

# Empowering the Energy Transition

## Digitalization Strategy Alliander 2024-2030

### Our vision for digitalization

Digitalization is crucial for the success of the energy transition.

- A digital energy system is more adaptable and controllable.
- A digital energy market will solve grid problems more quickly and strengthen economic activity in the Netherlands.
- A digitally enabled grid operator is more productive and works better with its surroundings.

### What are we facing?

The energy transition requires acceleration. Digitalization is essential for making the energy system more sustainable.

**Digitalization is one of the great changes of our time. What opportunities do we see? But also: what are the new questions and challenges?**

### Where do we stand?

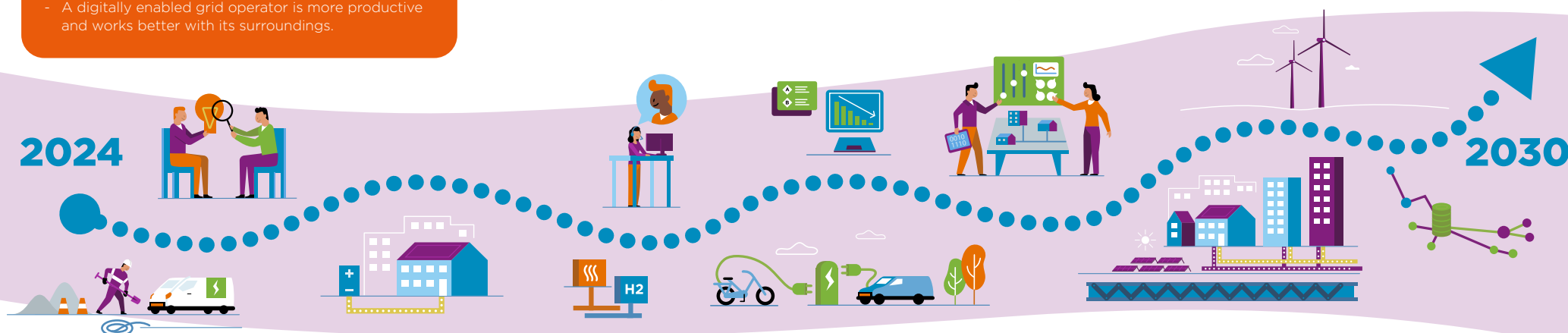
Our robust digitalization function is focused on value creation and has the ability to scale.

**Digitalization faces the challenge of accelerating the scaling up of Alliander's production. What are we already doing and how are we going to further focus the organization?**

### Where are we going?

We have identified eight digitalization themes. With these, we can chart our course. Three themes have been identified as priorities.

**These themes are explored in detail in a digitalization roadmap and associated plateau planning.**



### Digital priorities

#### Applying AI more widely

Alliander uses AI widely to improve employee efficiency, automate and support decision making throughout the organization.

**By 2030, we'll be more productive through clear prioritization choices in the use of AI and by steering the growing use of AI. An AI competence center will support us in this.**



#### Sharing data and transactions becomes easier

Alliander makes it easier for consumers, businesses and governments to access and share relevant data. In this way, we can create new services.

**By 2030, we'll have (some new) better digital platforms and we'll deliver more high-quality data products. Through better governance, we'll have a clear picture of our data and what we share with whom under which conditions. This will be done in an easy, responsible and standardized way.**



#### Co-creation through collaborations and partnerships

We're joining forces with grid operators, research institutions, the business community, start ups and knowledge coalitions. In this way, we'll make optimal use of digital technology, boost each other's innovative strengths and develop solutions together.

**By 2030, we'll be using our scarce digitalization resources much more effectively. We'll achieve this by making clear sourcing choices together with partners, and jointly developing and managing digital products.**



### The road to 2030

We want to transform the energy system, the energy market and the way we work through digitalization. By 2030, this digital energy system will provide an almost entirely sustainable energy supply that is also more adaptable and controllable. A digital energy market optimizes the energy grid and brings economic activity. A grid operator that works fully digitally has a lower administrative burden, has a grip on business processes, increases efficiency and works better with its surroundings.

With the help of digitalization, we're reinforcing Alliander's strategy and increasing the speed at which the Netherlands becomes more sustainable.

