

ANNUAL REPORT

2023

# FOREWORD

We are delighted to present NOI Techpark's 2023 Annual Report. This publication is more than just facts and figures. It provides a comprehensive overview of the key subjects, players and infrastructure within South Tyrol's innovation district, highlighting the significant growth we have experienced in recent years.

Our vision is clear: to become one of Europe's leading next-generation science and technology parks, to serve best our territory and its companies, Europe's values and the planet's future. Last year, we achieved major milestones towards this goal, as evidenced by our performance metrics: more than 1,000 clients accessed services in the innovation district, including 745 companies. Additionally, NOI supported over 660 R&D projects in 2023, with funding reaching 44.5 million euros – an increase of approximately one-third compared to the previous year. Private investments in start-ups at NOI Techpark also saw remarkable growth, more than doubling to 7.8 million euros.

The opening of NOI Techpark in Brunico was a landmark event of 2023. The establishment of this new site in Val Pusteria answered the automotive industry's call for a dedicated space for research, development and collaboration, facilitating the transfer of know-how and knowledge in the Automotive & Automation technology sector. Strategically situated among the region's leading automotive suppliers, NOI and thus Brunico have emerged as a hub for future mobility with a focus on sustainable production. Here, research and education are driven by the Automotive Excellence Südtirol network, the Free University of Bozen-Bolzano, which contributes an endowed professorship and a laboratory for sustainable manufacturing, along with various companies and innovative start-ups.

In Bolzano, growth also continued in 2023 – 96 companies and start-ups, 1,200 people and 52 labs demonstrate NOI's increasing appeal. The new Faculty of Engineering opens in 2024, welcoming students and professionals into a vibrant, dynamic and ever-expanding setting. This environment is perfectly suited for the science and technology park's mission to challenge the status quo and create new solutions for the benefit of people and nature. We look forward to progressing ever further and hope you find inspiration in this Annual Report.



Provincial Councillor responsible for NOI  
Philipp Achammer



President of the Executive Board  
Helga Thaler Ausserhofer

# ANNUAL REPORT 2023

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### R&D PROJECTS

**R&D projects**  
pursued by research institutes and companies  
at NOI in 2023, 144 of them with EU funding

# 669

**million euros**  
the 2023 budget allocated for these projects,  
14 million euros of which was EU-funded

# 44.5



### THIRD-PARTY FUNDING RATIO OF THE RESEARCH INSTITUTES

**million euros**  
the third-party funding budget<sup>1</sup> of  
NOI's research institutes/groups

# 18

**per cent**  
the third-party funding ratio of  
NOI's research institutes/groups

# 54



All footnotes can be found in the imprint on page 64.

### START-UPS



31

**start-ups**  
were supported

33

**per cent**  
the sales growth of start-ups that have been on the market for at least two years

7.8

**million euros**  
the total investment by private investors across 9 start-ups

### LABS



3

**new labs**  
were opened, for a total of 52 active scientific and prototyping labs

526

**customers**  
commissioned the labs for R&D projects and services, 288 of which were companies

57

**per cent**  
of the operating costs of the labs were covered by third-party funding<sup>1</sup>

### SUPPORTED COMPANIES



1,008

**customers**  
utilised our services, 745 of which were companies

45

**per cent**  
of the supported companies were from South Tyrol

### HIGHLY QUALIFIED EMPLOYEES



55

**per cent**  
of employees are highly qualified<sup>2</sup>

1,200

**people**  
work at NOI, representing a wide variety of countries and speaking around 15 different languages

All footnotes can be found in the imprint on page 64.

61 companies, 29 start-ups, 3 research institutes, 3 university faculties and a total of 1,200 people. 52 scientific laboratories, a 120,000 m<sup>2</sup> campus, workshops, open spaces and room for new ideas. All this makes up NOI Techpark.



THIS IS

ION

Established in 2017, South Tyrol's innovation district has transformed the site of a former aluminium plant into a thriving hub for businesses, research institutes and a university. We focus on innovation in the following technology sectors: Green, Food & Health, Digital, and Automotive & Automation.

# MANIFESTO

**ESSENCE** NOI is South Tyrol's growing innovation district that links economy and science to boost R&D investment, business innovation and research impact.

**VISION** **We choose to be one of Europe's leading next-generation science and technology parks, to serve best our territory and its companies, Europe's values and the planet's future.**

**NEXT GENERATION** As a next-generation European science and technology park, we focus on sustainability, open innovation, a European innovation strategy and the needs of the territory.

**MISSION** NOI is power of place, culture of cooperation and nature of innovation. Here, companies and start-ups, a university and research institutes find and shape an inspiring, sustainable and multilingual environment with research excellence and labs, specialised services, incubation, technological institutes and public engagement.

**NATURE OF INNOVATION** Nature of Innovation is our mindset. Inspired by nature, adapted to change, we rethink common patterns and create new solutions for the benefit of people and nature.

