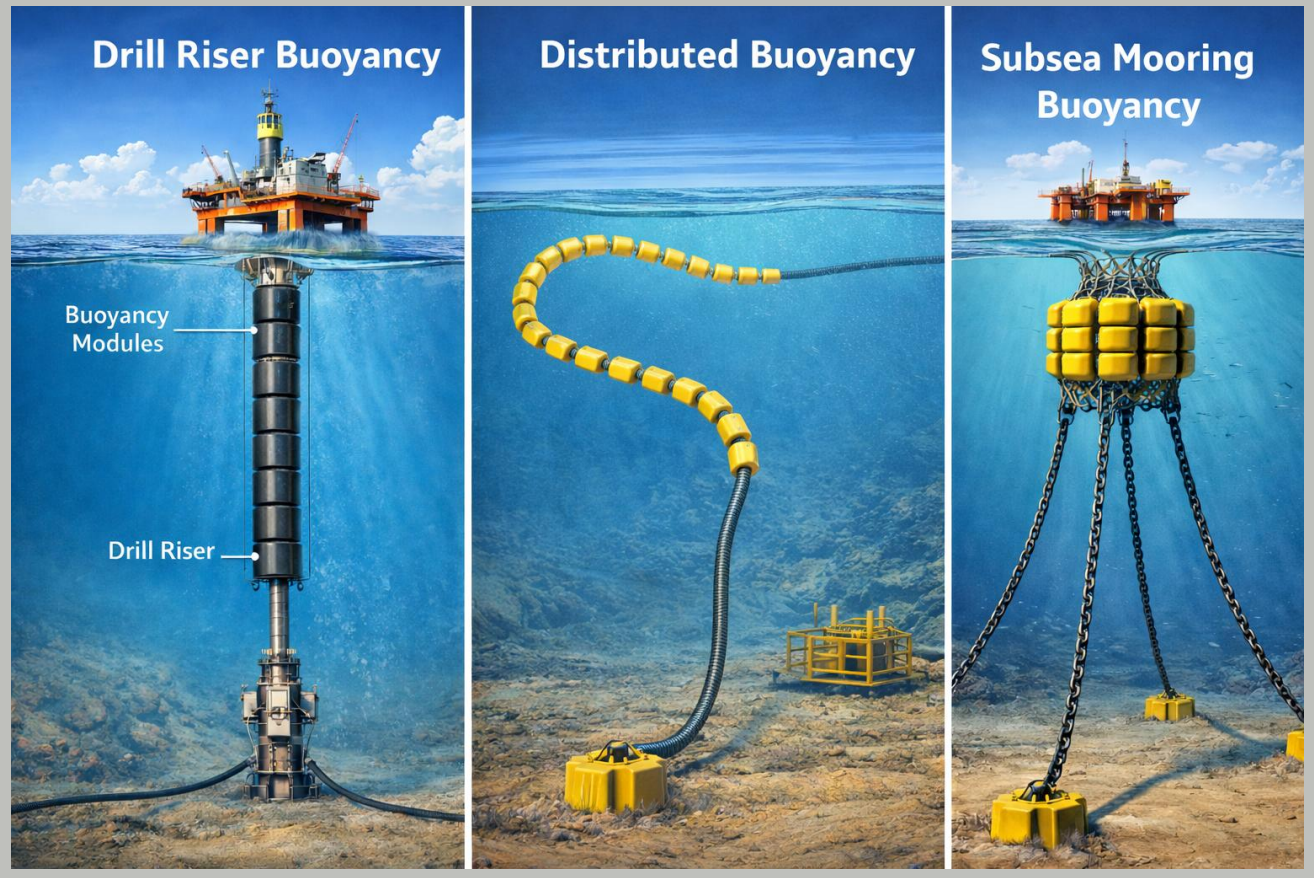
MECHMAN

Areas of use



Moulded buoyancy

- Production method moulding to shape
- Coarse tolerances

Example of use

- Drill riser buoyancy
- Distributed buoyancy
- Mooring buoyancy

MECHMAN

DESIGN – PRODUCE – CIRCULAR USE

Areas of use

Custom-Fit Buoyancy

