

# Introduction to the Digital Twin Programme

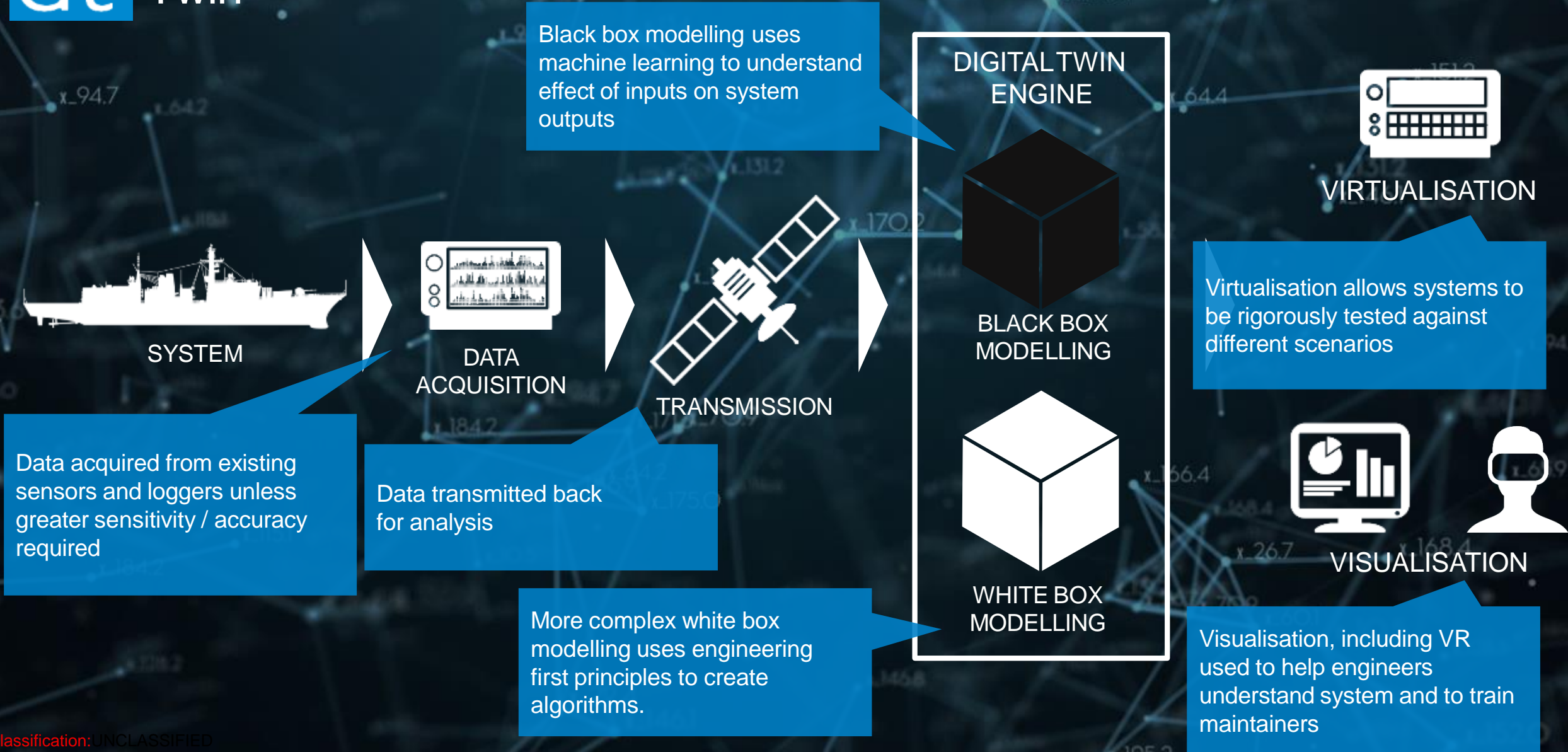
John Heron / Matt Morbey



# What is a Digital Twin?



# Key elements of a Digital Twin

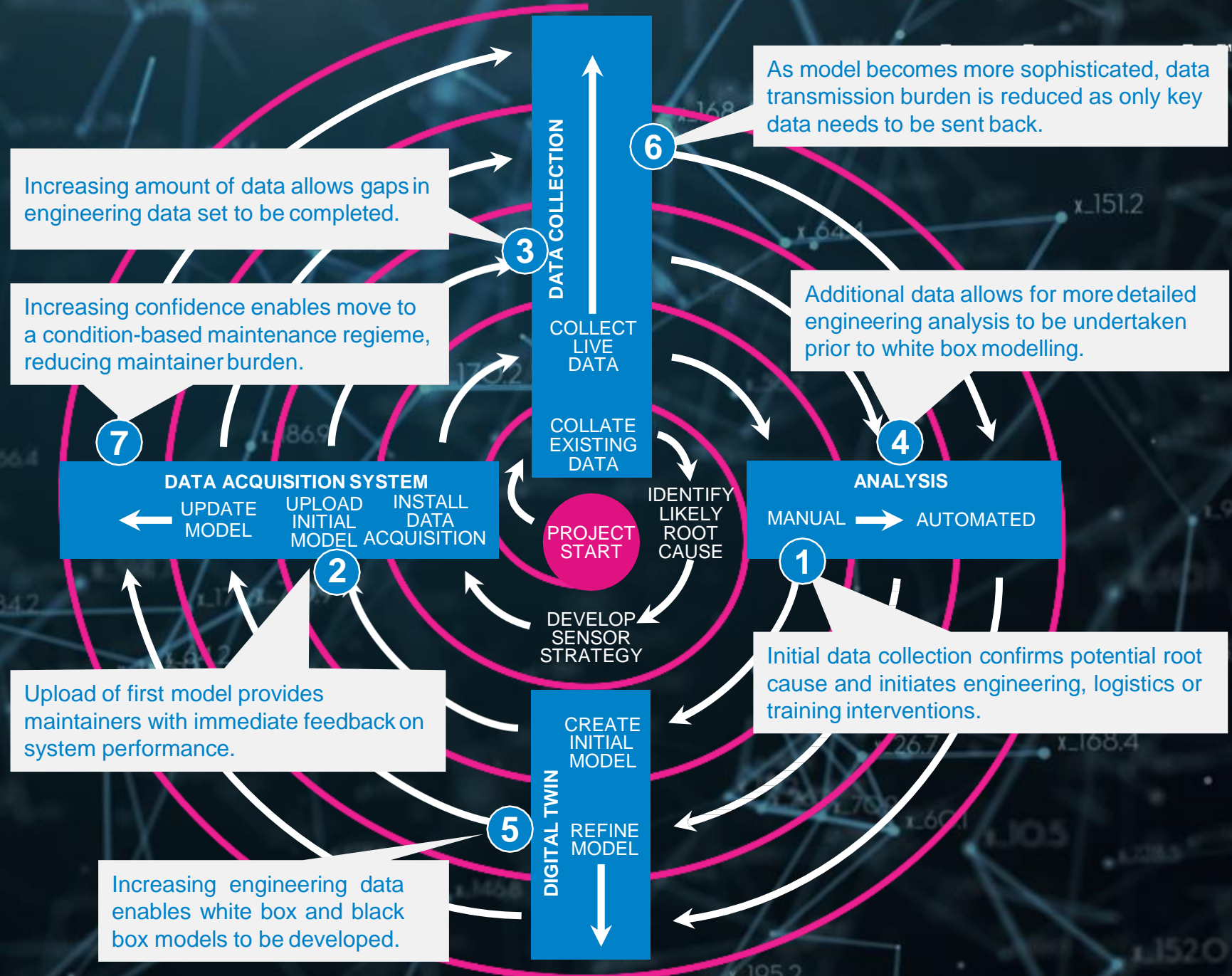






