

pourLogisticsLevel

- Pouring time and location
- Truck cleaning time
- Status of the payload
- Return timestamp of truck to base plant



External Data Set

Lab Data for Switzerland based job sites

