

Powerweb Conference



research center for digital technologies

allliander

Distribution system operator

- Largest DSO in the Netherlands
- Maintain electricity & gas grid

Electricity grid length

93,000 km

92,000 km in 2020

Gas grid length

42,000 km

42,000 km in 2020



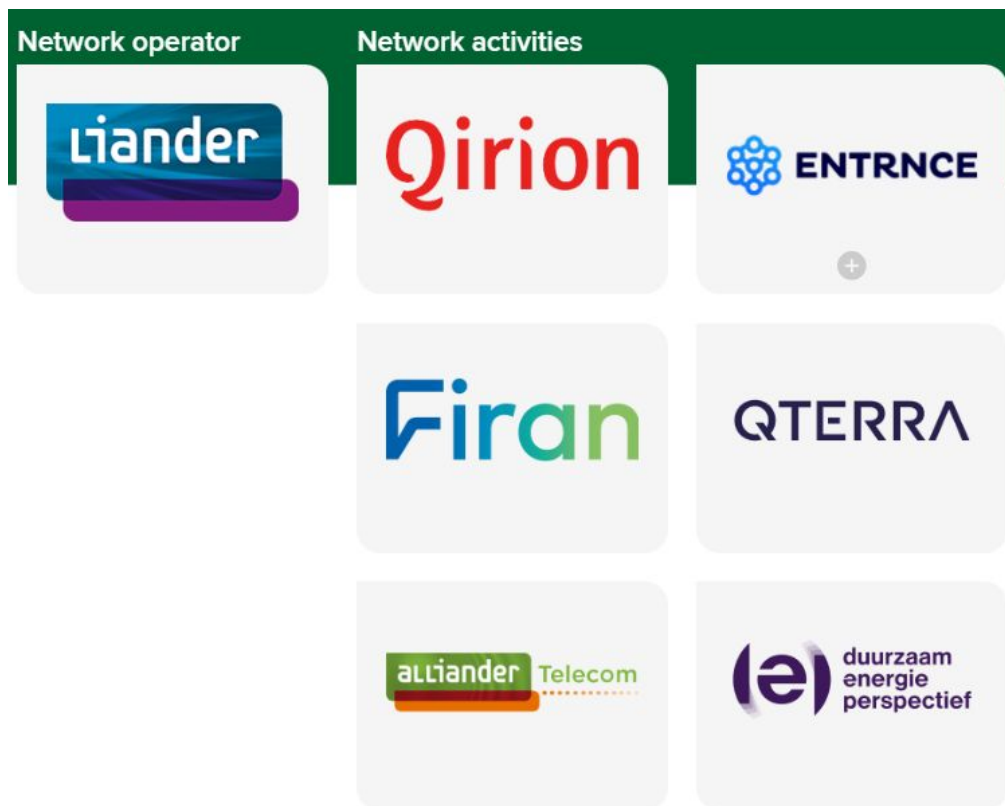
2x



Distribution system operator

Alliander

- Publicly limited company
- Group of companies



Vision

Alliander Digitalization

- **Digitalization is crucial for the success of the energy transition and a sustainable energy supply**
 - accomplish more work
 - better collaboration with our environment
 - solve grid issues faster
 - less administrative load
- **We are committed to broadly using AI for increasing:**
 - efficiency
 - automation
 - support of decision making.



Vision

Alliander Digitalization

- **At our Research Centre for Digital Technologies, we aim to be leading the way on using Quantum Technologies for network companies in the Netherlands**
 - Keep up with global trends
 - Seize opportunities
 - Create research value and put network operator challenges on the map
 - Start creating business value