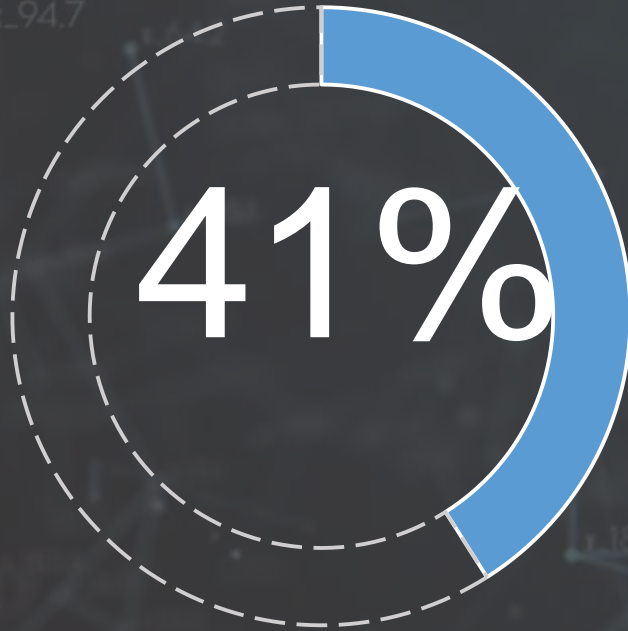
## An incremental approach Delivering early wins

We accelerate and reduce the time needed to deliver benefits – from as soon as enhanced data is available from the equipment.

