

DIGITAL INNOVATION



DIGITAL INNOVATION

The Dutch invented **the CD and DVD, Wi-Fi, Bluetooth and Python**. Today, we form a **digitally savvy society**, being highly educated, wealthy and enjoying excellent internet access. Our **open and innovative culture** invites us to develop and test new digital technologies. As a region filled with changemakers, **we're radically rethinking products and processes to lead the fourth (and fifth) industrial revolution**. TopDutch offers the digital infrastructure, unique innovation and market field labs, networks, talent and an excellent test-market population for **rapid market access and validation. Here, we accelerate the digital future**

1.

**Foundational
Research and
Facilitating
Environment for
Deeptech**

2.

**Data
Science, deep
Learning & Ai
Research**

3.

**Europe's
Leading Test
Ground for
Autonomous
Systems**

4.

**Digital Society
and Ideal Test
Market**

5.

**Access to
Pioneering
Talent and
Skilled Labor**

6.

**The Natural
Choice for Smart
and Data-
intensive
Business**

1. FOUNDATIONAL RESEARCH AND FACILITATING ENVIRONMENT FOR DEEPTECH



ENVIRONMENT FOR DEEPTECH

We host several leading **research institutes**, and support **science spin-off with business development** programs, networks and financing.

- Home to **ASTRON**, the Netherlands Institute for Radio Astronomy, who are making discoveries in radio astronomy happen.
- The University of Groningen and several TopDutch-based companies such as Bytesnet and IBM are solving large problems in science, engineering and business with High Performance Computing.



ENVIRONMENT FOR DEEPTECH

We host several leading **research institutes**, and support **science spin-off with business development** programs, networks and financing.

- AI Hub Northern Netherlands works with policymakers, knowledge institutes and TopDutch businesses working in our energy, life sciences & health, agrifood, mobility, built environment, maritime, technical industry and education sectors to make the TopDutch region a leading European testing ground for AI

2. DATA SCIENCE, DEEP LEARNING & AI RESEARCH



DATA SCIENCE, DEEP LEARNING & AI RESEARCH

Top-100 University of Groningen performs groundbreaking research in multidisciplinary centers, including:

- CogniGron, the Groningen Cognitive Systems and Materials Center.
- Bernoulli Institute for Mathematics, Computer Science and Artificial Intelligence.
- Data Science & Systems Complexity (DSSC)