- Procured to sheet format
- For products with fine tolerances

Example of use

- ROV buoyancy
- ROV tooling
- Seabed structures

MECHMAN

DESIGN – PRODUCE – CIRCULAR USE

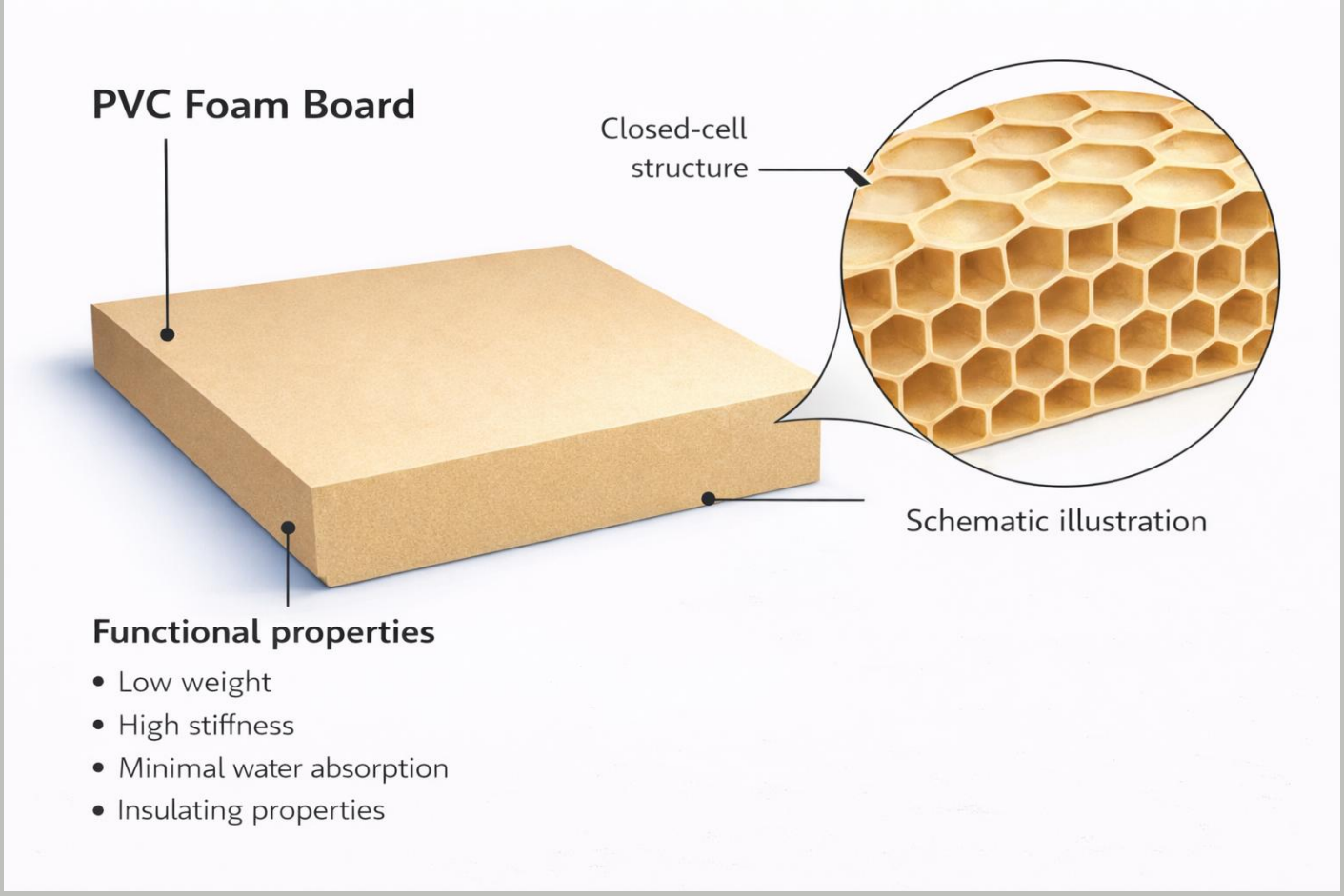
Focus in this presentation

Custom-Fit Buoyancy is focus in this presentation

1. Design