THIS IS NOI



**In just six years, 52 state-of-the-art laboratories have been built at NOI Techpark, taking South Tyrol's R&D landscape to unprecedented heights.**



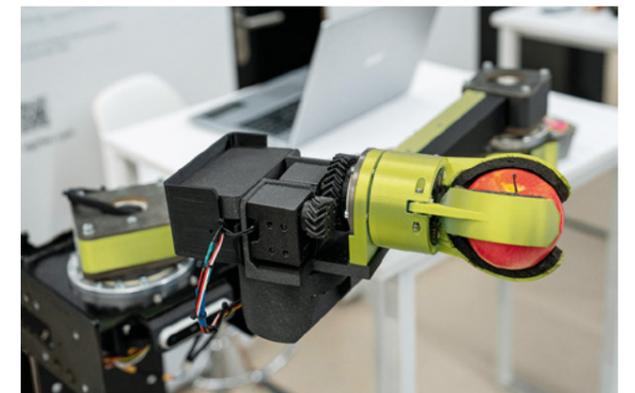
Green → p. 14



Food & Health → p. 15



Digital → p. 16



Automotive & Automation → p. 17

SPOTLIGHT ON

Here, companies can test products, conduct joint or contract research, perform analyses and develop prototypes across four key technology sectors: Green, Food & Health, Digital, and Automotive & Automation. The purpose of our innovation district's laboratory infrastructure is straightforward: to conduct research that benefits the local economy.

# WHAT THE NOI LABS OFFER



SPOTLIGHT ON

## Lab Desk: The first port of call

With 52 laboratories available, it can be challenging to pinpoint the exact resources you need. That's why we have established the Lab Desk as a central point of contact for companies that want to conduct research and development at NOI. Here, we evaluate each company's specific requirements, arrange an initial consultation with the appropriate lab and provide ongoing support for further questions or needs. In cases where our facilities don't completely satisfy the research demands, we also partner with regional and international collaborators.

## The NOI process: Streamlined lab usage

At NOI, the scientific laboratories are managed by research institutes and the Free University of Bozen-Bolzano. Despite the numerous stakeholders with varied approaches, we ensure that collaboration is simple. We have developed a unique NOI process to streamline interactions for companies. This process is regularly monitored and refined for efficiency. Additionally, we track our equipment's usage levels to foster synergies and make specialised laboratory tools accessible to external clients.



## Open Labs: The DIY approach

While many scientific laboratories allow companies to commission projects or services, the Laimburg Research Centre takes a unique approach with its open lab concept. Here, companies with qualified personnel can independently operate and utilise the lab facilities. Our three dedicated prototyping labs – the Maker Space, the Kitchen Lab and the Free Software Lab – are fully equipped for hands-on innovation. The facilities include 3D printers, water jet cutters, vacuum sealers, autoclaves, beacons and voice assistance systems, allowing companies to develop their own hardware, food products or digital prototypes.



## Pilot plants: Process optimisation

NOI's scientific laboratories are home to seven pilot plants. What are they? These specialised test facilities are designed to produce small-scale initial series and refine production processes. Among these, the Free University of Bozen-Bolzano's Micro4Food platform features three pilot plants designed for the production of specific foods: one for baked goods, one for dairy products and another for fruit and vegetable processing. Both international and local companies, including Puratos and Schmiel bakery, leverage these facilities and the expertise of our research groups to continuously improve their products.



## 36 accredited tests: Quality seal for products

Launching a new product requires confidence in its durability, long-term property retention and compliance with Italian and EU regulatory standards. For some products, passing specific tests and obtaining associated safety or quality certifications are essential for market launch. At NOI, we offer 36 accredited tests across various sectors. Eurac Research provides testing in the field of renewable energy, while the Laimburg Research Centre focuses on food-related tests.



## Lab Bonus: Research made affordable

Every company should be able to afford R&D. That's why we offer the Lab Bonus, a quick and unbureaucratic funding tool provided by the Autonomous Province of Bolzano. This funding helps businesses utilise NOI labs for contract research, analyses, laboratory testing and scientific consultations across our technology sectors. Companies can also use our lab equipment independently. What are the criteria? The company must be headquartered in South Tyrol. The Lab Bonus subsidises 50 to 65 per cent of laboratory costs, up to a maximum of 10,000 euros per year, depending on the company's size.

Questions?  
[labs@noi.bz.it](mailto:labs@noi.bz.it)

SPOTLIGHT ON

# GREEN LABS



SPOTLIGHT ON

## Main research areas

In the Green technology sector, we aim to be a centre of excellence for the energy transition towards carbon neutrality.

