

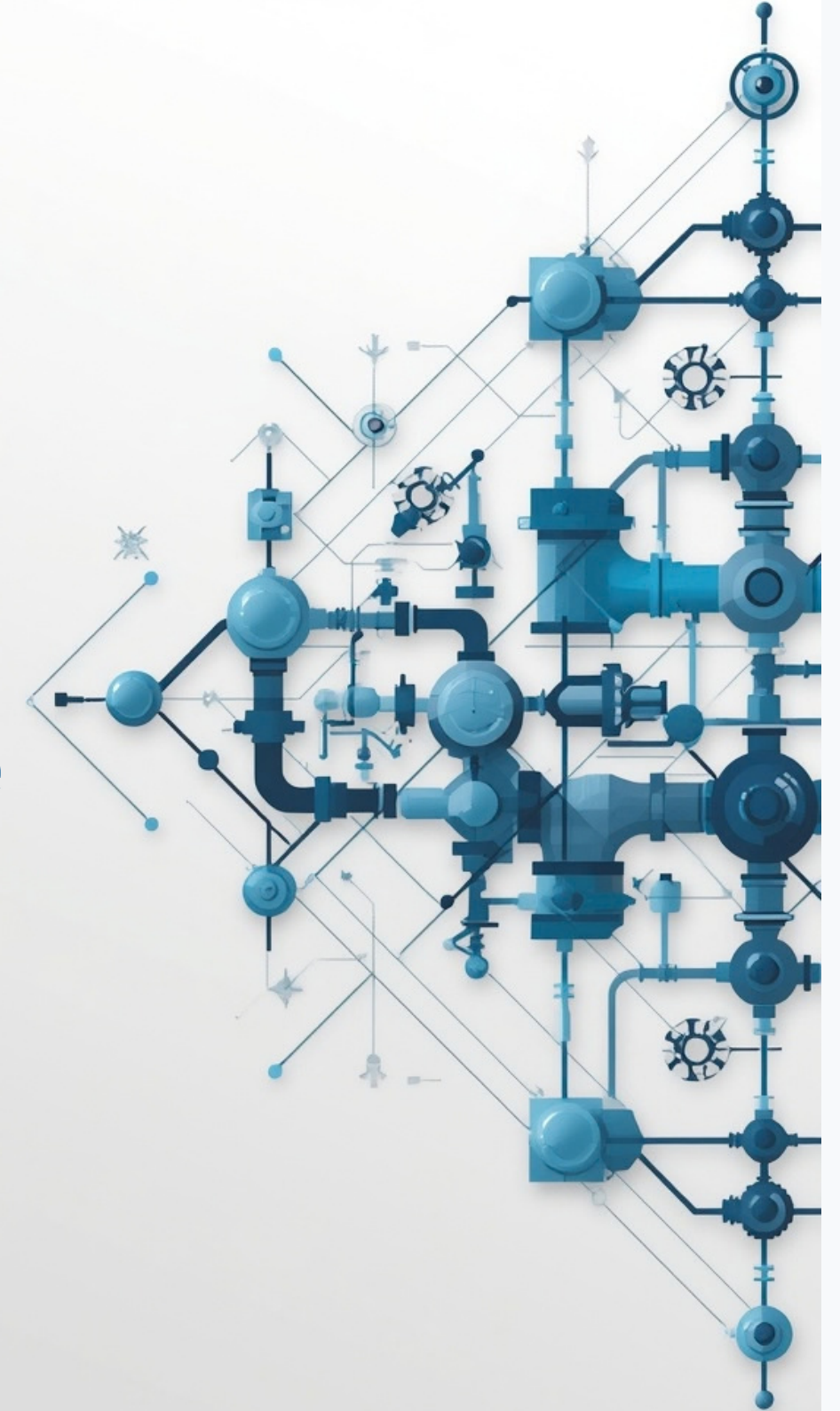


# Advanced Gas Technologies

Technology · System Architecture · Process Intelligence

Validation · Integration · Lifecycle Engineering

## AeroQoreX



# Five Technology Areas. One Engineering Company.

Connected capabilities for advanced gas systems and industrial processes.



