

# CIWEM Annual Conference 2011 Big Society: Future Environment

Protecting the Big Society  
Flood Defence: Less is More

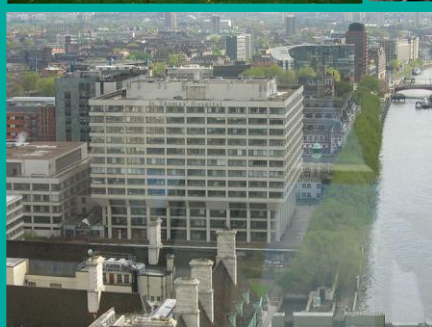
6 April 2011

Ed Morris: Environment Agency

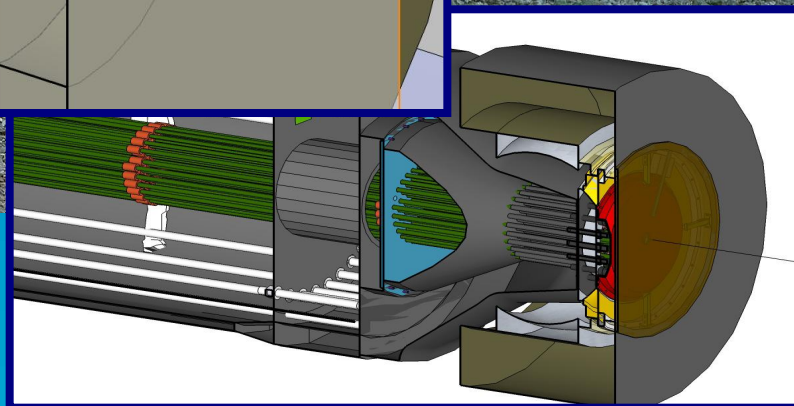
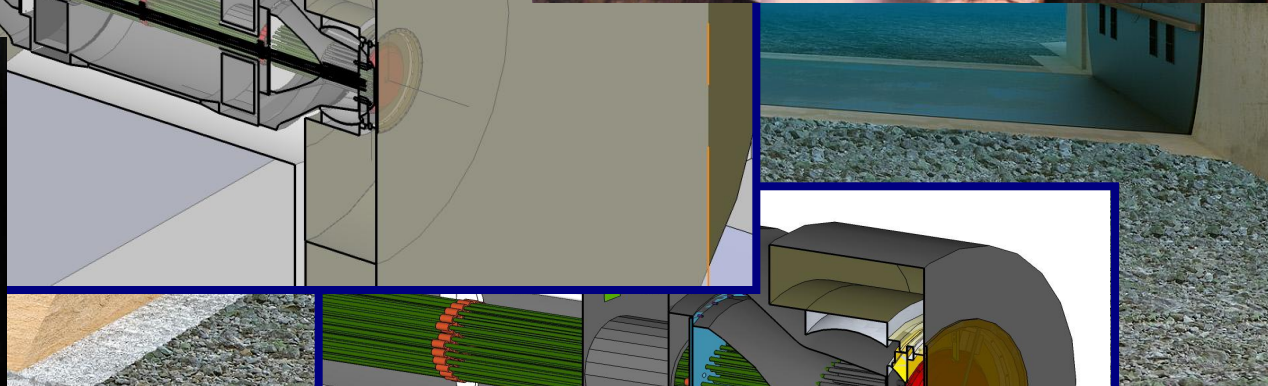
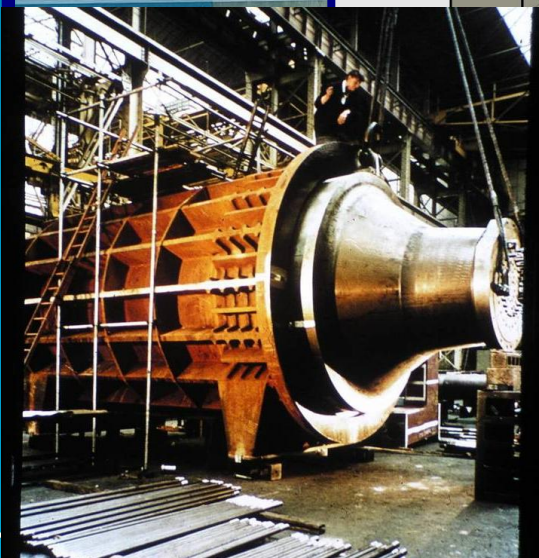
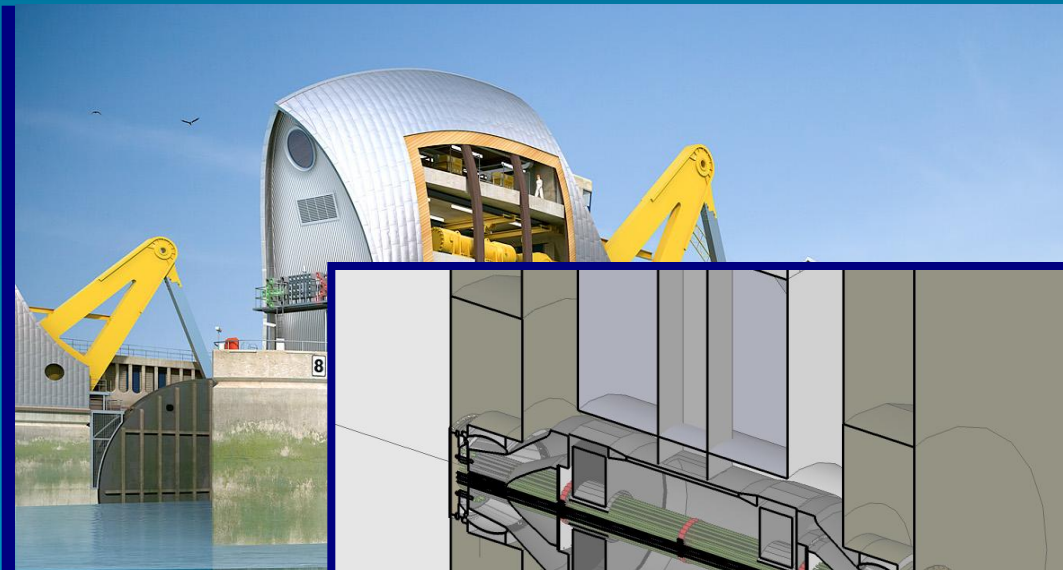
Jon Holland: Halcrow