2. Reuse

MECHMAN
DESIGN – PRODUCE – CIRCULAR USE

Design of buoyancy modules



Two main categories

PVC Foams

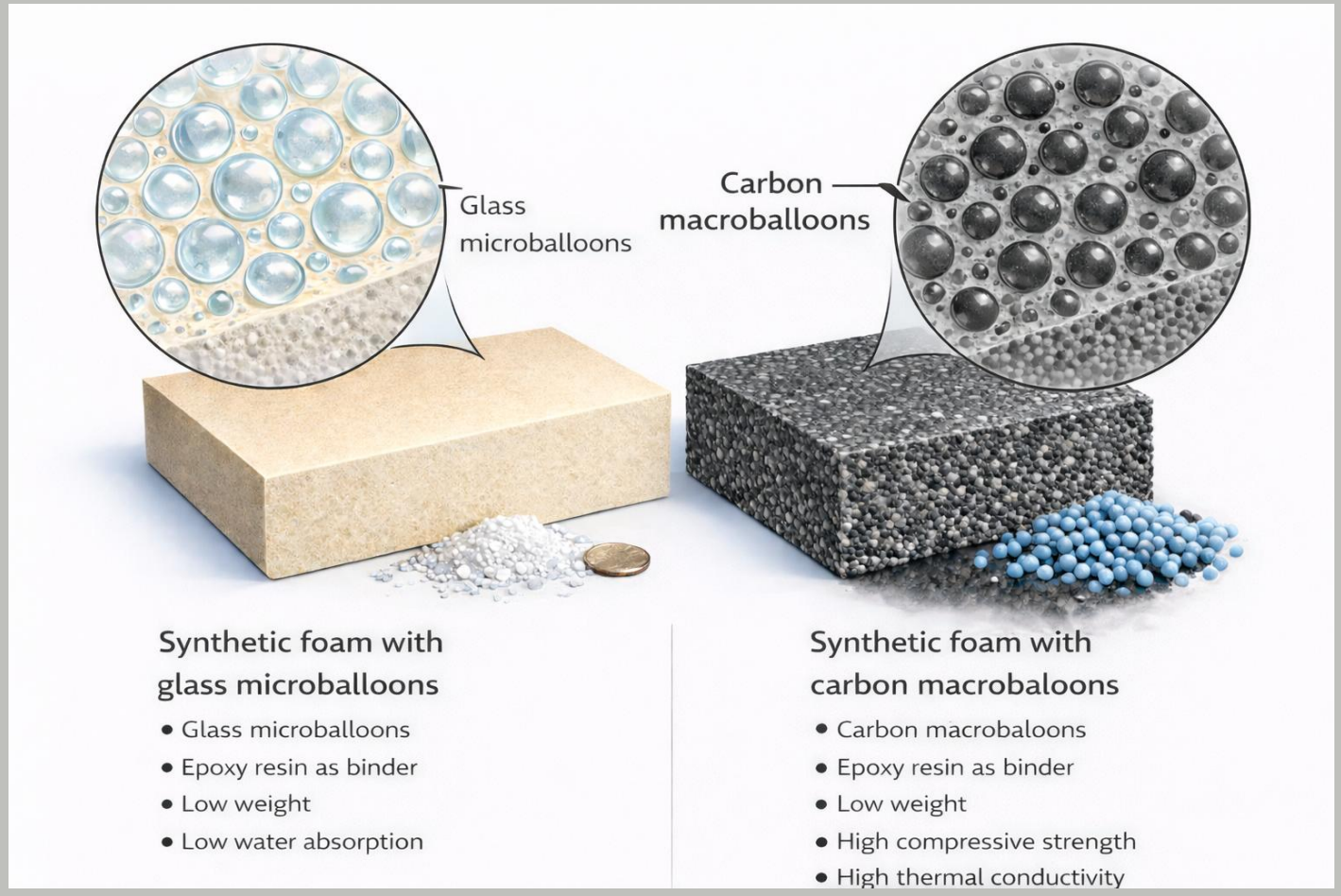
Syntactic Foams

- Bot must contain hollow areas.
- **PVC foams**
- Max depth rating 650 meter
- Modules are made from predefined material in plate forms