**CASCADE-X**  
QoreFlow

Staged Gas Recovery  
& Recompression



**HYDROGEN**  
INFRASTRUCTURE

Integrated Gas  
Handling & Filling  
Architecture



**MODULAR**  
Compressor

Modular High-  
Pressure Gas  
Compression



**INDUSTRIAL LEAK**  
**TESTING**  
& Helium Management

Testing · Validation ·  
Recovery · Lifecycle  
Support



**EMS**  
LeakGuards

Process & Emission  
Monitoring

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**Technology + System Architecture + Process Intelligence**

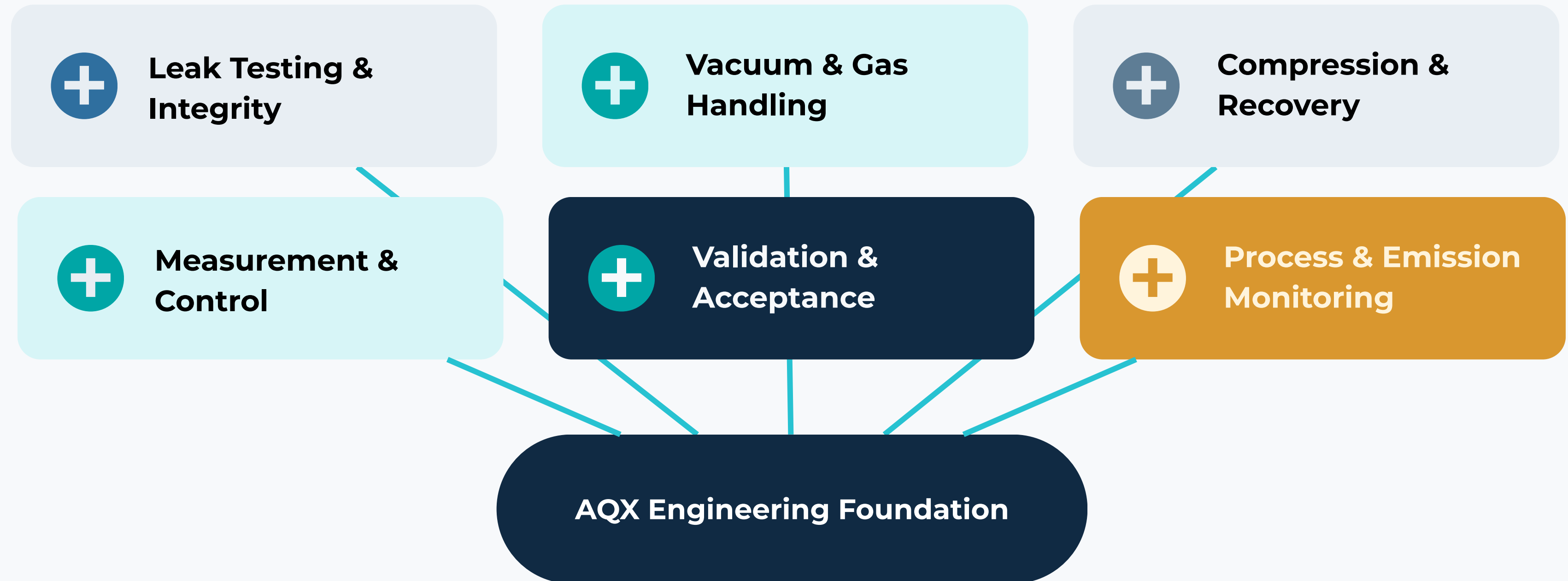
Validation · Integration · Lifecycle Engineering

# Engineering Foundation

New gas technologies built on industrial engineering experience.



Connected capabilities for advanced gas systems and industrial processes.



Industrial engineering experience supports new gas-system development.

# Validate First → Deploy Many

Turn engineering ambition into measured, repeatable evidence.



A demonstrator is a commercial decision gate.

# USE PRESSURE FIRST.

## COMPRESS ONLY WHAT IS NEEDED.

A system-level pairing for applications where staged pressure use fits.



Cascade-X utilises available pressure before the compressor handles the remaining duty.

