MIT DESHPANDE CENTER
FOR TECHNOLOGICAL INNOVATION

Commercializing University Research

- from Lab to Market

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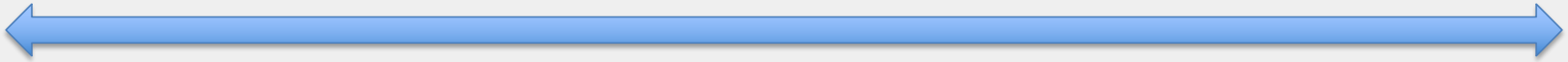
- **WHY?**
- **WHAT?**
- **HOW?**

MIT Deshpande Center Mission

- **Create impact through technological innovation**
  - Move MIT research from the lab to the marketplace
  - Stimulate innovation
- **Education of faculty and students**
  - About commercialization
  - Learn by doing

Technological Innovation



Design Based

Engineering Based

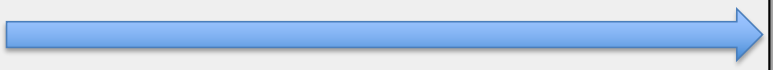
Research Based (Science)

Use existing technologies with new combinations

Develop new technologies

- Difficult - Long Time to Market
- Big Impact on Society

The Innovation Gap

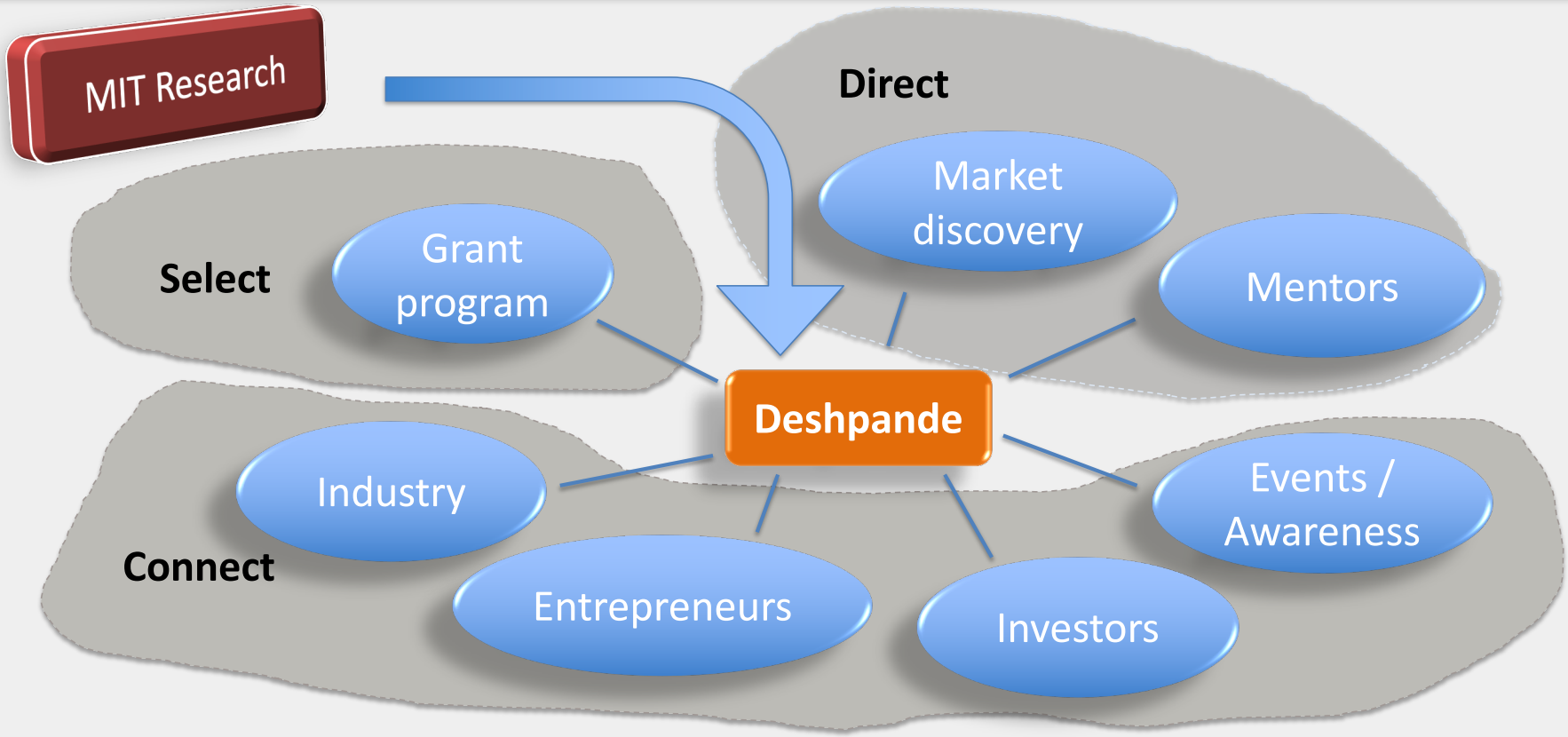


- Technology risk
- Market risk

Product

What we do