MECHMAN

DESIGN – PRODUCE – CIRCULAR USE

Design of buoyancy modules



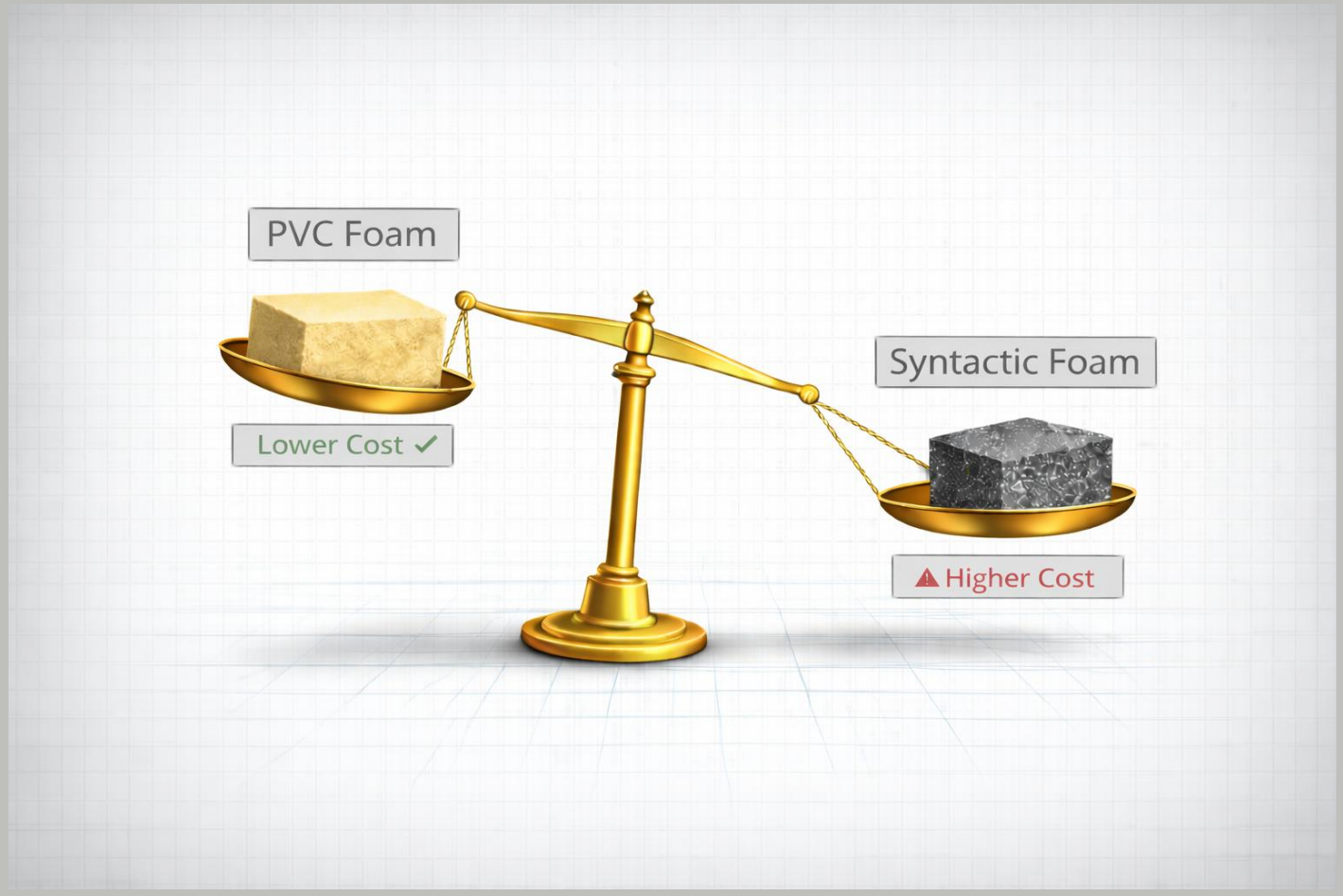
Syntactic foams

- Depth rating up to 11000 meter
- Modules are made from predefined material in plate forms
- Syntactic foam with micro balloons is most common in ROV marked