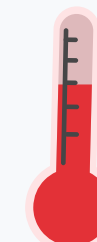
In special  
use cases

**90%**

power  
reduced

**50%**

lower  
storage



reduced  
temperature

# CASCADE-X: THE PROBLEM

Conventional architectures can place too much burden on compression.

## CONVENTIONAL ARCHITECTURE



**The compressor carries more of the work.**

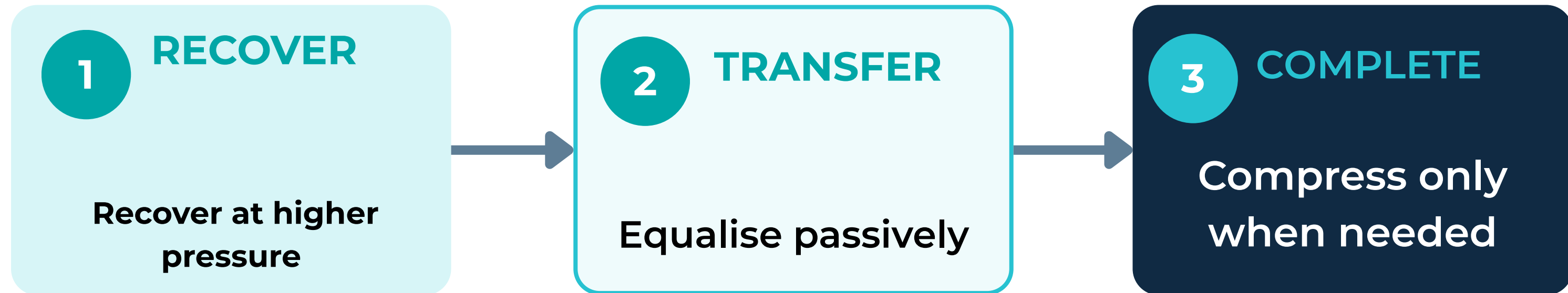
## CONVENTIONAL ARCHITECTURE

- Compression burden
- Energy demand
- Temperature management
- Contamination of Gas
- Leak through seals
- Maintenance difficulty

**Architectural burden, not a component failure**

# CASCADE-X: HOW IT WORKS

Pressure does the first work. The compressor finishes the job.



Pressure first • Compression where needed

High-level principle only • no valve sequencing, internal control logic or protected IP shown

# 250 → 350 BAR TRANSFER ARCHITECTURE

A theoretical analysis of source inventory, storage and receiving volume.

## CASE DEFINITION

**16 × 50 L × 3 source groups × 250 bar** → **storage** → **8 × 205 L at 350 bar**

### SOURCE INVENTORY

**16 × 50 L**  
3 source groups 250 bar

### STORAGE

**Intermediate storage**  
black-box transfer stage

### RECEIVING SYSTEM

**8 × 205 L 350 bar**  
target receiving volume

## HIGH-PRESSURE INVENTORY COMPARISON

### CONVENTIONAL EQUALISATION

**~574 bar 8 × 320 L source volume**  
High-pressure inventory above 350 bar: ~573,440 bar·L

### CASCADE-X CONCEPT

#### Distributed profile

Max pressure and inventory calculated per configuration Potentially lower high-pressure burden • validation required

### CYCLE COUNT

**~3000 → ~115**

Modelled cycle comparison

### THERMAL INDICATOR

**~500°C → ~50–60°C**

Modelled temperature comparison

# CASCADE-X SYSTEM MODEL RESULTS

Potential system-level benefits indicated by the evaluated configuration.