DATA SCIENCE, DEEP LEARNING & AI RESEARCH

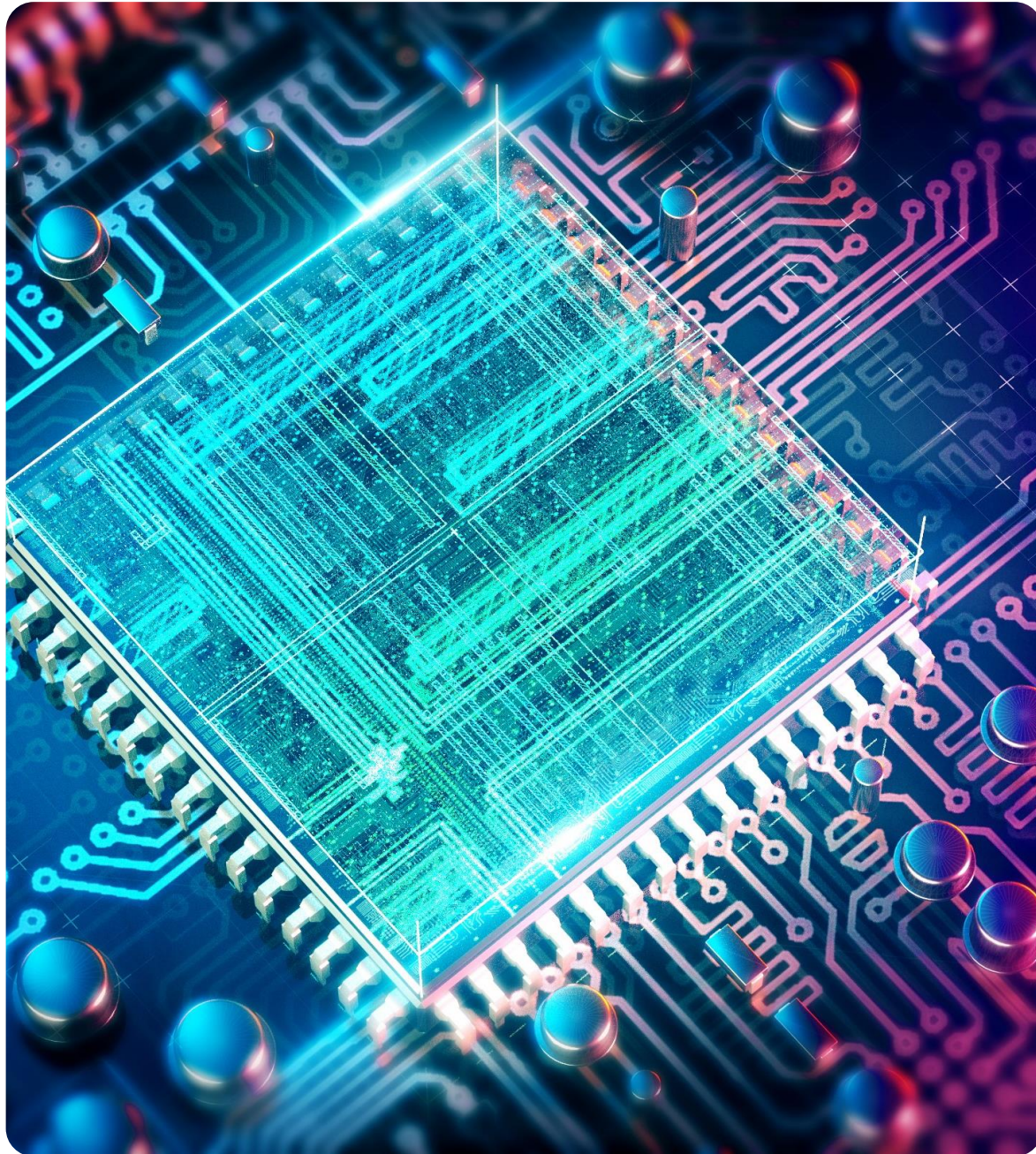
Data science to leading applications with our big data **research centers**.

- Groningen Engineering Business Center (GEBC).
- Groningen Digital Business Center (GDBC).
- Groningen Center for Digital Humanities (GCDH)
- DataFryslân
- The 'DASH' Data Science Center in Health
- Center for Information Technology (CIT)