# Our vision for digitalization

## Empowering the Energy Transition



### Our v

Digitaliza  
transition

- A digi
- A digi
- A digi
- A digi
- A digi
- A digi

### Digitalization is fundamentally changing the energy system and Alliander

Digitalization is crucial for making the energy system more sustainable. Digitalization helps to make better use of our energy grid with new solutions for flexible transport capacity. Digitalization provides the necessary improvement in productivity and efficiency. As a result, Alliander is able to do more and more work and optimize the management of the energy grid. An example of this is using Artificial Intelligence (AI) for value-driven maintenance, planning, and to determine where we can best connect new businesses and consumers.

We're becoming more and more dependent on digitalization. If applications, the IT or the OT infrastructure\* fail, this impacts the digital energy system. In the worst case scenario, the energy system could even grind to a halt. Therefore, the digital energy system must be robust and secure. Digitalization requires major investments, close cooperation and also a change in culture. This challenge is too big for Alliander to tackle alone.



### Vision: Digitalization is crucial for the success of the energy transition

Alliander has a guiding role in making the energy system more sustainable. We want to transform the energy system, the energy market and the way we work through digitalization. This digital energy system provides an almost entirely sustainable energy supply and is more adaptable and controllable. A digital energy market optimizes the energy grid and increases economic activity. A digitally enabled grid operator reduces administrative overheads, has a better grip on business processes, increases efficiency and works better with its surroundings.

\* *IT: Information Technology*  
*OT: Operational Technology*

### Digitalization is crucial for the success of the energy transition.

- A digital energy system is more adaptable and controllable.
- A digital energy market will solve grid problems more quickly and strengthen economic activity in the Netherlands.
- A digitally enabled grid operator is more productive and works better with its surroundings.

nes. With  
es have been

n a digitaliza-  
planning.

2030

2024

Alli  
effi  
thr

By  
cle  
and  
cor

energy  
ation.  
e an  
is also  
rgy  
economic  
ly has  
business  
er with

ning  
at which

# Empowering the Energy Transition

Digital

## What are we facing?

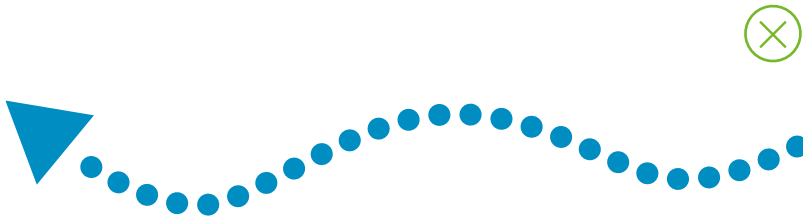
### The energy transition requires acceleration

The Netherlands must be energy neutral by 2050. Every day, Alliander works with partners to bring about the energy transition. By continuously expanding and replacing our network, we're preparing for the future. We're working on an energy distribution system that gives everyone access to reliable, affordable and renewable energy on equal terms. Our job is to make sure that the lights are on, homes are heated and the economy continues to grow. Not just today, but also in the sustainable future.

Every year, grid operators invest around €8 billion (€60 billion until 2030) in the energy transition. We can already see that developments are going so fast that we won't make it if we only focus on building the necessary infrastructure. This means that we're entering a new phase. This phase requires maximum focus on implementation. We're fully committed to digitalization.

### Digitalization is one of the great changes of our time

Digitalization is one of the major changes of our time. We're pushing boundaries with scientific breakthroughs and new applications of technology, supported by ever-increasing computing power, connected via the internet. Our daily lives and work are affected in many ways by new digital technologies and their applications. The way we communicate, absorb knowledge and work is constantly changing.



Developments are moving at lightning speed in the field of AI, extended reality and robotization. With these new possibilities, we can automate repetitive and administrative tasks to a large extent. This gives employees more time for the work where they are needed most.

But digitalization also creates new issues and challenges. Different interests are in tension with each other. For example, we need to consider how we deal with digital inclusion or the ethical aspects of AI. And how do we ensure cyber security? For example, we see that the number of targeted cyber threats is increasing. What is safe today may not be safe tomorrow. Innovation increases our digital resilience and counters threats.

### The future in 2030 is both certain and uncertain

We don't know exactly what the future will look like. However, we can see various trends and developments, which we then explored in more detail. We analyzed approximately forty independent external developments. Based on this, we drew up several scenarios. The eight digitalization themes of the Alliander Digitalization Strategy 2024-2030 are based on these scenarios.