- **Provide Grant funds and mentoring** to faculty and students
- Advance their research technologies so they can leave MIT into startups
- Grants are $50,000 for one year – can be renewed for additional years up to $250,000 total



History

- Since 2002 = 19 years
- 700 proposals
- 170 projects supported
- $20+ million of grants funded

Results

- 500+ faculty/students and 100+ volunteers
- 44 start-ups
- $1+ billion capital raised, hundreds of employees

Spinout rate

- About 25% of projects spin out
- 2 or 3 per year

Grants

- Portfolio approach
  - $50,000 initially and more money to the strongest

Guidance from mentors (Catalysts)

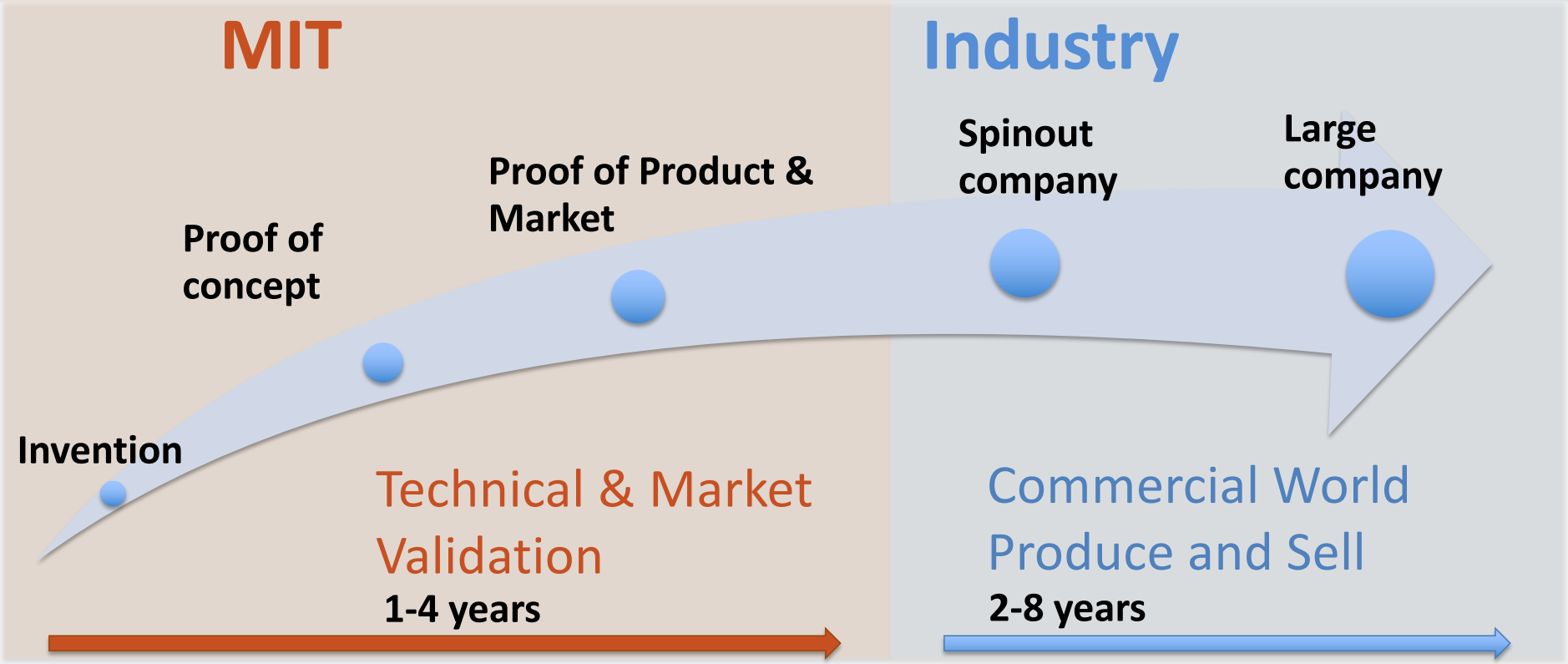
- Volunteers with specific industry knowledge
  - e.g healthcare, energy, electronics, materials
  - entrepreneurs, physicians, executives, engineers
  - technology, markets, business