### Energy Systems

Systems designed to combine different energy carriers to increase energy efficiency

### Sustainable Buildings and Districts

Development and optimisation of solutions for the construction sector through renewable and reusable resources and materials

### Water Technologies

Technologies used to enhance, preserve and monitor the quantity and quality of water resources in a circular way

## Labs

- Accelerated Life Testing Lab Eurac Research
- Acoustics Lab unibz
- Bioenergy & Biofuels Lab unibz
- Building Envelope Lab unibz
- Built Environment Simulator Lab unibz
- Energy Exchange Lab Eurac Research
- Façade System Interactions Lab Eurac Research
- G-Value Lab Eurac Research
- Heat Pumps Lab Eurac Research
- HVAC System Lab unibz
- Hygrothermal Testing Lab Eurac Research
- Multifunctional Facade Lab Eurac Research
- PV Integration Lab Eurac Research
- Solare PV Lab Eurac Research
- Thermo Fluid Dynamics Lab Eurac Research
- Volatile Organic Compounds Lab Eurac Research

## Progress: developing insulation material



Piero Bernabé  
CEO, Progress

“At Progress, we specialise in the planning and production of innovative precast concrete systems. Our longstanding commitment to sustainability is at the forefront of our product development. In collaboration with the Free University of Bozen-Bolzano and its labs at NOI Techpark, we have developed an innovative new material for building insulation. This material not only offers a high insulation performance but is also made entirely from mineral-based, eco-friendly components and boasts exceptional fire protection properties. Our collaboration with unibz has significantly enhanced our capabilities by providing valuable scientific guidance and enabling the practical testing of this material in a lab setting. This building material allows us to advance towards our goal of creating prefabricated building systems for sustainable construction.”

# FOOD & HEALTH LABS



SPOTLIGHT ON

## Main research areas

In the Food & Health technology sector, we aim to become a trailblazer in food innovation and promote a holistic approach to health.

### Raw Materials & By-Products

High-quality primary and secondary raw materials for high-quality products

### Optimal Processing & Fermentation

Processing methods that utilise and preserve valuable ingredients and organoleptic properties

### Omics & Precision Health

Omics technologies for food and healthcare applications, as well as all-encompassing solutions in the field of precision health

## Labs

- Ancient DNA Lab Eurac Research
- Anthropology Lab Eurac Research
- Biomedicine Laboratory Eurac Research
- Conservation Lab Eurac Research
- Enology Laimburg Research Centre
- Fermentation and Distillation Laimburg Research Centre
- Food Microbiology Laimburg Research Centre
- Food Technology unibz
- Fruit and Vegetable Processing Laimburg Research Centre
- Kitchen Lab NOI SpA
- Laboratory for Fodder Analysis Laimburg Research Centre
- Laboratory for Soil and Plant Analysis Laimburg Research Centre
- Laboratory for Wine and Beverages Analysis Laimburg Research Centre
- Laboratory of NMR Spectroscopy unibz & Laimburg Research Centre
- Laboratory of Residues and Contaminants Laimburg Research Centre
- Laboratory of Flavours and Metabolites Laimburg Research Centre
- Micro4Food unibz
- Modern DNA Lab Eurac Research
- Molecular Biology Laimburg Research Centre
- Oenolab unibz
- Sensory Science Laimburg Research Centre
- Storage and Postharvest Biology Laimburg Research Centre

## unibz: at the forefront of fermentation



Marco Gobbetti  
Decan, Free University of Bozen-Bolzano

“Advancing the frontiers of research requires not only human competence – knowledge, a spirit of enquiry, passion and ethical commitment – but also the physical tools that NOI Techpark provides. With our cutting-edge facilities and equipment, we have positioned ourselves as leaders in microbiology and fermentation, both nationally and across Europe. This has enabled us to play an active role in major European projects and collaborate with big players in the food industry, including Barilla, Evonik and Dr. Schär.”

# DIGITAL LABS



## Main research areas

In the Digital technology sector, we want to create the digital backbone for smart green regions.

### Internet of Things (IoT)

Sensors for data collection to address emerging challenges and create a sustainable digital environment

### Open Data Hub

The platform for accessing and sharing data, knowledge and algorithms

### Artificial Intelligence (AI)

Technological advances in data processing to optimise user engagement throughout the customer journey

## Labs

- Free Software Lab NOI SpA
- LIDO – Laimburg Integrated Digital Orchard Laimburg Research Centre
- Media Interaction Lab unibz
- Sensor System Technology Lab Eurac Research & unibz
- Smart Data Factory unibz