# The UK's Biggest Society

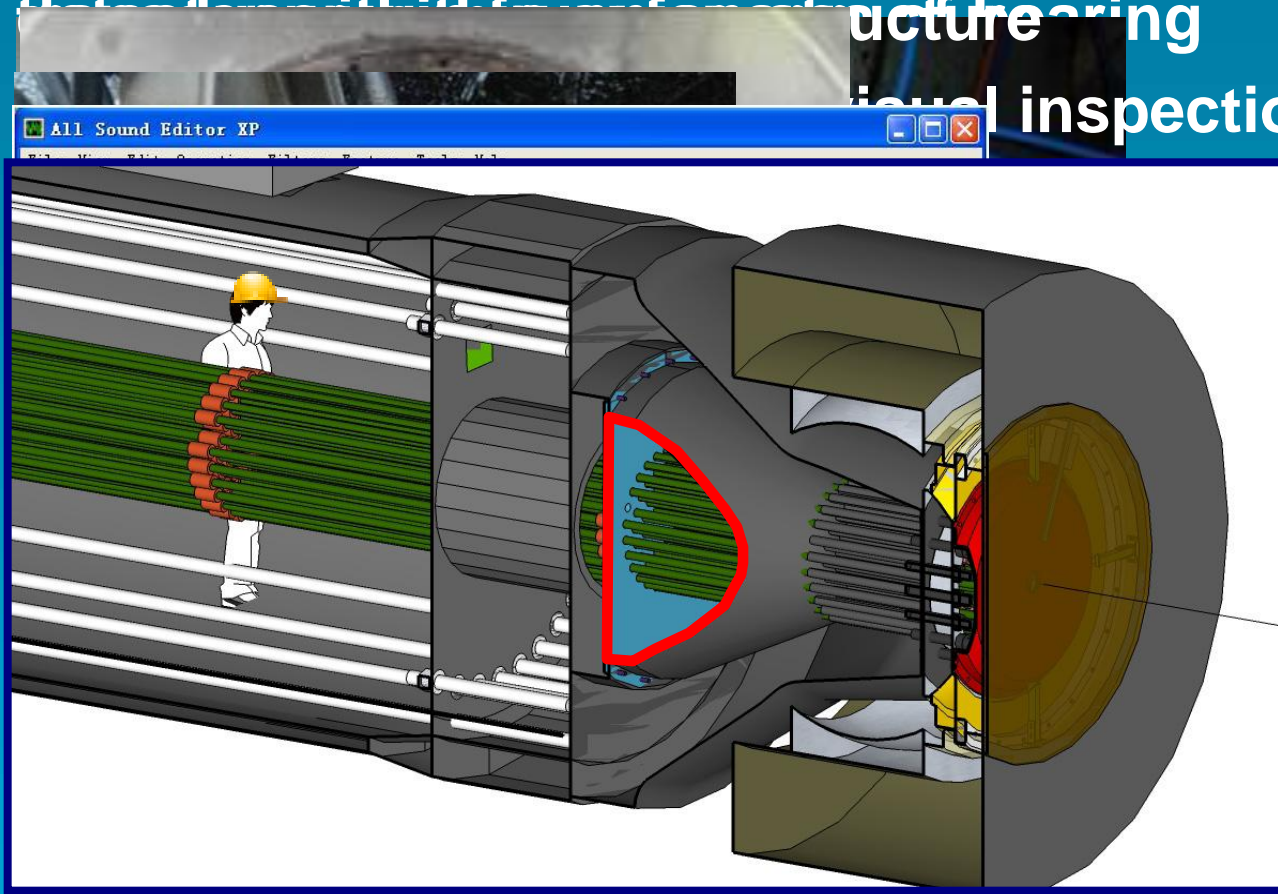
- 350 km<sup>2</sup> of London
- Over 400,000 properties at risk
- Over £200 billion capital values of assets
- 1.25 million people live/work below average high tide
- 30 mainline & 68 Underground / DLR stations
- 400 schools & 16 hospitals
- Internationally important cultural heritage and environmental sites