MECHMAN

DESIGN – PRODUCE – CIRCULAR USE

Design of buoyancy modules



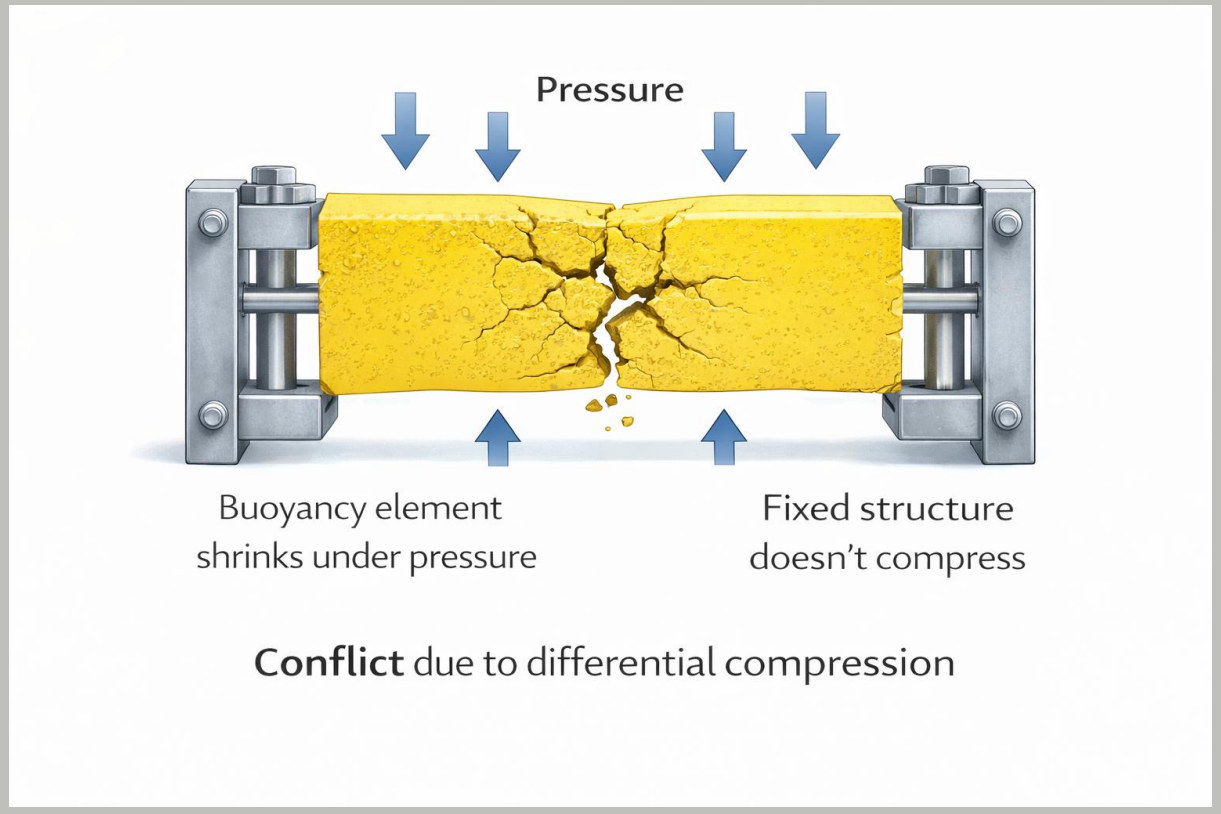
Selection of **PVC Foam** or **Syntactic Foram**

- Buoyancy, the most costly single component
- 90 % can be raw materials
- PVC Foam is lowest in price
- Crucial to decide operating depth.