## ENGINEERING MODEL RESULTS

### COMPRESSION WORK

**~28%**

**potential reduction**

modelled • configuration-dependent

### STORAGE REQUIREMENT

**~50%**

**potential reduction**

modelled • configuration-dependent

### PASSIVE EQUALISATION

**~40%**

**potential reduction**

modelled • configuration-dependent

CYCLE RESULT

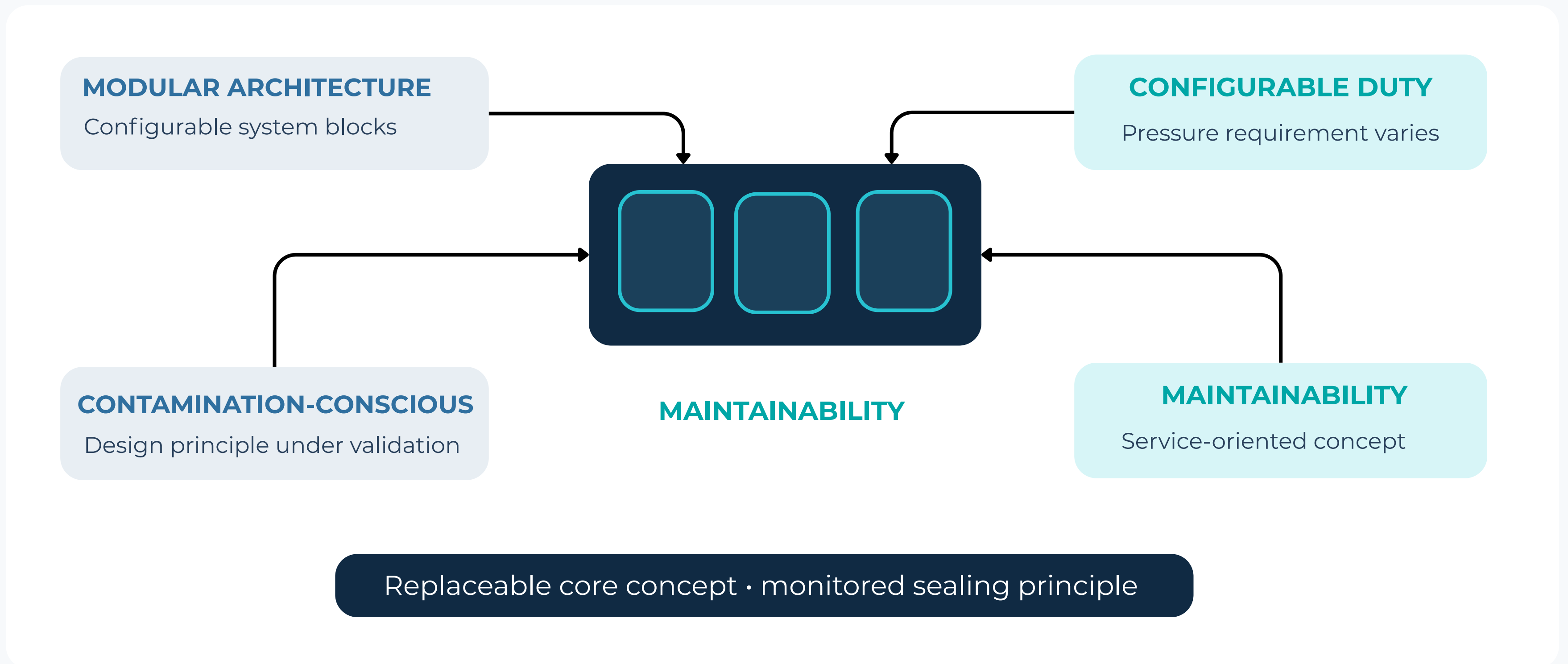
**MODELLED • APPLICATION-DEPENDENT • INDUSTRIAL VALIDATION IN PROGRESS**

Values are indicative model outputs, not universal performance claims.

Evidence file and common system boundary required before external publication.

