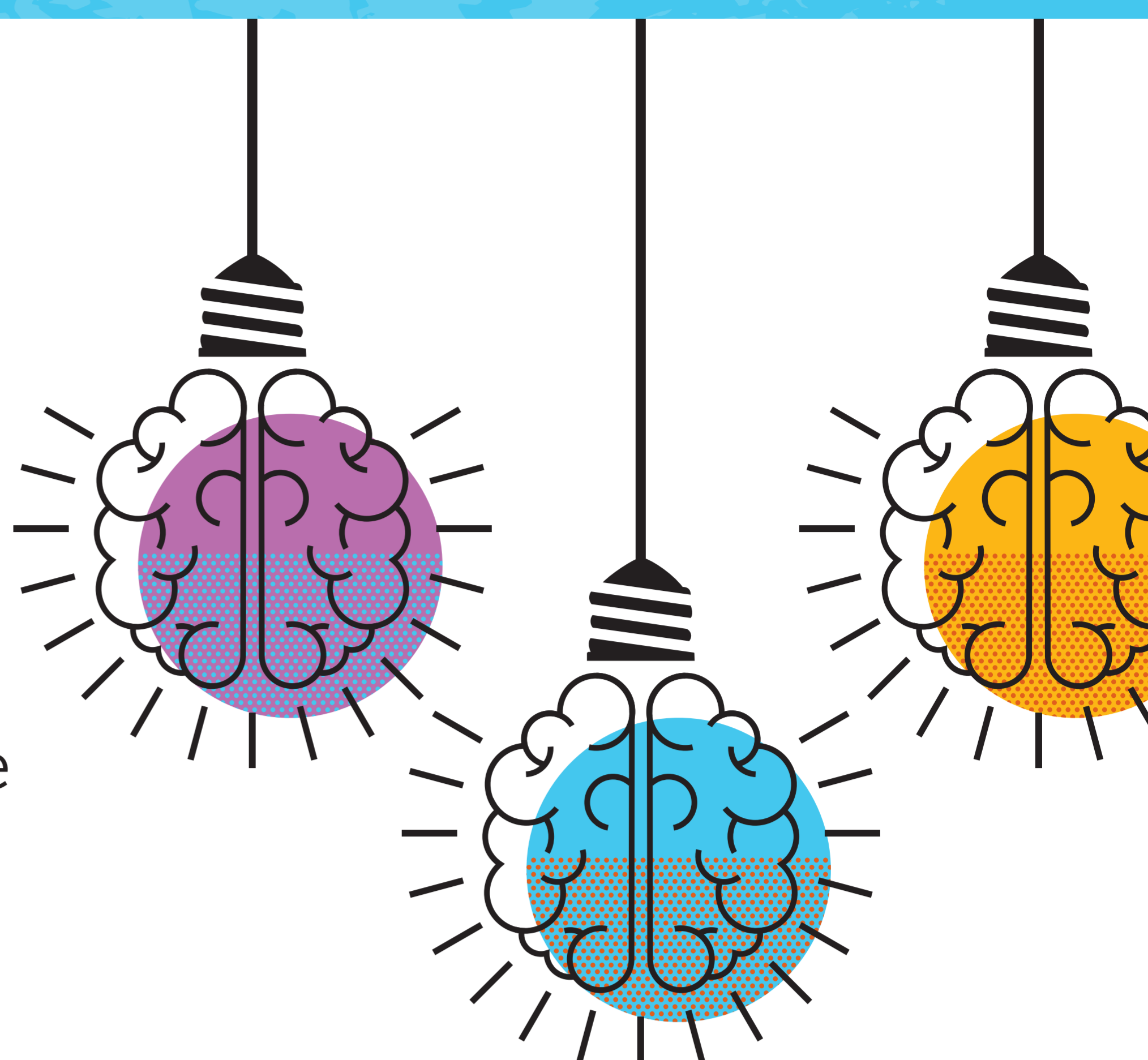


# Corrosion Challenge



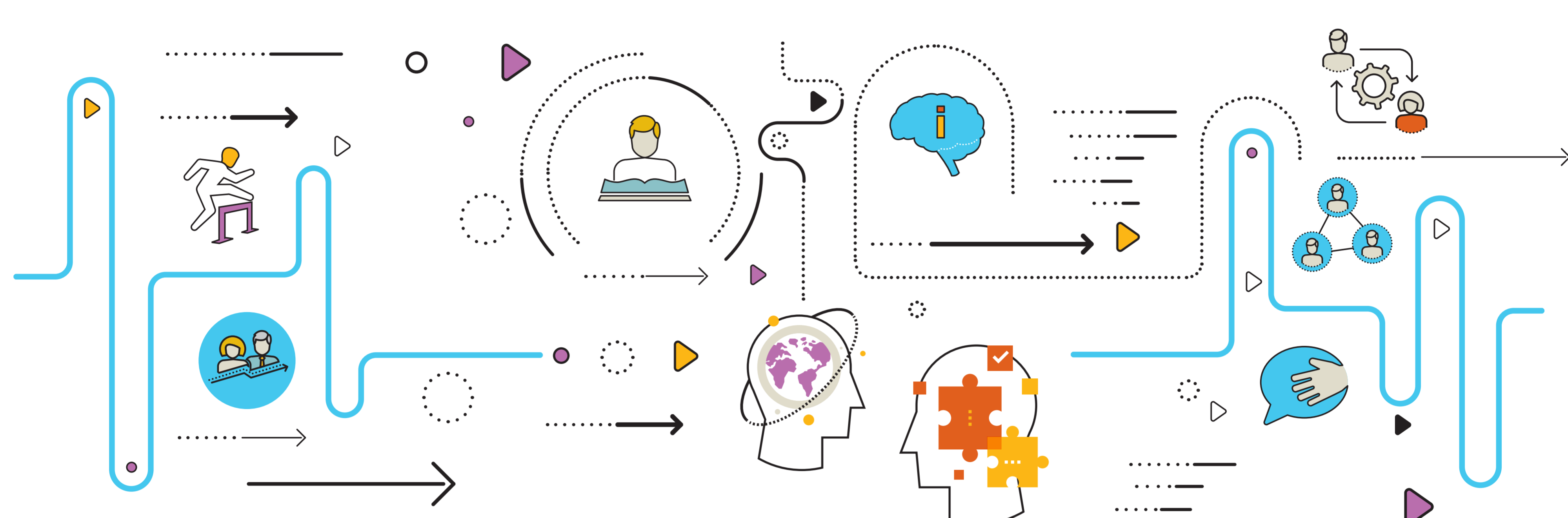
We're taking on corrosion...  
...and we need you

If your **expertise** could help shape a collaborative approach to tackling **corrosion**, don't miss the chance to take part in our new **innovation initiative**



## The challenge for localised corrosion

Corrosion under insulation, microbial induced or catalysed by scales – why does one area of material corrode, while the rest is untouched? Localised corrosion is a real challenge in many industries and while we have processes and procedures in place to minimise impact, we require a more fundamental understanding of the underlying processes involved



- Skills we require include:**
- Surfaces and interface chemistry
  - Chemical biology
  - Engineering