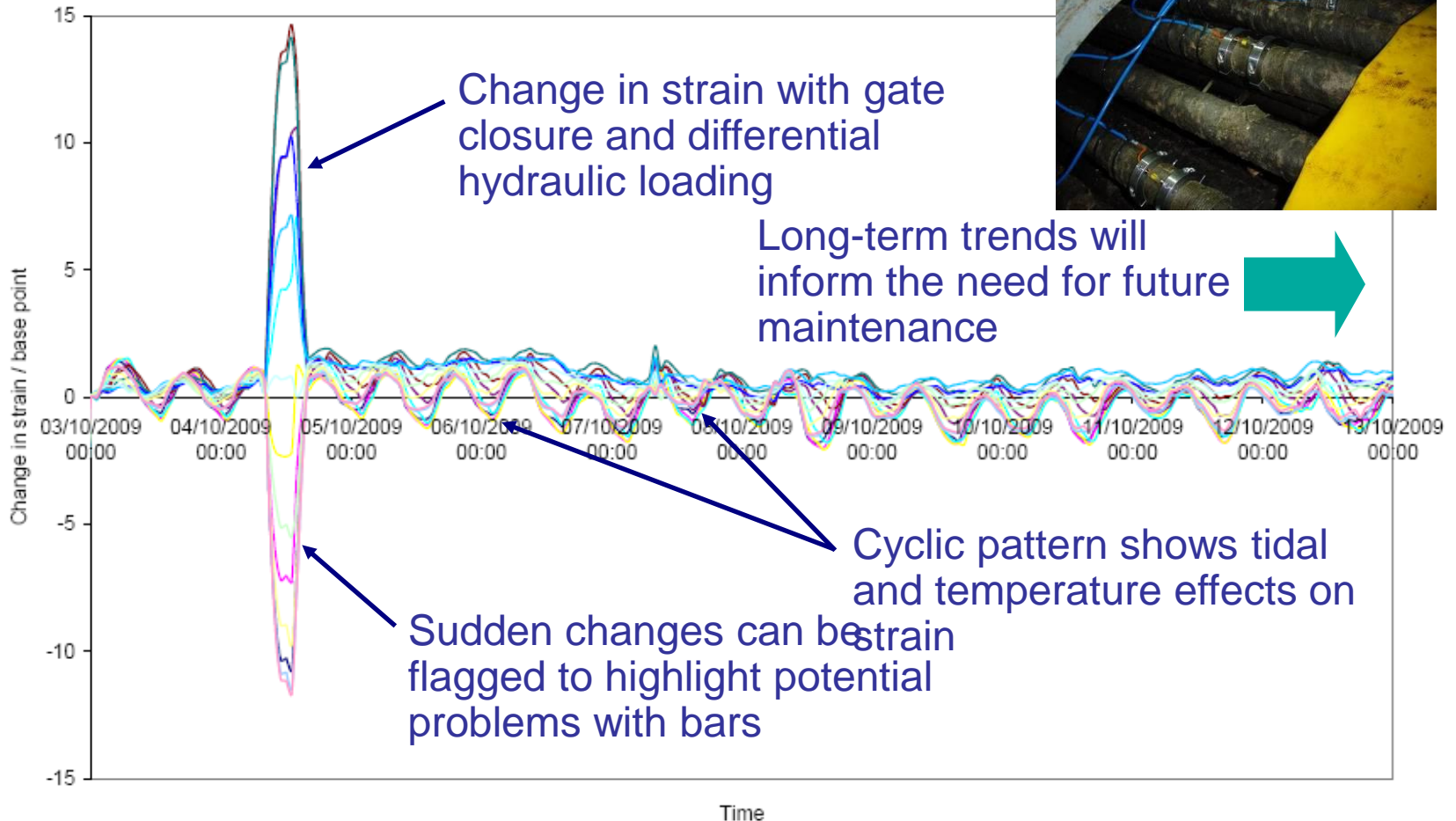
# Gate Arm Bearings and Trunnion Post-tensioned Bars