How we reduce technology and market risk

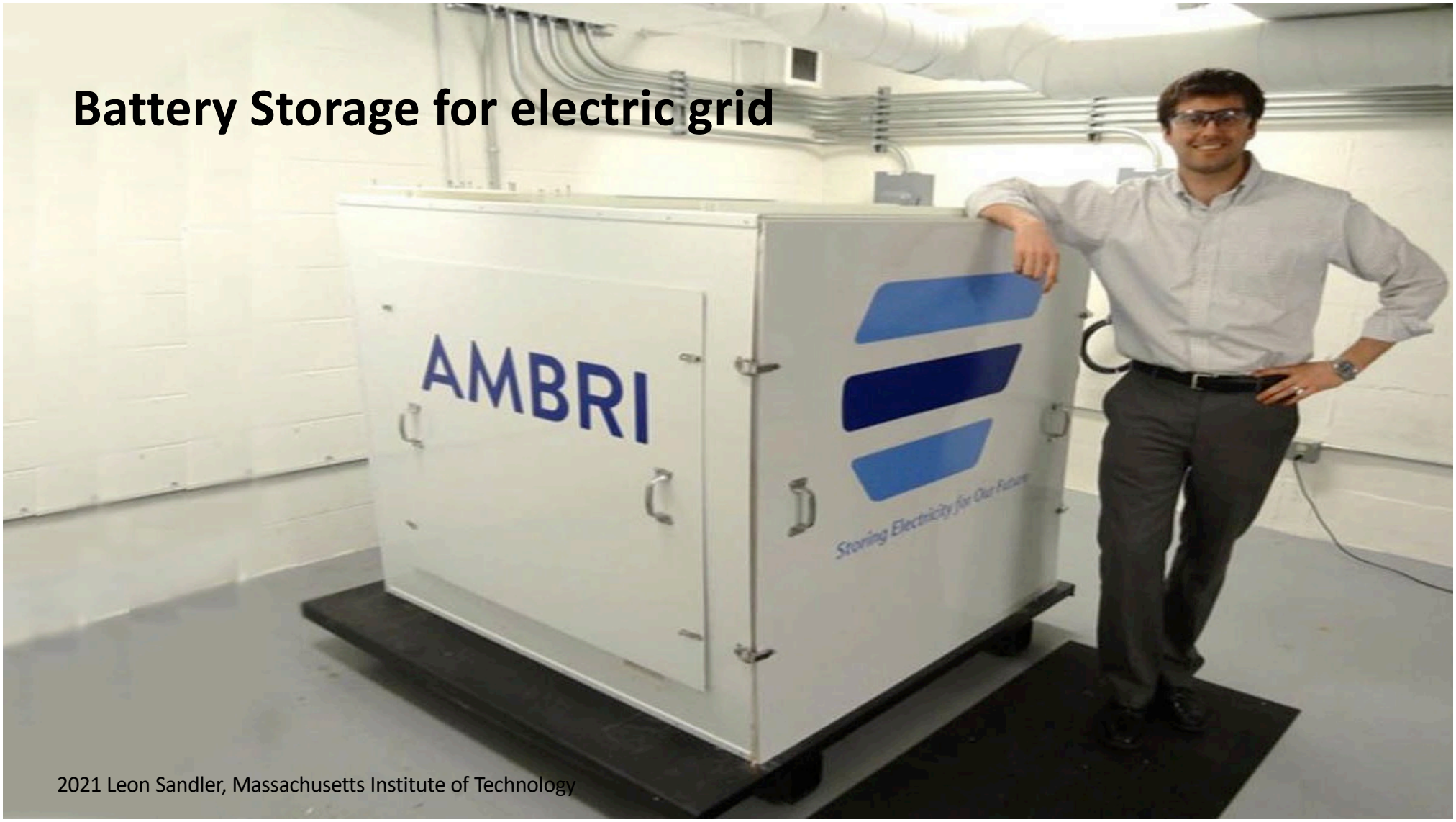
- Give small grants
- Provide guidance (mentors)
- Connect to people (industry, investors, entrepreneurs)