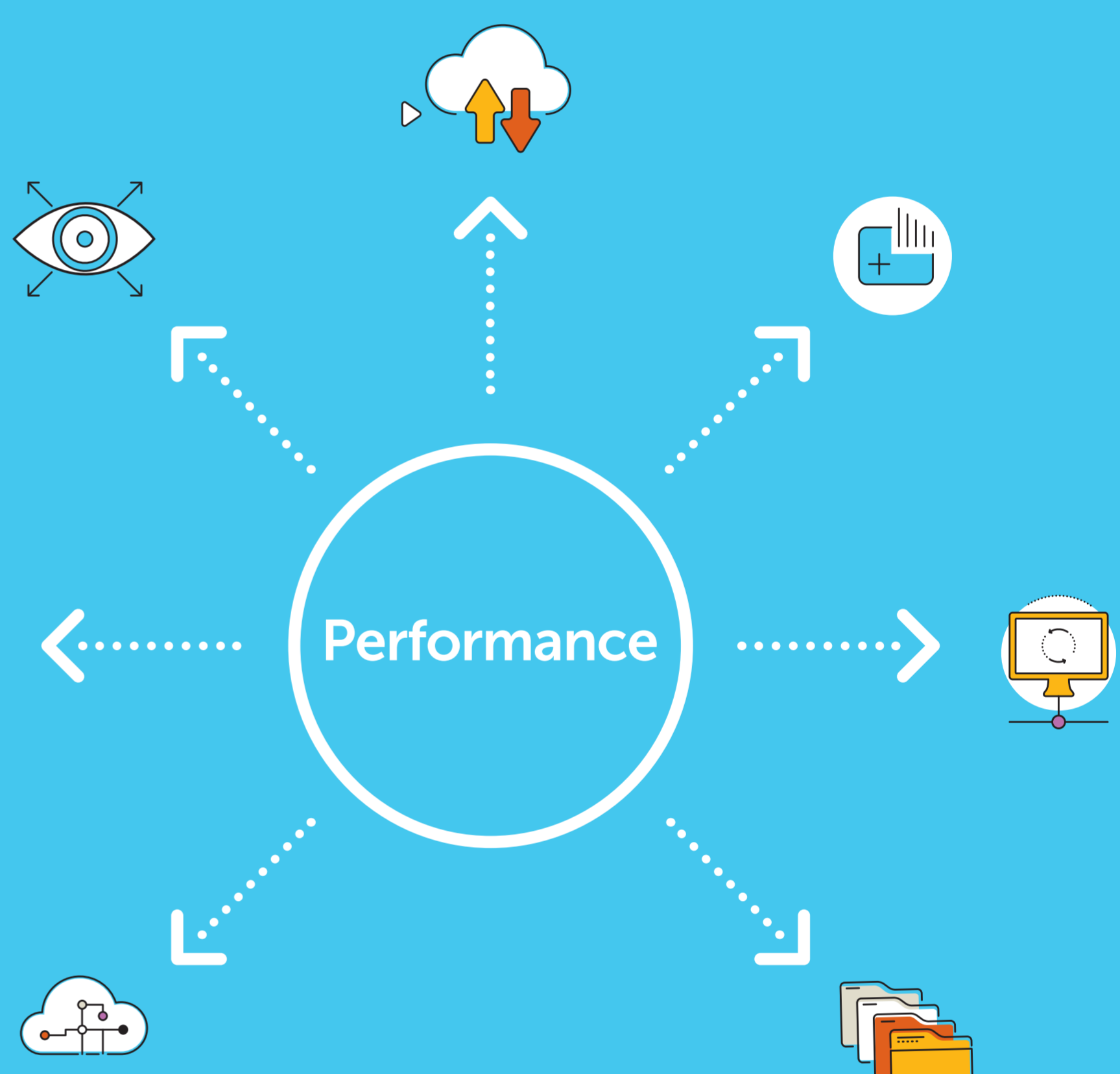
**The opportunities**

**A multidisciplinary approach** that applies knowledge from different sectors to better understand the fundamental processes that cause corrosion

**New mitigation techniques** that combine traditional empirical approaches with a deeper understanding of the corrosion problem

## The challenge for prediction

We have an ongoing battle against the natural processes that lead to corrosion and we invest in huge amounts of resources to mitigate it – but current solutions tend to be over-engineered to cope with a lack of ways to predict their performance



- Skills we require include:**
- Formulation
  - Testing and simulation
  - Big data and modelling