#### Our vision

- Digitalization of the energy transition
- A digital control system
- A digital energy distribution network
- A digital energy market
- A digital energy storage system

2024

s. With  
es have been

n a digitaliza-  
planning.

2030

Digital priorities

At  
Alli  
effi  
thr

By  
cle  
and  
cor

energy  
ation.  
e an  
is also  
rgy  
conomic  
ly has  
business  
er with

ning  
at which

## Where do we stand?

Digitalization is essential for making the energy system more sustainable

### Alliander's digitalization organization is ready for the future

Alliander has a solid digitalization function that focuses on value creation with the ability to scale. The agile transformation has significantly strengthened digitalization, by accelerating new applications. The challenge for digitalization is to scale up Alliander's production faster and to deal with a changing world, especially when it comes to digitalization: the rise of AI chatbots, the fluctuating availability of raw materials, accelerated depreciation of digital assets and growing demand for data. This requires agility so that we can respond quickly and effectively to trends and developments. And resilience in order to permanently guarantee the continuity, quality and security of digital services and the energy supply. The foundation for this is already in place at Alliander.

### What we're already doing and how we'll steer the organization further

The starting point is our already solid digitalization function. However, some of our information provision is still dependent on systems with complex interfaces and data that is difficult to access. That is why we'll be replacing IT systems in the areas of ERP, asset, data and identity, and access management over the next five years. The development of our information provision also involves OT systems. That's why we're replacing our SCADA system.

These portfolios and strategies, as well as the existing sourcing and platform strategies, will be incorporated into the implementation of the Digitalization Strategy. This, together with the further focus through the digitalization themes, is embedded in Alliander's plateau planning. We're working on development and implementation together with Alliander's organizational units, grid operators, the business community, research institutions and other stakeholders.



Our v  
Digitaliza  
transition  
- A digi  
contre  
- A digi  
more t  
Nethe  
- A digi  
and w

2024

nes. With  
es have been

n a digitaliza-  
planning.

2030

Digital priorities

energy  
ation.  
e an  
is also  
rgy  
conomic  
ly has  
er with

ning  
at which



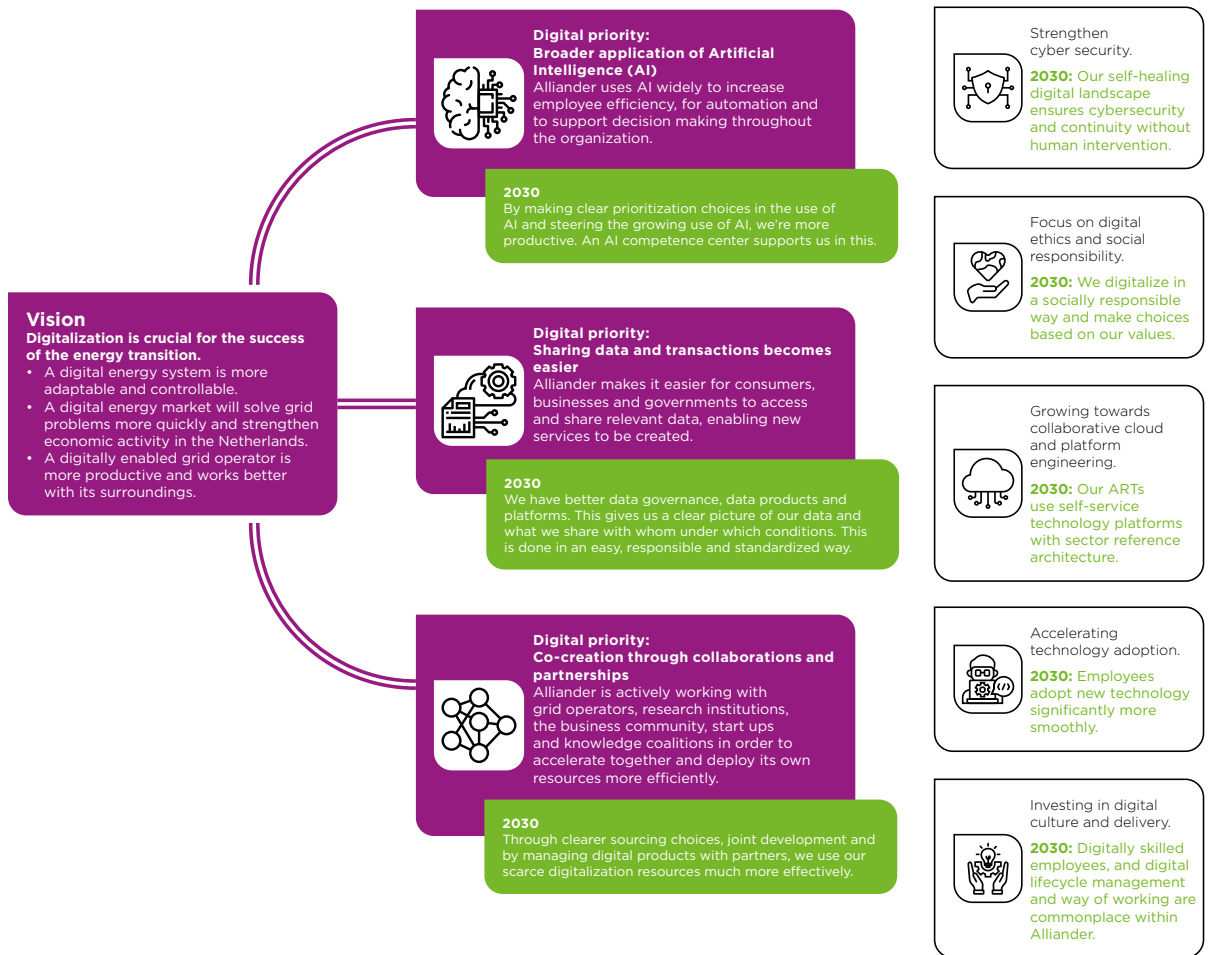
# Where are we going?