# MODULAR COMPRESSION

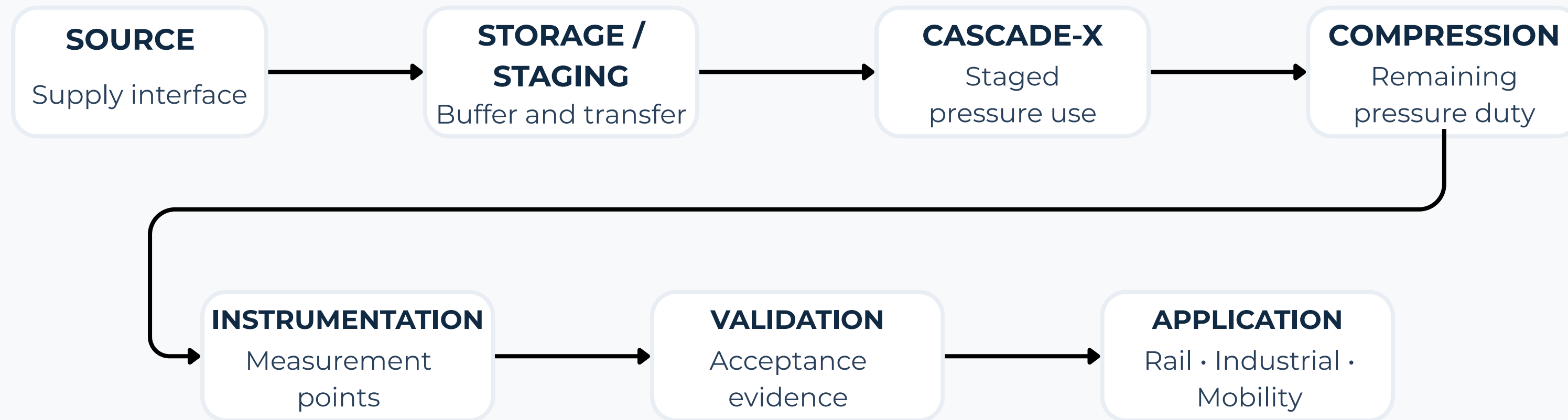
A development philosophy built around serviceability and configurable pressure duty.



High-level concept only • no sealing geometry, materials or internal design details shown

# HYDROGEN SYSTEM ARCHITECTURE

AQX connects source, staging, compression, instrumentation and validation.