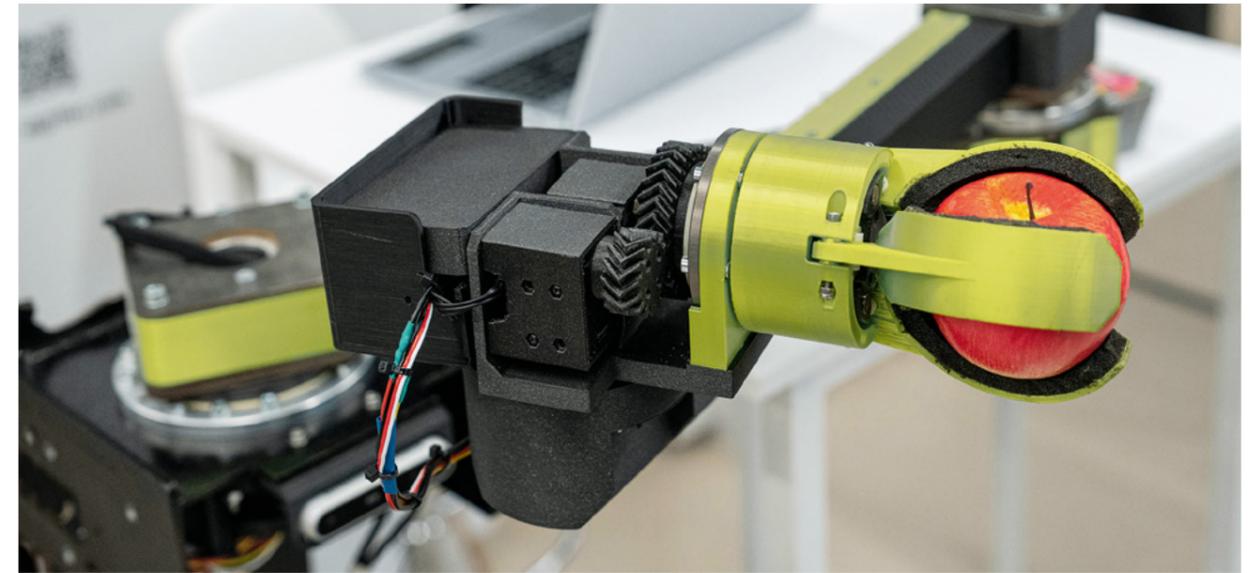
## Craftmanship meets research



**Mirko Haller**  
CEO, Elektro a. Haller and Receptic

“Through our collaboration with Eurac Research’s Center for Sensing Solutions, facilitated by lvh.apa and NOI Techpark, we developed a fully automated tracking system for tools and devices. Initially, any research project is met with some scepticism. However, in this case, it was soon dispelled. Our collaboration proved fruitful, culminating in the formation of a start-up and the acquisition of a joint patent. Today, a dedicated 15-person team is driving this system’s advancement, with substantial investments in software, product design and prototypes. The positive market response and strong interest validate the value of our solution for numerous businesses.”

# AUTOMOTIVE & AUTOMATION LABS



## Main research areas

In the Automotive & Automation technology sector, we want to achieve excellence in automation processes and promote innovative technologies for sustainable manufacturing, automotive and mobility solutions.

### Automotive & Mobility

Components and systems for sustainable automotive and mobility solutions

### Manufacturing

Technologies for the digital and sustainable transformation of manufacturing companies

### Agri-Automation

Technologies for intelligent automation in agriculture

## Labs

- Agroforestry Innovations Lab unibz
- ARENA – Area for Research and Innovative Applications Fraunhofer Italia
- Field Robotics Lab unibz
- Human-Centered Technologies and Machine Intelligence Lab unibz
- Maker Space NOI SpA
- Smact Live Demo unibz & SMACT
- Smart Mini Factory unibz
- Sustainable Manufacturing Lab unibz
- terraXcube Eurac Research

## Alpitronic: testing fast-charging stations



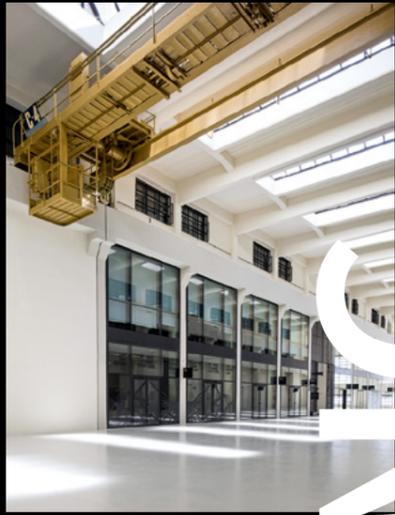
**Philipp Senoner**  
CEO and Co-Founder, Alpitronic

“Collaborating with Eurac Research provided us with substantial advantages. The terraXcube allowed us to create and control challenging weather conditions like snow and freezing rain to rigorously test our fast-charging stations’ cable management systems in extreme environments. Our findings confirmed that our fast chargers are exceptionally durable and reliable, even in severe conditions. The terraXcube played a crucial role in meticulously evaluating the user experience of our products and identifying areas for improvement. The laboratory infrastructure at NOI Techpark is an invaluable partner for technological innovation and has directly contributed to our products’ development and market preparation.”

SPOTLIGHT ON

SPOTLIGHT ON

# GROWING INNOVATION DISTRICT



## Yesterday and today



In 2024, the HTI Group (LEITNER and LEITWIND) will expand its R&D team at NOI by 30 people. The picture shows Provincial Councillor Philipp Achammer in front of the new F1 building.

Since 2017, South Tyrol's innovation district has been growing on the grounds where an aluminium plant once operated. At the peak of its production, this industrial giant, a marvel of Bauhaus design, met two-thirds of the country's aluminium requirements and consumed as much energy annually as all of South Tyrol does today. Now, the site has been transformed into NOI Techpark, symbolising the shift from heavy industry to a factory for ideas. This transformation involved a complete renovation and upgrade of the historic architecture, turning a space once filled with transformers and furnaces into a haven of creativity and innovation.

At NOI Techpark in Bolzano, 30 per cent of the available land is presently developed. The site features a range of facilities, including buildings that house companies and start-ups, as well as offices and labs for research institutes and academia. There's also a company nursery. More than just a place for companies, researchers and students, NOI Techpark welcomes the entire community. It offers a large co-working space, a modern seminar area, a restaurant and expansive outdoor spaces that include a covered amphitheatre.