## Digitalization themes to anticipate the future

### Eight digitalization themes

In order to take advantage of the opportunities created by external developments and at the same time manage the downsides, we've developed eight digitalization themes. With these eight themes, we want to establish a framework and a compass for the development of digitalization at Alliander. The themes will be worked out in detail in a digitalization roadmap and plateau planning. All eight themes are very important for the Digitalization Strategy and the digitalization portfolio.

We assessed the digitalization themes for their transformative impact. For each future scenario, we looked at what **acceleration** they enable and the **scale** at which this happens. The three themes with the greatest impact on Alliander's goals are **priorities** which we'll focus on more.



mes. With es have been

n a digitaliza- planning.



energy ation. e an is also rgy conomic ly has usness er with ning at which

Em Digit

### Our v

Digitaliza transition  
- A digi contro  
- A digi more  
- A digi Nethe  
- A digi and w

2024

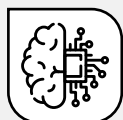
Digital priorities

At Alli effi thr  
By cle and cor

# Wider application of Artificial Intelligence



## Digital priority



Alliander uses AI widely to increase employee efficiency, for automation and to support decision making for the entire organization. Every department can benefit directly or indirectly from this.

**Developments:** Artificial Intelligence and Machine Learning.

## What is our challenge?

Artificial Intelligence (AI) and Machine Learning (ML) are not new to Alliander. We have working AI and ML applications and research links in the AI lab. Alliander is open to responsible and safe use, and the value and acceleration that AI and ML can bring. The deployment of AI and ML is currently not coordinated. That is why it's unclear whether we're deploying AI and ML in the most promising places and whether we're making sufficient use of rapid external developments. Decisions and answers we generate with AI and ML are a potential risk. We cannot guarantee that the results are substantiated and explainable. We lack proper guidance on legal and ethical frameworks.

## What is our ambition?

Alliander applies AI and ML on a wide scale. This includes the use of AI and ML for a variety of business processes.

## What we're going to do

Developments in the field of AI and ML are moving very fast. These measures are already necessary in the short term:

- Coordinate and register the various AI and ML activities within Alliander. Create an algorithm register, frameworks and structure for external accountability of AI use.
- Draw up a roadmap for where AI and ML support are most promising.
- Expand collaborations with grid operators, the business community and research institutions in the field of AI and ML.