Making connections

- Large and small events
- Poster sessions and presentations
- Introductions
- Public relations and media exposure

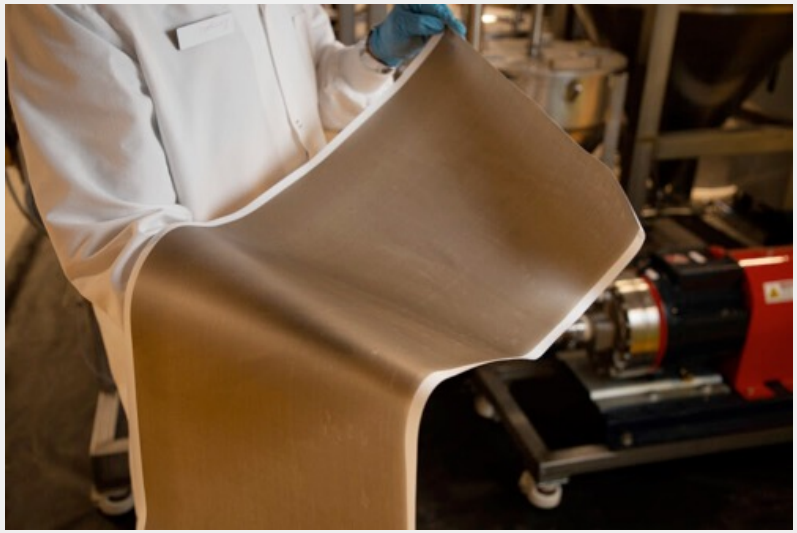


Battery Storage for electric grid

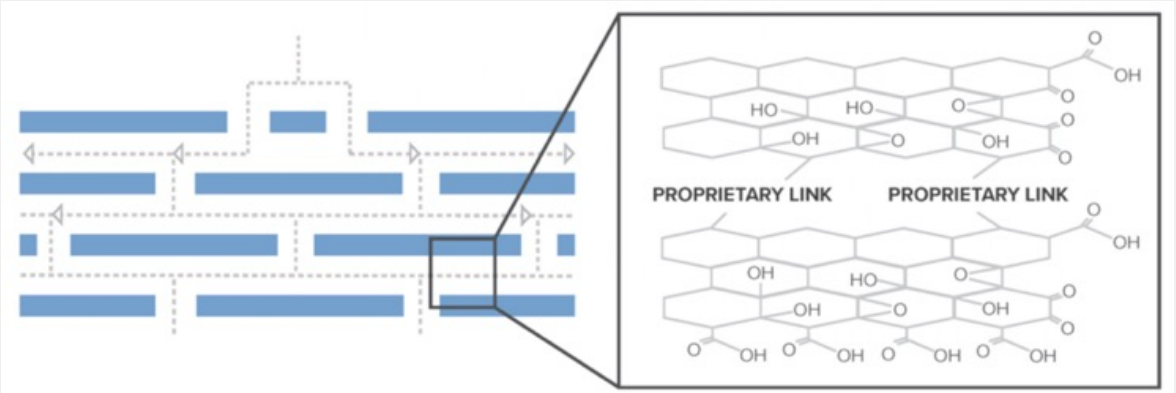


3D Printing of multi-materials

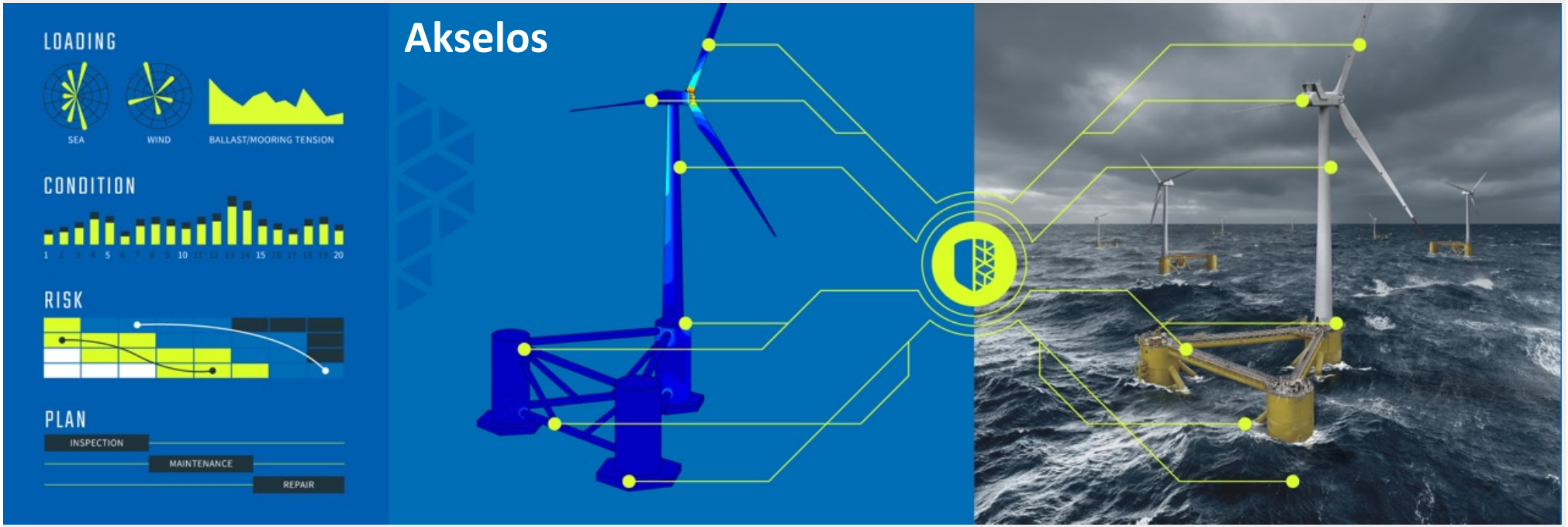
Graphene oxide membrane for separations



VIA Separations



Digital Twins: Finite element analysis simulations



Case study- increasing uptime at the Rio Tinto Kennecott mine

- Manage uncertainty of crack formation and other integrity defects on the booms of the mining excavators.

- Connecting to sensors, inspection and maintenance data, Akselos provides accurate and near real-time information on the likelihood of boom failure, and to predict how much ‘life’ is left in the booms.

Carbon nanotube based gas sensors

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Drug delivery to the bladder

TARIS BIOMEDICAL

Non-invasive white blood cell counter

LEUKO

Why startups, not large companies?

- Motivation and commitment of team
- Ownership of the product
- Speed and experimentation
- Risk taking
- Financial incentive

Role of Industry

- **Transactional or Relationship?**

Role of Industry

- **Relationship with university teams**
  - Help the researchers
  - Market feedback / contacts
  - Collaborations / influence research direction
  - Maybe funding
  - Potential hires

Role of Industry

- **Relationship with startups**
  - Seed or later stage funding
  - Development contracts
  - Customer or collaborator
  - Influence product direction