**NOI Techpark Bruneck – Brunico**

The opening of NOI Techpark in Brunico in 2023 marked an important milestone in the history of the South Tyrolean innovation district. The new location, which covers an area of around 6,000 m<sup>2</sup>, combines the concentrated know-how of South Tyrol’s automotive supply industry with research expertise and infrastructure. Once a bus station, it is now a centre for research, business and meetings of minds. The centre is dedicated to shaping future mobility with an emphasis on sustainability in production.

The official opening took place on Friday, 5 May 2023, with more than 200 special invitees. Governor Arno Kompatscher launched the celebration, declaring, “Today marks a new chapter for Brunico – a new chapter in the story of innovation in South Tyrol. As of this moment, the long-held aspirations of the Val Pusteria economy and the Brunico community are realised. We are establishing a hub of innovation, a vital tool for future sustainability. The science and technology park embodies this by merging businesses, academia and research to adeptly tackle future challenges.”

**“Today marks a new chapter for Brunico – a new chapter in the story of innovation in South Tyrol.”**

**Arno Kompatscher**  
Governor of South Tyrol



On 5 May 2023, NOI Techpark in Brunico celebrated its official opening, attended by over 200 stakeholders, partners, political decision-makers and representatives of the Brunico municipality, as well as various institutions and research institutes at NOI.

GROWING INNOVATION DISTRICT

To address the significant challenges and opportunities related to sustainability, Industry 5.0, electrification and smart mobility, South Tyrol requires highly skilled professionals, advanced infrastructure and a strong network of research institutions and companies. NOI Techpark in Brunico encapsulates all these elements. It hosts academic and research areas of the Free University of Bozen-Bolzano and is the headquarters of Automotive Excellence Südtirol (AES), which includes the companies Abuscom, Alupress, Autotest, GKN Driveline, GKN Sinter Metals, Intercable, Intercable Automotive Solutions and Tratter Engineering, allowing all these to collaborate within a single network. The Faculty of Engineering at unibz in Brunico, supported by an AES-funded professorship, is conducting research in sustainable manufacturing focusing on the circular economy and resource and energy efficiency.

**Once a bus station, it is now a place for research, business and meetings of minds.**



The new location in Brunico also features a co-working space, offices for companies and start-ups, and scientific laboratories, alongside the newly built NOBIS event centre, a restaurant and an underground car park. All these facilities were showcased during an open day on Saturday, 6 May 2023. The event drew over 4,000 locals eager to explore the NOI building at the heart of the city to discover who would be researching, teaching and working there and which topics would be prioritised. Guided tours provided insights into the building’s architecture and hydrogen plant, the “startbase” co-working space, the new Sustainable Manufacturing Lab and more. Additionally, MiniNOI workshops offered children a chance to learn about mobility.



GROWING INNOVATION DISTRICT

**The new Faculty of Engineering**



**N**OI Techpark is a dynamic place, constantly growing in terms of people, ideas, buildings and infrastructure. In autumn 2024, the completion of the Free University of Bozen-Bolzano's Faculty of Engineering will mark a significant milestone, turning the innovation district into a true campus. This development will see hundreds of students attend NOI to study and engage in research, shaping them into the experts of tomorrow. The creative energy originating from a university setting will enhance the capabilities of existing players at NOI, increasing their competitiveness and expenditure on research and development.

The new university complex enhances both the architectural appeal and functional capacity of NOI Techpark, as well as the entire adjacent industrial area. Bolzano Sud is now home to over 2,000 companies with around 20,000 employees. This area has increasingly attracted businesses specialising in innovation and technology. Fuelled by the efforts of NOI and unibz, this economic development is accompanied by an enhanced quality of life. The entire neighbourhood is being upgraded – with better services, improved transport connections and an expanded cycling path network.

**The creative energy that flows from a university setting will continue to strengthen the NOI community and further empower its stakeholders.**



The Free University of Bozen-Bolzano's Faculty of Engineering, opening in autumn 2024, will mark a new chapter for the NOI site, turning it into a true campus.