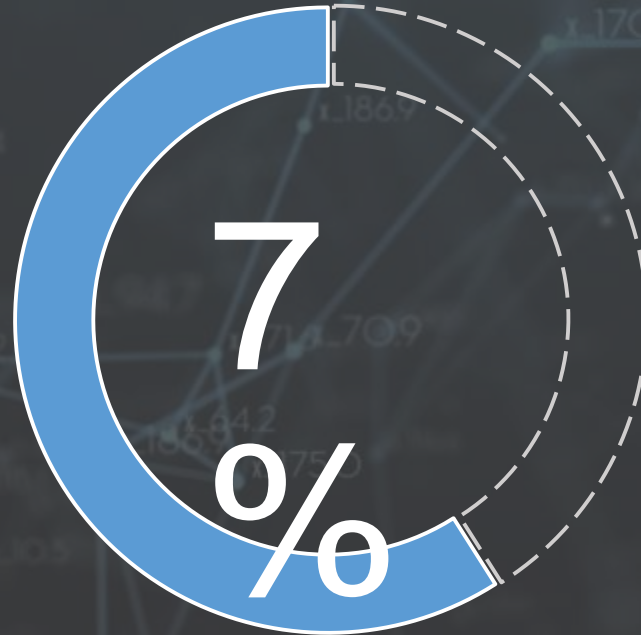


# Bulldog Project

## Collate existing data



Loss of  
compression



Fuel  
System



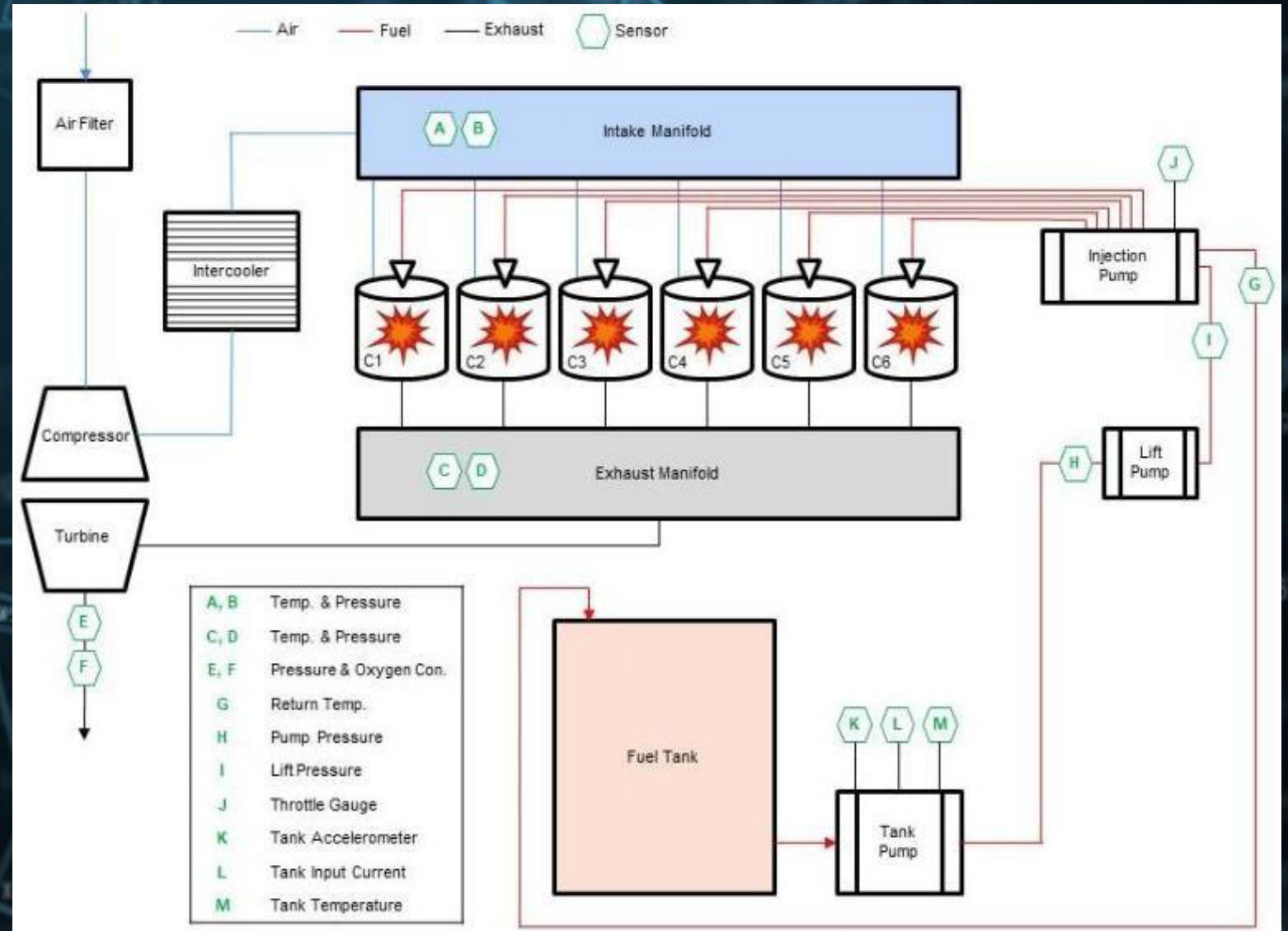


### Problem Statement:

Engine compression cannot be measured directly whilst the asset is in service, but needs to be tracked through-life to enable an engine to be withdrawn from service and rebuilt in the lower rebuild cost category.

### Solution:

Measure low cost parameters outside of the combustion chamber and use a 1-Dimensional combustion model to estimate compression



# Bulldog Project Collect Live Data

## Current Status

- Power pack stripped down
- Full suite of sensors fitted to engine
- Engine testing on Surrey University Dynamometer
- Live data collection
- 1D model being calibrated

## Next Steps

- Finish 1D model
- Fit sensors to a fleet of vehicles
- Collect operational data
- Validate 1D model







DIGITAL  
TWIN