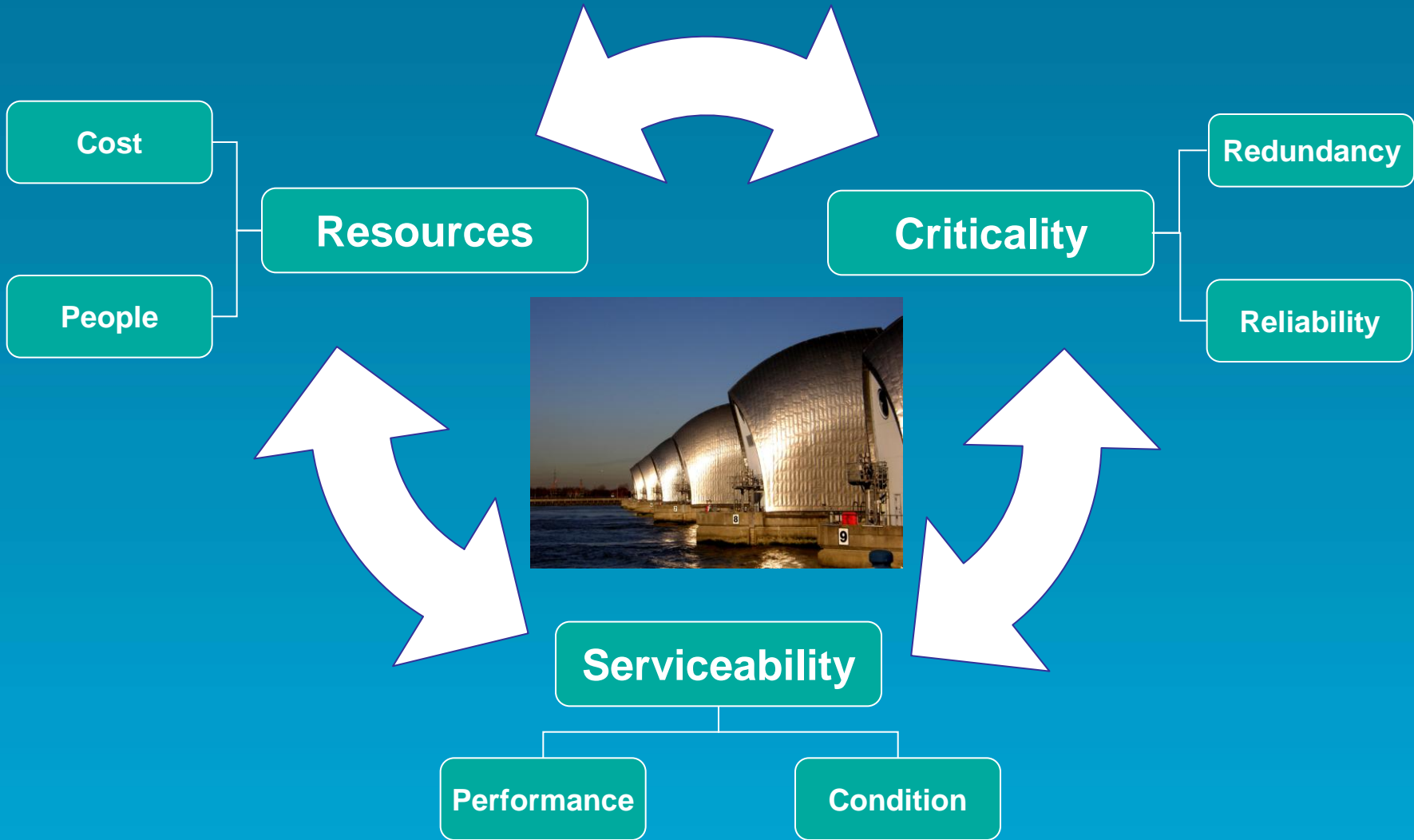
- Bearing deterioration can significantly reduce the load carrying capacity of a structure
- Visual inspections