**Extension buildings**



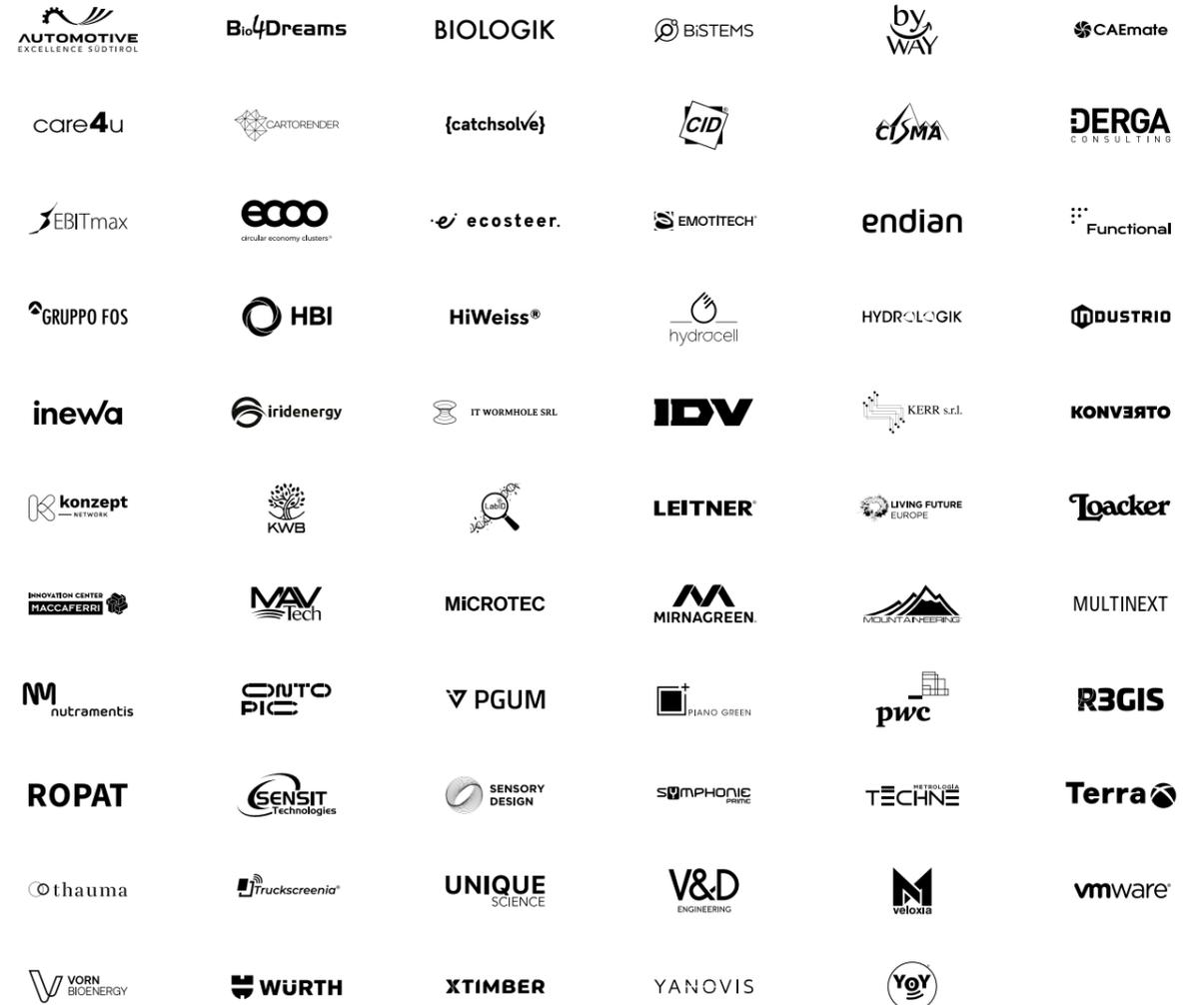
**I**n addition to the new Faculty of Engineering, the extension buildings D2 and D3 are set to open in summer 2024. These structures will primarily provide space for private companies and new laboratory facilities. Each building will focus on a specific topic: D2 will concentrate on food technologies (Food & Health), and D3 will be dedicated to green technologies (Green).

Due to consistently high demand, further expansion plans are already underway. The D4 building will specifically address digitalisation and Artificial Intelligence (Digital), while D5 will be devoted to automation and robotics (Automotive & Automation). This thematic concentration will not only benefit the resident companies by offering the advantages of proximity and focus in their work areas but will also accelerate the growth of knowledge and expertise, enhancing the overall appeal of NOI Techpark.