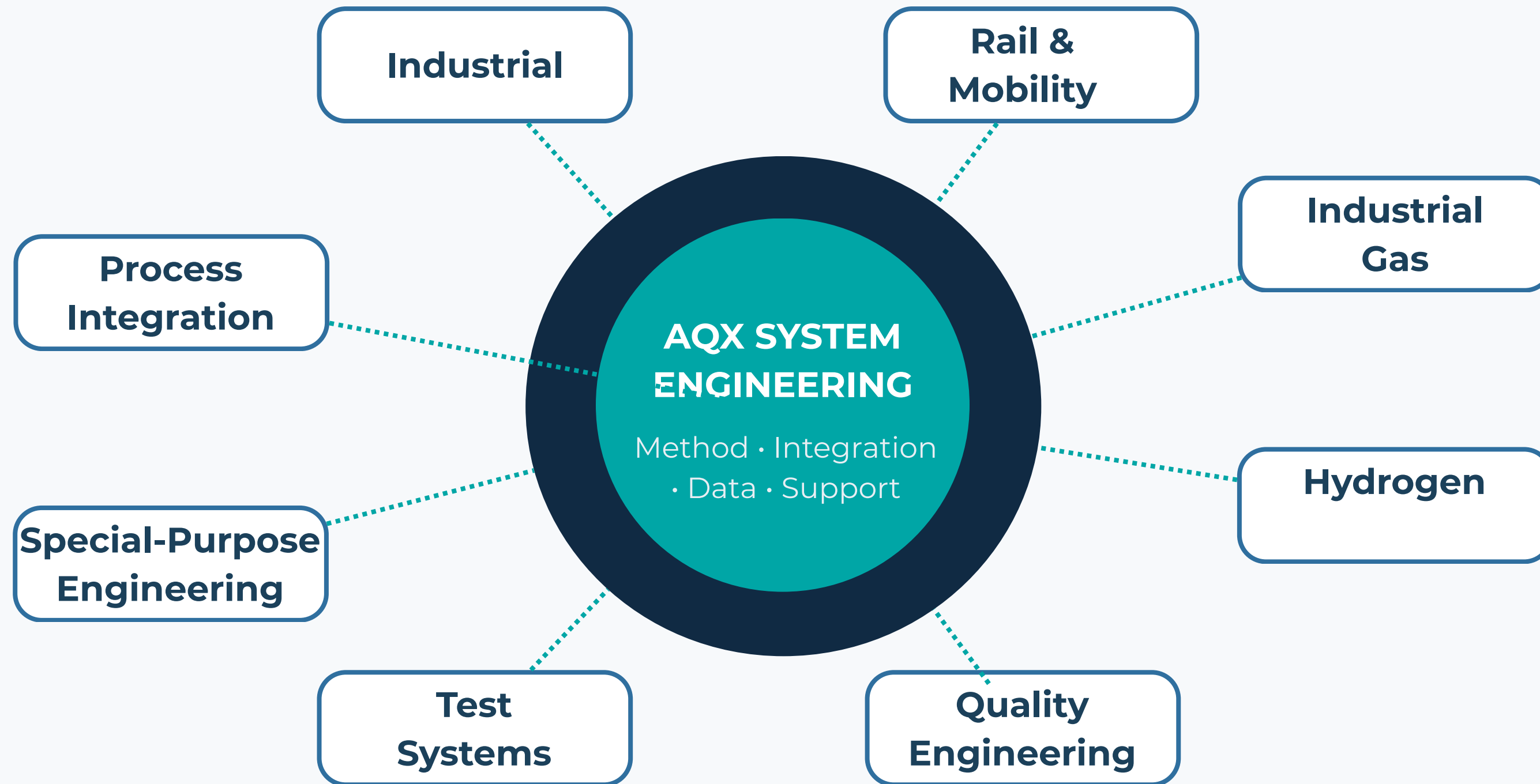


## AQX SYSTEM INTEGRATION & PROCESS INTELLIGENCE LAYER

Methodology · Integration · Data · Reporting · Validation support

# WHERE AQX SYSTEM ENGINEERING APPLIES

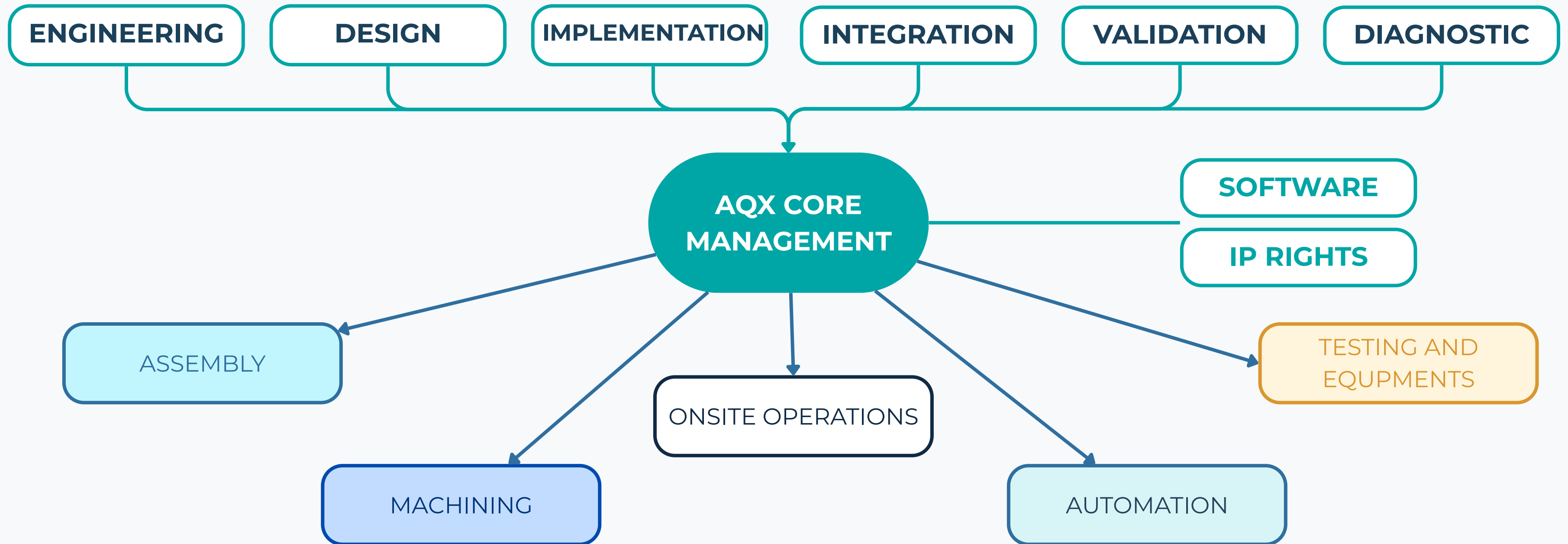
One engineering approach — different industrial contexts and process boundaries.