MECHMAN

DESIGN – PRODUCE – CIRCULAR USE

Design of buoyancy modules

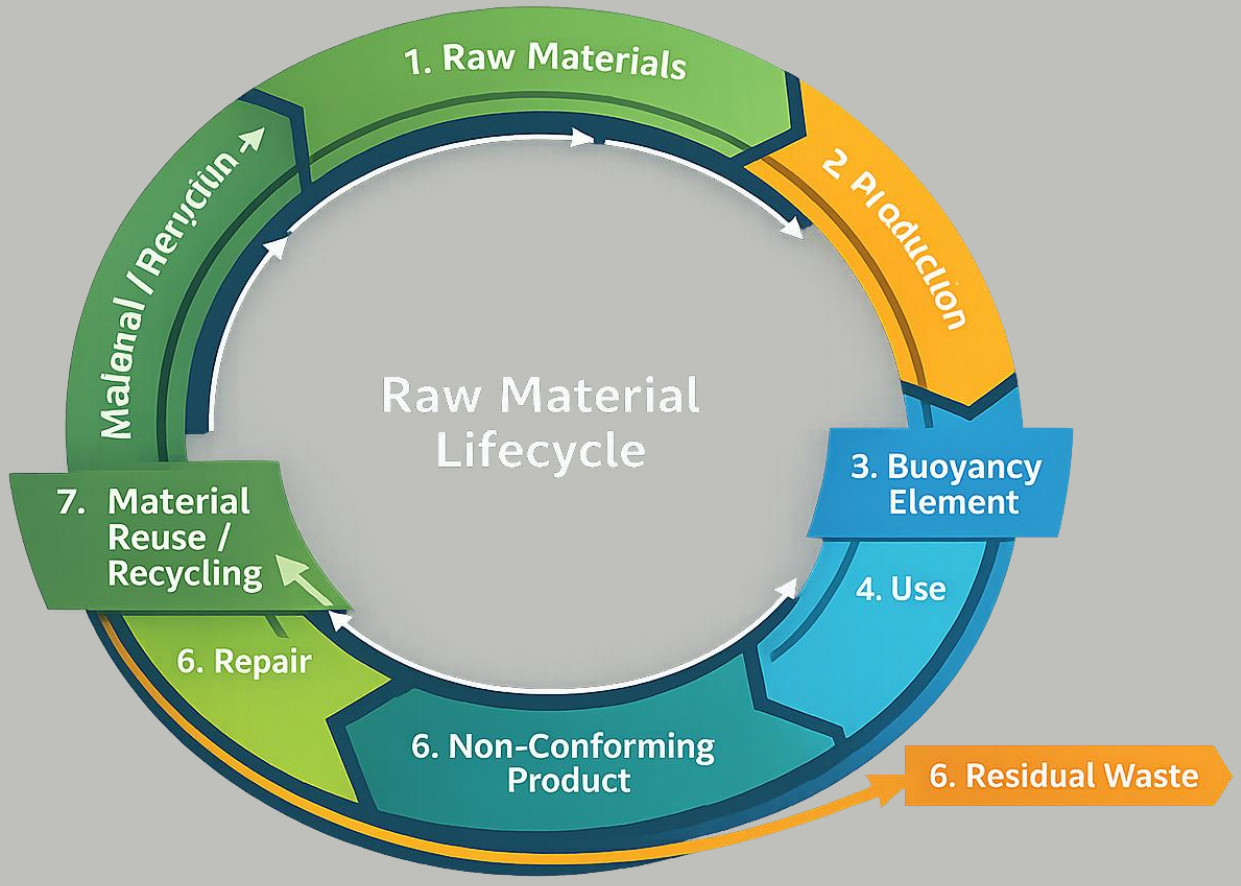


Buoyancy will shrink and attachments in metal will not shrink.