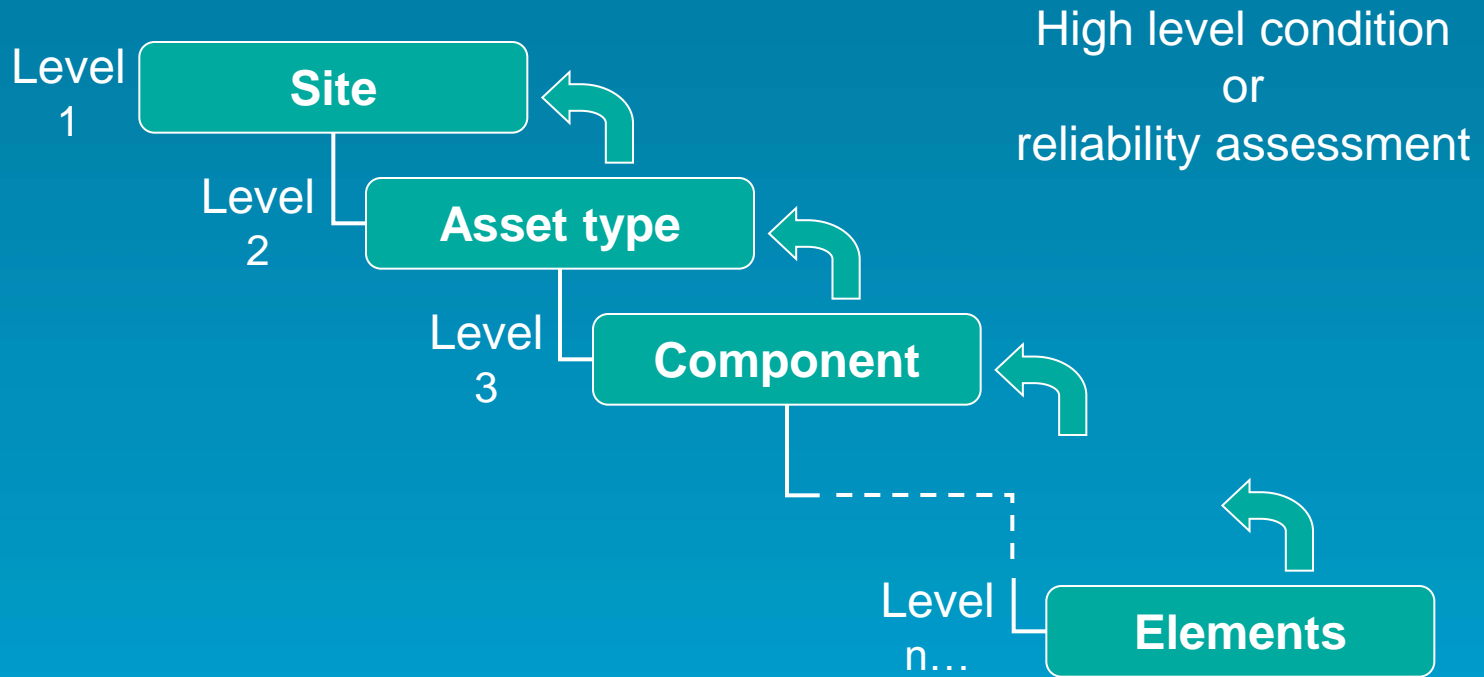


**Figure showing change in strain for all 14 strain gauges vs time on Pier 7 over the annual closure**



# What Use is the Information?





## Performance Information

### Automated

- Trunnion assembly
- Power pack performance
- Cathodic protection
- Deformation surveys

### Collected

- Recorded faults on CMMS
- Volume of un-planned maintenance

## Condition Information

### Quantitative

- Cylinder seals
- Subway joints
- Hydraulic oil

### Qualitative

- Coating inspections
- Weld inspections
- Endoscope surveys

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- Reducing the long term operating costs of vital infrastructure
- confidence
- Society go