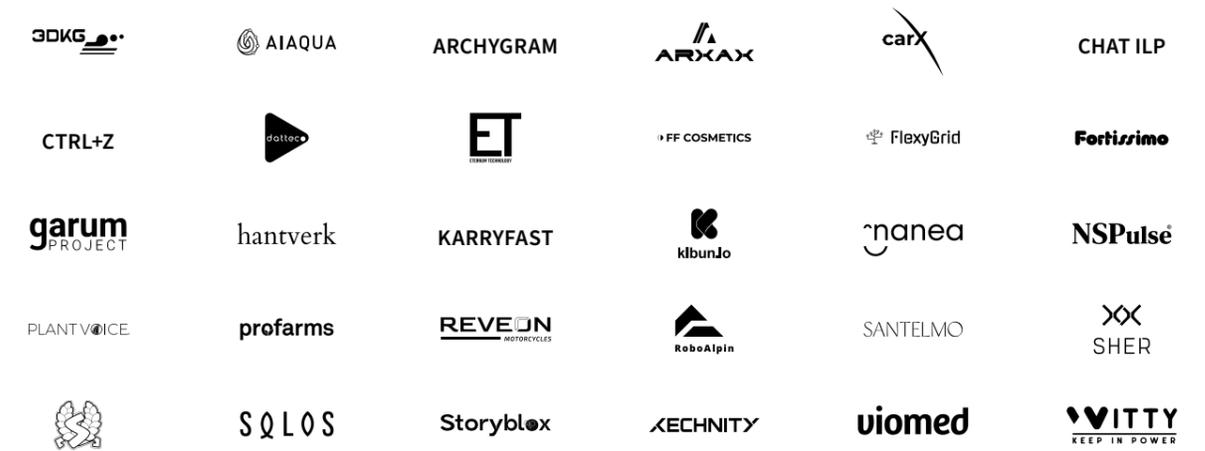


# COMPANIES & START-UPS

## Companies



## Start-ups



COMPANIES & START-UPS

# COMPANIES

**N**OI Techpark fosters connections between businesses, research institutes and the university. Our primary goal is to support local companies with their research and development endeavours, promoting their growth and, in turn, sustainably strengthening the local economy. Each year, we welcome new companies with innovative projects to drive forward. In 2023, we were able to accept 10 out of 14 applications, bringing the total number of private firms in the innovation district to 65. Here, we would like to introduce three of these companies:

## VORN Bioenergy Italia

The journey began in 2019 when Christof Erckert envisioned a way to produce sustainable biofuels. He founded a start-up and relocated it to NOI Techpark in 2020. For three years, Erckert and his team received extensive support through the Start-up Incubator, which included coaching, funding advice and pitch training. Initially a two-person team, the start-up rapidly expanded to 17 employees. They registered three patents and transitioned from a start-up to a consolidated company. In 2023, it was acquired by the German VORN Bioenergy Group, one of Europe's leading project developers and biomethane producers. VORN Bioenergy Italia's expertise is an ideal fit for the group, and it now manages biomethane projects throughout Italy from its office in Bolzano. The acquisition coincided with Italy's National Recovery and Resilience Plan (NRRP), which aims to significantly enhance biomethane production and use; the country aims to boost its biomethane output tenfold by 2026. Under the umbrella of the VORN Bioenergy Group, the skilled team at VORN Bioenergy Italia will continue to drive South Tyrol and Italy towards climate neutrality from their Bolzano headquarters.



The VORN Bioenergy Italia team, including founder and former majority shareholder Christof Erckert (back, second from right)

**“NOI Techpark was one of the catalysts in our growth process.”**

**Christof Erckert**

Founder and former majority shareholder of VORN Bioenergy Italia

## Cartorender

The changing climate is causing landslides, mudslides and avalanches to occur more frequently. To assess the resulting damage, geologists typically rappel into the affected terrain to conduct live, on-site surveys. This process carries inherent risks. Cartorender aims to minimise these risks by utilising terrestrial laser scanners and lidar drones to scan the terrain precisely and create digital models. These detailed mappings of avalanches and mudslides enable the parties responsible to accurately assess both the damage and the debris removal costs. Cartorender also employs other technologies – for instance, to efficiently manage the hydropower plant in Fortezza in a joint project with the unibz research group in the Thermo Fluid Dynamics Lab and Alperia. There, Cartorender uses sonar and computer simulations to visualise excessive sediment deposits in the reservoir. Based on these measurements, researchers can advise the energy service provider on methods for removing sediments from the reservoir bottom without harming the aquatic environment.



Loris Trentin's company, Cartorender, specialises in geological surveys.

**“We want to optimise data collection to improve water protection projects and thereby prevent or mitigate flood damage.”**

**Loris Trentin**  
CEO of Cartorender

## Mountain-eering

Watercourses are a valuable resource but can also present significant risks. The engineering company Mountain-eering is committed to safeguarding and enhancing this natural resource. One of their projects involves creating an innovative flood diversion system in San Candido. In the past, intense rainfall has frequently led to flooding in the town centre. Managing Director Silvia Simoni and her team have designed a relief tunnel to channel water from the Sesto River to the Drava River. During floods, the new tunnel will act as a drainage channel for the Sesto River. In regular conditions, it operates as a new road segment connecting San Candido and Sesto. In a separate project, Mountain-eering is working with CISMA, another NOI-based company, to measure the volume of debris, gravel and mud transported from the mountains by rivers due to glacier retreat and the thawing of permafrost soils. In collaboration with the Agency for Civil Protection and the Free University of Bozen-Bolzano, they have devised a novel system that, for the first time, provides precise measurements – rather than estimates – of water and rock movement along Alpine torrents. This system, currently being tested on the Solda River, enables data-supported monitoring of sediment movements, in turn enabling the planning of the corresponding infrastructure to protect against hydraulic hazards.



The system developed by Mountain-eering measures the sediment levels in mountain streams.



# START-UPS

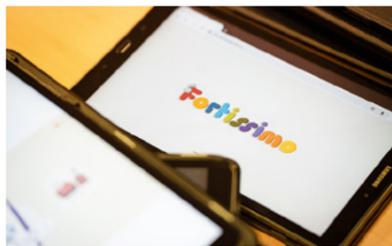
O

ur Start-up Incubator offers a dynamic environment where young start-up teams, innovative entrepreneurs, creative inventors and university spin-offs can develop their ideas. We welcome new start-ups several times each year, carefully evaluating each team's vision, business idea, market potential and financing strategy. In 2023, we were able to accept 13 of the 41 applicants, bringing our total to 31 supported start-ups at the end of the year. Get to know three of them here:

COMPANIES & START-UPS

**“NOI identifies opportunities and makes them tangible for companies and start-ups.”**

**Valeria Told**  
Founder of Fortissimo



Valeria Told's digital platform, Fortissimo, is guided by a singular principle: bringing classical music closer to children.