- Avoid breakage in operation by allowing buoyancy to freely move when in operation

MECHMAN
DESIGN – PRODUCE – CIRCULAR USE

Reuse of buoyancy



Lifetime: 20 years

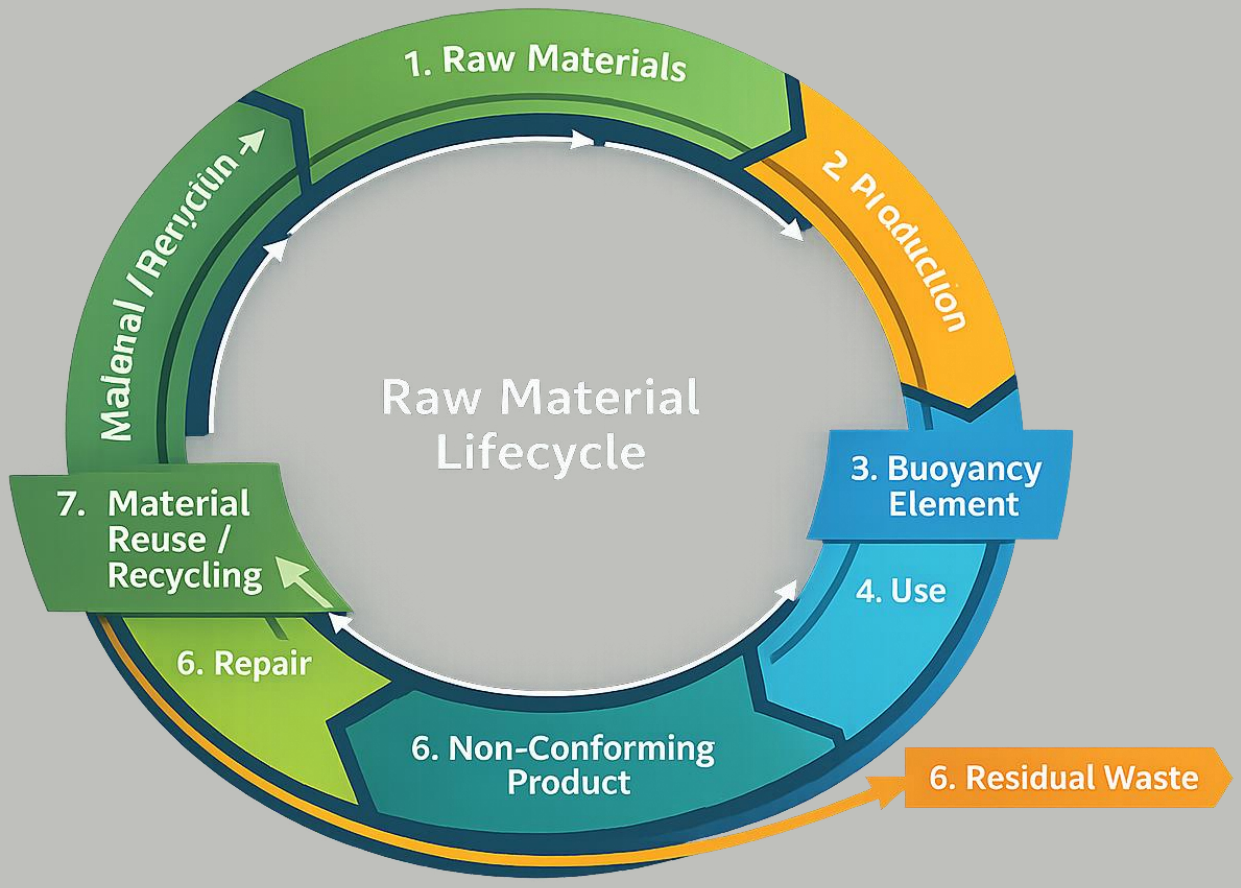
Potential sources of reduced lifetime.

- **Overload** → Waste
- **Wear** → Waste if not maintained
- **Damage** → Waste if not repaired
- **Outdated product** → Waste if not upgraded

MECHMAN

DESIGN – PRODUCE – CIRCULAR USE

Reuse of buoyancy



Lifetime: 20 years

Factors to **maintain lifetime**

- **Overload,** check condition
- **Repair** worn elements
- **Reuse materials** by making new shapes
- **Surface protection** by adding stronger materials towards surface

MECHMAN

DESIGN – PRODUCE – CIRCULAR USE

Thank you for your attention

Feel free to get in touch if any questions:

www.mechman.no

asmund@mechman.no

MECHMAN

DESIGN – PRODUCE – CIRCULAR USE