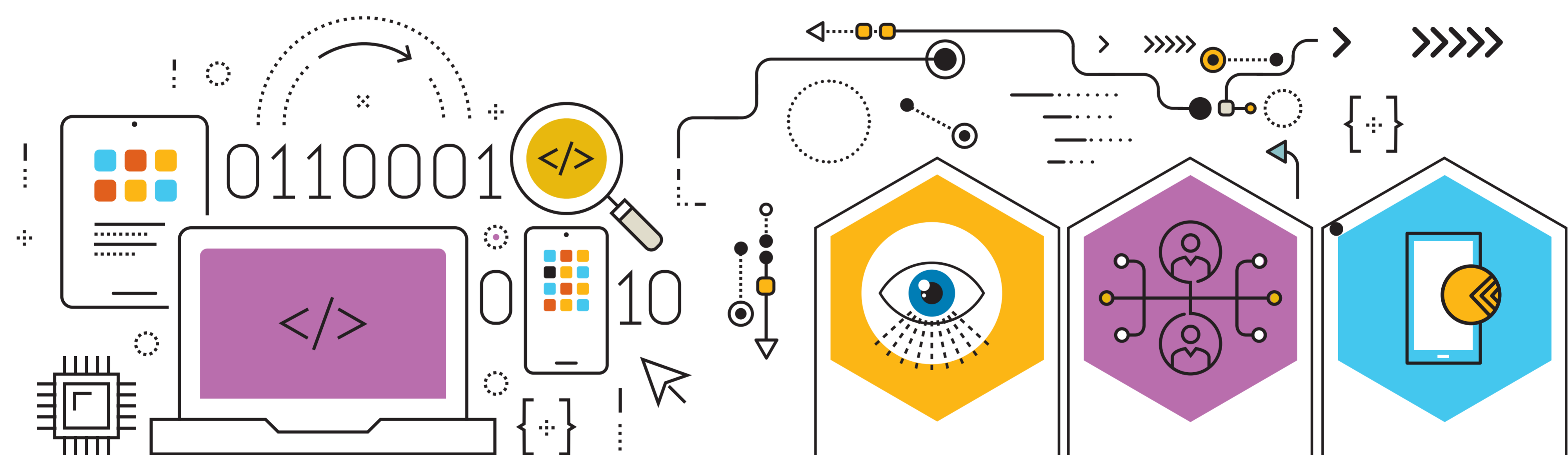
**The opportunities**

**Reliable testing** that can accurately correlate the long-term performance of mitigation techniques

**New prediction methods** so that we can better understand the long-term behaviour of corrosion

## The challenge for monitoring & detection

We can spot a galaxy 13.3m light years away, but we cannot quickly spot the warning signs of corrosion. There are many ways to monitor and detect corrosion, but we rely on over-engineered solutions as our primary method of prevention



- Skills we require include:**
- Sensors and diagnostics
  - Data and analytics
  - Inspection

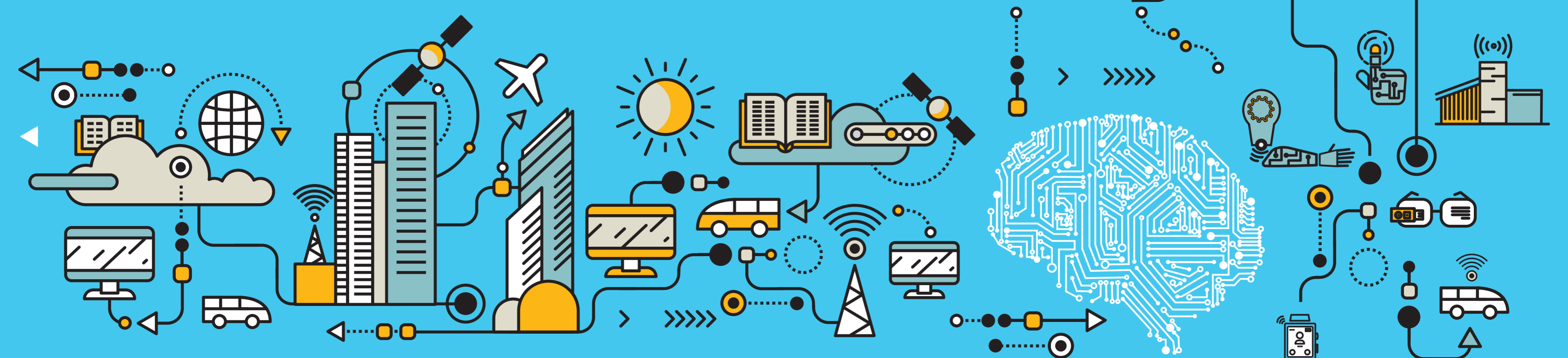
**The opportunities**

**New technology** that helps us sense and detect corrosion in inaccessible places

**Failure analysis and inspection** so that we can understand the long-term affects of corrosion and exchange knowledge between sectors

## The challenge for non-metals & system design

New materials have revolutionised many industries, from cars and aircraft to household goods. We'd like to explore ways in which non-metallic materials can replace steel in infrastructure



- Skills we require include:**
- Advanced materials
  - Design
  - Regulation

**The opportunities**

**New materials** that mitigate corrosion, deal with harsh environments and are cost effective

**Industry standards** that are reliable and enable for new materials to be implemented