**TOP
DUTCH**
Naturally leading
the transition

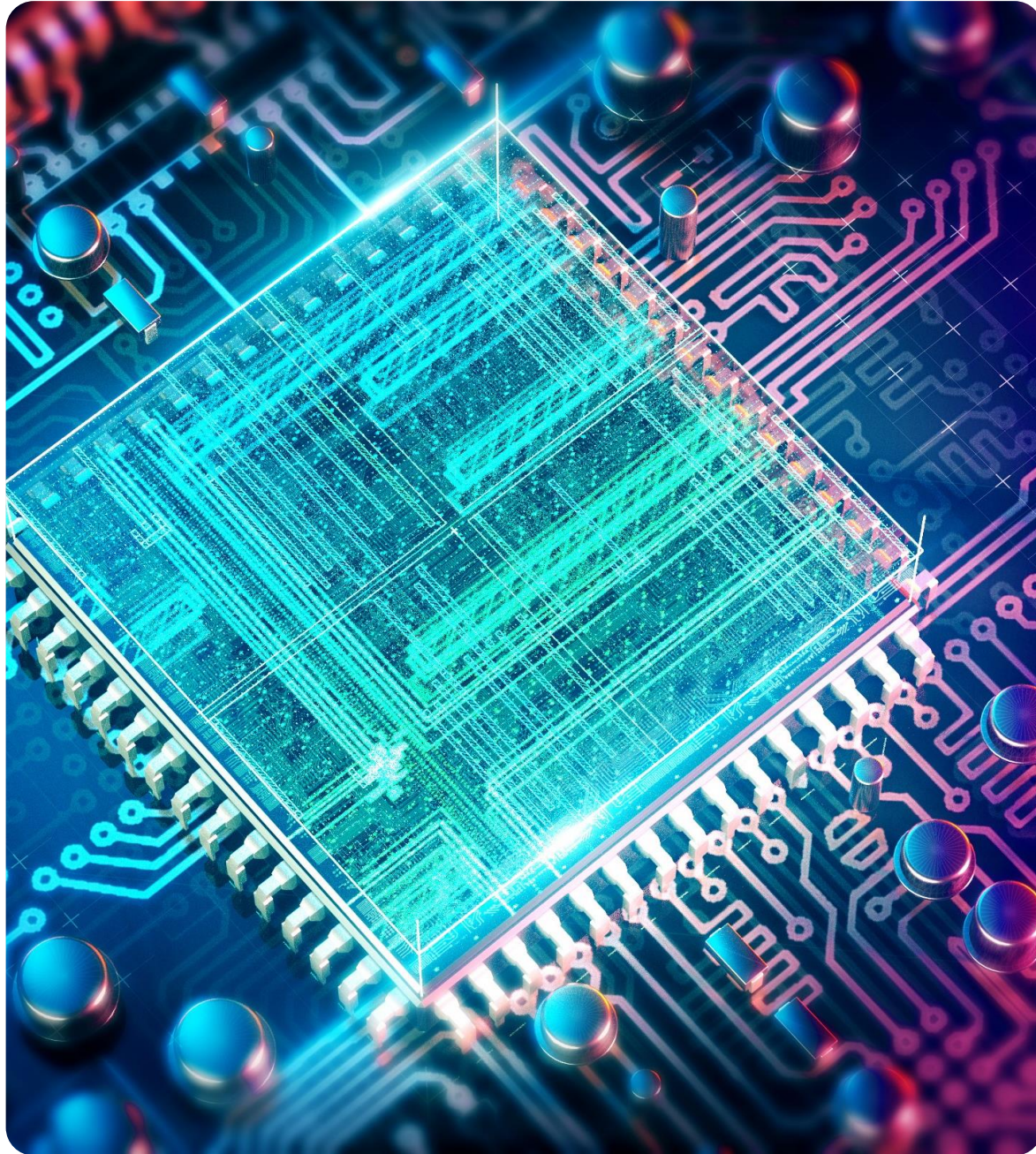
3. EUROPE'S LEADING TESTING GROUND FOR AUTONOMOUS SYSTEMS



AUTONOMOUS TESTING GROUND

EDIH Northern Netherlands has developed – through a consortium of **academic, governmental and business partners** – a program for **digitalization in the region**:

- A smart factory accelerator for companies.
- A 'test before invest' network
- An entrepreneurs' desk
- Skills and educational programs.
- Additional financial services



AUTONOMOUS TESTING GROUND

EDIH-NN will also accelerate **knowledge and applications of autonomous systems** in four key system transitions:

- Smart Agro
- Factory of the future
- Life Sciences & Health
- Built environment and mobility

DIGITALIZING KEY SYSTEM TRANSITIONS: CLEANTECH



- We use big data to optimize processes in **energy-intensive processes and chemical plants.**
- **AI Hub Northern Netherlands** are building a roadmap for AI in the energy transition.
- Ameland is one of the two 'pilot islands' in the **European Union's IANOS research program**, finding to integrated solutions for decarbonization and smartification of islands.