## What we'll have in 2030

By making clear prioritization choices in the use of AI and steering the growing use of AI, we're more productive. An AI competence center helps us with this.

mes. With  
es have been

n a digitaliza-  
planning.



energy  
ation.  
e an  
is also  
rgy  
conomic  
ly has  
business  
er with

ning  
at which

### Our v

Digitaliza  
transition  
- A digi  
contre  
- A digi  
more t  
Nethe  
- A digi  
and w

2024



# Sharing data and transactions becomes easier

## Digital priority



Alliander makes it easier for consumers, businesses and governments to access and share relevant data. This creates opportunities for new services, such as dynamic pricing based on capacity.

**Developments:** Energy generation and energy systems are becoming more decentralized. Data will be widely available in real-time, edge and mesh computing.

### What is our challenge?

Since the liberalization of the energy market, system operators have been tasked with offering services and data to energy market participants. The energy transition now requires more. More services and data can be accessed more easily and more frequently in real-time. Alliander usually provides data and services together with other grid operators.

We're often hampered by practical, fundamental issues that are insufficiently embedded.

### What is our ambition?

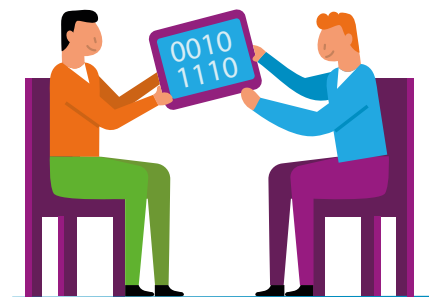
The energy transition and Alliander's strategic objectives require a range of (new) data services. To provide this, we focus on simplifying access to and sharing relevant data for consumers, businesses and governments.

### What we're going to do

- Require organizational units to use data via data platforms and to make transactions available on the platforms.
- Consolidate existing initiatives into a central transaction and data disclosure program. This provides an API platform, developer toolbox, community, data catalogue and associated tooling for metadata and linked data.
- Start a program for unlocking real-time OT data.
- Investigate the applicability of edge and mesh computing at home, neighborhood and energy grid level.
- Expand the use of external (real-time) data.

### What we'll have in 2030

We have (new) better digital platforms and deliver more high-quality digital products. Through better governance, we have a clear picture of our data and what we share with whom under which conditions. This is done in an easy, responsible and standardized way.



# Co-creation through collaborations and partnerships



## Digital priority



Alliander is actively working with grid operators, research institutions, the business community, start ups and knowledge coalitions in order to accelerate together and deploy its own resources more efficiently.

**Developments:** Increasing shortage of digitalization specialists. Grid operators are moving towards joint digitalization.

## What is our challenge?

We're actively looking for ways to deploy our scarce digitalization specialists more efficiently. By working together, we benefit from each other's knowledge and resources and can jointly develop solutions.

Alliander is already actively involved in partnerships, including the Association of Energy Network Operators in the Netherlands (Netbeheer Nederland), Energie Data Services Nederland (EDSN) and Linux Foundation Energy (LF Energy). We share our visions, promote data exchange and work together on (open source) projects. These collaborations strengthen the position of grid operators when speaking with the government, consumers and businesses. In addition, they ensure that resources are used more efficiently. But the wheel is still being reinvented in different places. Large collaborative projects sometimes experience problems due to slowness and inflexibility. Smaller initiatives sometimes fail to achieve a joint approach because local business interests take precedence. Furthermore, government regulations sometimes limit possibilities for further cooperation.

## What is our ambition?

Alliander promotes co-creation via a digital ecosystem, set up in collaboration with both existing and new partners. This ecosystem will focus on challenge driven work. In this ecosystem, shared opportunities and interests lead to joint digitalization initiatives. Alliander and its partners invest in these initiatives. Grid operators' initiatives are developed and implemented in a joint portfolio. We do the same with the other partners in the digital ecosystem. This allows for more intensive collaborations and more co-creation.

## What we're going to do

- Establish cooperation agreements with the other network operators.
- Set up the joint management of the digitalization portfolio.
- Set up a sourcing strategy for our digital products based on the grid operator business capability model NBility.
- Enter into new strategic partnerships with grid operators, the business community and academia.
- Stimulate knowledge sharing and co-creation initiatives within and outside the energy sector.
- Form a digital ecosystem of partners and work in a challenge-driven way.
- Pursue an active dialogue with the government about policy and regulation that hinders close cooperation.

## What we'll have in 2030

Through clearer sourcing choices, joint development and by managing digital products with partners, we'll use our scarce digitalization resources much more effectively.