Application family only — project fit, scope and delivery model are defined case by case.

# AQX POSITIONING

AQX is strongest where engineering, integration, validation and advanced technology development intersect.



Application family only — project fit, scope and delivery model are defined case by case.

# HOW WE CAN WORK WITH YOU

AQX can enter through turnkey, hybrid or expertise-only engagement.

## PROCESS TO HANDLE A NEED



# Industrial cooperation starts with proof

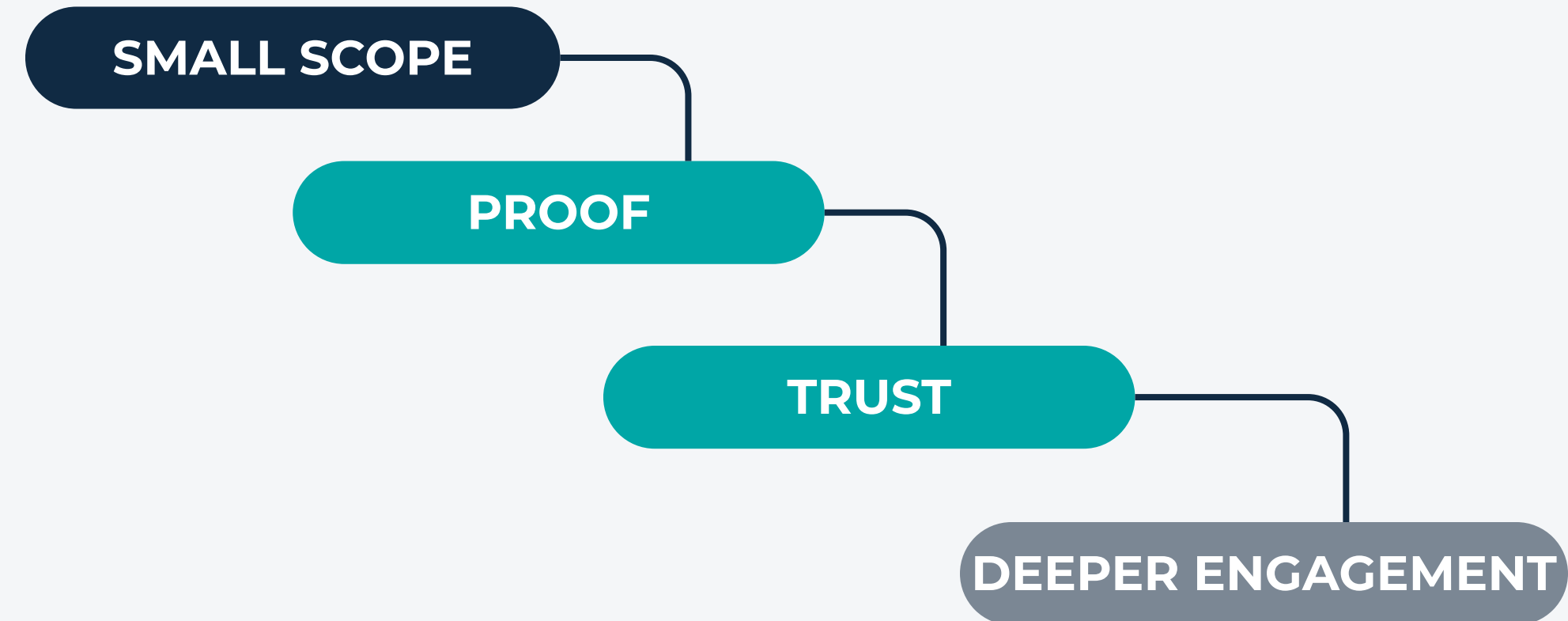
AQX enters through a bounded technical scope, creates evidence and grows the relationship

## POSSIBLE COOPERATION

Industrial manufacturers and OEMs

Technology and integration partners

Validation and demonstration  
environments



**Begin with a defined engineering scope. Build evidence before expanding the engagement.**