research center for digital technologies

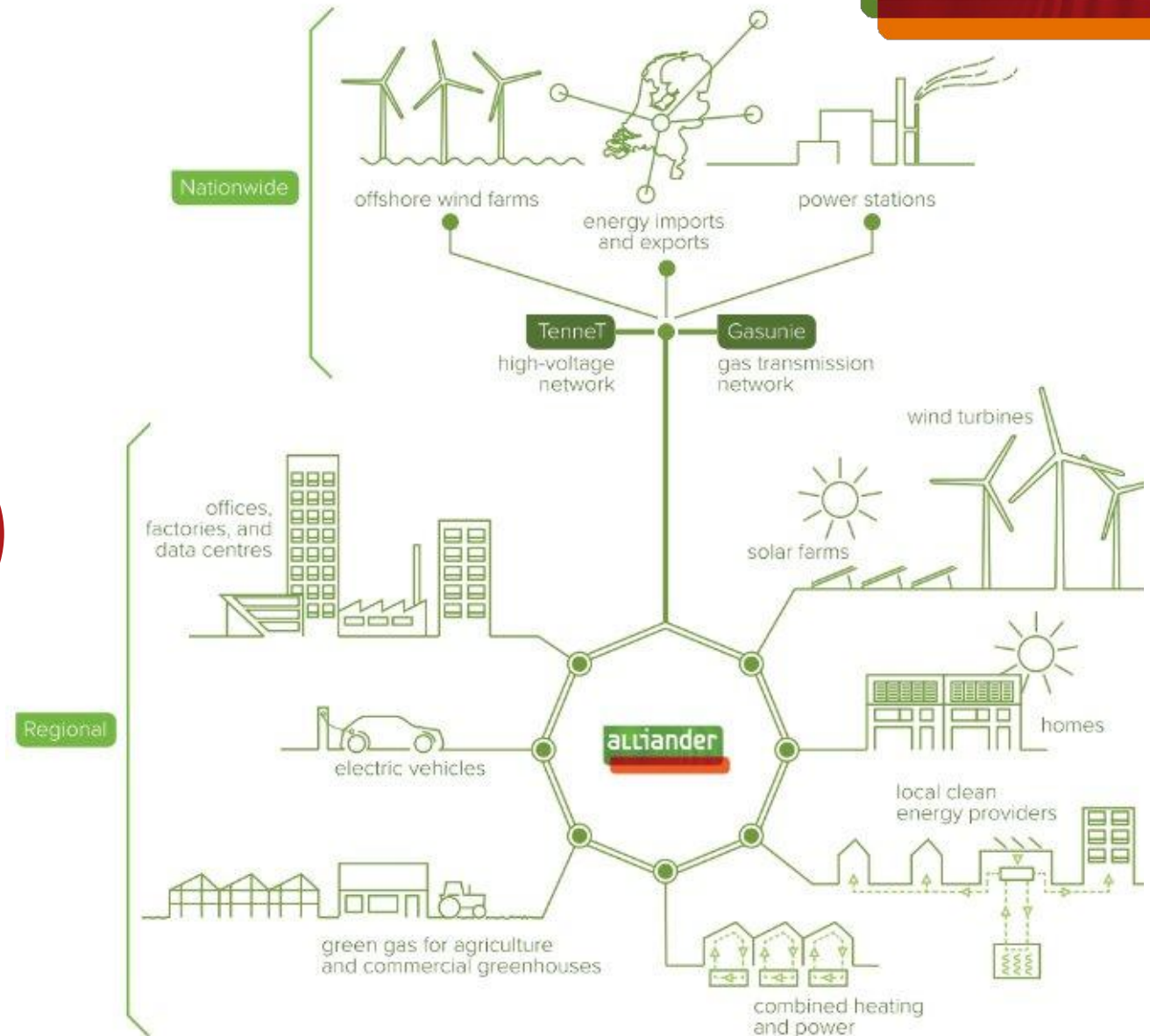


Challenges

Tasked to install at least as many assets in the next 10 years as in the last 100 years

Increasing complexity of grid structure and data

Shortage of technicians and supplies



Questions

on Alliander's challenges



- **How does AI & quantum help us deal with incorrect or missing data?**
 - Unfortunately we have a lot of faulty or missing data of our assets, sometimes originating from decades ago. For example location data of gas pipes, or types of cables in a certain part of the grid. This means we really have to look out for 'garbage in = garbage out'.
- **How do we keep the results of our work explainable when integrating quantum or AI?**
 - Explainability is very important for us as a company with a critical function. Energy distribution is essential and needs to be reliable. We need to mitigate the risk that errors can not be explained or clarified.
- **How do we influence research into quantum & AI such that it really has a positive impact on society?**
 - We are working on digital innovation for energy transition in the Netherlands, but we realize that on a worldwide scale we are a very small company. So how can we make an impact in the field of these technologies anyway?