DIGITALIZING KEY SYSTEM TRANSITIONS: HEALTHY AGEING



- Crossing-over with **our life sciences & health** ecosystem, we're leading the transition to healthy ageing with HealthTech.
 - Big data labs such as **dHealthLab and DASH** (data science in health) are developing and testing smarter health care and healthy ageing solutions.
 - TopDutch's e-health cluster is leveraging our region's expertise in **Big Data, AI, and sensor technology** to create applications that improve patient experience, outcomes and efficiency.

DIGITALIZING KEY SYSTEM TRANSITIONS: FOOD & WATER

- Cross-over with **WaterTech**. Cross-linked with our WaterTech innovation chain, we develop highly specialized **water technologies and sensor technologies for industry 4.0**.
- Cross-over with **AgriFood**. We develop new technologies such as **soil sensor systems, smart dairy farming technologies** and technologies that perform calibration measurements to optimize the performance of our cultivation and greenhouses for more **sustainable farming**.



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4. DIGITAL SOCIETY AND IDEAL TEST MARKET



DIGITAL SOCIETY & TEST MARKET

The Dutch culture encourages innovation and technological adoption, making the Dutch population an **ideal test market**.

- Our Noorden Digitaal Coalition of partners collaborate to facilitate, share knowledge and educate citizens of the TopDutch region.
- Several cyber cooperatives in the Northern Netherlands have joined forces to develop cyber resilience in all the region's companies, government organizations and society



**5. ACCESS TO PIONEERING
TALENT AND SKILLED LABOR**



TOPDUTCH TALENT

Access to talent

- The Northern Netherlands is a nucleus for higher education.
- The TopDutch region offers over 60 IT-related education courses from research university level to vocational level.
- We host transformative research programs attracting pioneering talent, such as CogniGron, GEBC, GDBC, GCDH and DSSC (see slide 5).
- The Northern Netherlands IT Academy offers traineeships and training to students of every education level.



TOPDUTCH SKILLED LABOUR

Access to skilled labor

- The TopDutch region is home to 60,000 IT-skilled people - over a wide age range - 35% of whom have over 10 years of working experience in this field.
- Nearly 100,000 of our residents have technical competences, with over half of them having more than 10 years of experience working in a technical job.

A wide-angle photograph of an offshore wind farm at sunset. The sky is a mix of blue and orange, with soft clouds. The sea is calm and reflects the light. In the foreground, a large metal structure, possibly a crane or part of a wind turbine, is visible. Numerous wind turbines are scattered across the horizon, their silhouettes against the bright sky.

**5. THE NATURAL CHOICE FOR
SMART AND DATA-INTENSIVE
BUSINESS**



DATA INTENSIVE BUSINESS

We're accelerating the **green and digital economy** by facilitating speedy business development.

- The TopDutch region as a leading green powerhouse, and our coastline as a key energy port.
- The Dutch high voltage grid transports electricity through 24,500km of pipeline at 110Kv and higher, and connects across borders and seas.
- Large green field sites are available for industry and data centers, with an ideal climate for cooling



Enjoy life in the Top Dutch region

- Our landscape is a great mix of **dynamic cities** and **tranquil countryside**. Our residents can enjoy all the benefits of city life, while still being surrounded by beautiful nature.
- We're also less crowded than the western part of the Netherlands, but we are only 90 minutes away from Amsterdam. Here we have **less traffic, cleaner air, lower costs of living and less stress**.
- Explore our cultural and music festivals, such as *Oerol* and *Noorderzon*, check out our exciting sports events at *TT Circuit Assen*, get away for the weekend in our iconic nature to the *Wadden Islands* or the *Frisian waters*, eat your favorite foods at the best places and enjoy the fun social activities planned every week with your friends and family.
- We're a seriously **great place to live** - proven by the fact that the city of Groningen is ranked as the 5th happiest place on earth by the World Happiness Report!



Are you interested **in exploring**
what your business possibilities
could be?

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JOIN TOPDUTCH

Want to find out more **how the TopDutch region is**
naturally leading the transition?

Head over to our website: www.topdutch.com

TOPDUTCH.COM

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