## Fortissimo

Valeria Told, the former General Director of the Haydn Orchestra of Bolzano and Trento, has always been passionate about classical music education. This passion led her to establish her own start-up to introduce children to classical music through technology. Her product: an interactive platform designed to make classical music accessible and enjoyable in every classroom. She garnered significant attention at the European level and secured almost 1.7 million euros in funding. This success was also thanks to the support of our EU Opportunities Team, who assisted her in applying for the Creative Europe Programme and finding European partners through the EEN-Enterprise Europe Network. Today, Fortissimo is backed by a consortium of 23 institutions from 14 European countries, all aiming to renew the global market for music education programmes. The next ambitious milestone will be to complete the virtual concert hall, a digital amphitheatre offering a revolutionary way to listen to (and learn) music.



## Garum Project

What if food could pave the way for sustainable innovation? That's the vision behind Garum Project, a start-up founded by Gregor Wenter, Mattia Baroni and Stephanie Lüpold, which opened its first production site at NOI in 2023. This team of food entrepreneur, chef and economist is dedicated to reducing food waste while crafting tastier, healthier and more sustainable dishes. Their most important ally in this mission? Fermentation. Together with the Laimburg Research Centre and with support from our Start-up Incubator, Garum Project is advancing the development of fermentation processes at NOI. They are producing various types of garum, an ancient seasoning sauce originally made by the Romans using fermented fish and brine. This staple condiment of ancient Roman cuisine is now making a significant comeback, valued for its ability to serve as a nutritious and healthy alternative to salt and traditional stock cubes and as a unique flavour enhancer for many dishes. Garum Project only uses by-products from the local food industry for its garums: vegetables that are too small or too large to be sold, spent laying hens and whey from cheese production.



Mattia Baroni and the Garum Project's mission is to breathe new life into by-products.

**“The opening of our production site at NOI Techpark is just the beginning. We want to replicate this model across Europe, adapting it to regional characteristics each step of the way.”**

**Mattia Baroni**  
Head of Innovation at Garum Project

## Witty

Charging in progress... 98, 99, 100 per cent... stop! Witty disconnects the mobile phone battery from the mains. And no, Witty is not your energy-saving family member but an innovative technology developed by Lorenzo Craia and Andrea Tognoli. This clever device helps extend the lifespan of lithium-ion batteries in electronic devices by preventing overcharging, which can irreversibly damage them and reduce their performance. Witty does this by cutting off the power once a battery reaches full charge, thereby preserving its health over time. However, the potential of this innovative technology extends beyond smartphones and tablets. The start-up is also developing new software to simplify the charging process of electric micromobility vehicles, such as e-bikes and electric scooters. The specially created app makes it possible to ascertain whether the remaining battery level is sufficient to cover the planned route. It also shows e-bike charging stations along the way. Thanks to the founders' impressive concept, the innovation has already made waves, winning Assolombarda's MCE4x4 competition last year.



Lorenzo Craia (left) and Andrea Tognoli are dedicated to maintaining batteries in optimal condition.

COMPANIES & START-UPS

# INSTITUTIONS

**R**esearch institutes, the university and various institutions collaborate with the companies and start-ups at NOI to develop sustainable solutions for society and the environment. Together, they manage scientific laboratories, provide guidance, foster networking and exchange research insights and expertise with the business sector. All in the spirit of applied research, the cornerstone of NOI's mission.



### Free University of Bozen-Bolzano

- Faculty of Agricultural, Environmental and Food Sciences
- Faculty of Engineering
- Faculty of Economics and Management



### Eurac Research

- Center for Sensing Solutions
- Institute of Mountain Emergency Medicine
- Institute for Biomedicine
- Institute for Renewable Energy
- Institute for Mummy Studies
- terraXcube



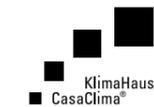
### Laimburg Research Centre

- Institute for Agricultural Chemistry and Food Quality
- Institute for Mountain Agriculture and Food Technology
- Institute for Fruit-Growing and Viticulture



### Fraunhofer Italia

- Automation and Mechatronics Engineering
- Process Engineering in Construction
- Robotics and Intelligent Systems Engineering



### Energy Agency South Tyrol KlimaHaus – CasaClima

- R&D Department



### Trade and Service Providers' Association

- Innovation & New Markets



### South Tyrolean Farmers' Association

- Innovation & Energy



### hds – Unione Business Association

- Competence Centre for Local Development, Sustainability and Digitalisation



### NOI SpA

- Enterprise Europe Network (EEN)
- European Digital Innovation Hub (EDIH)



### South Tyrolean Health Service

- Innovation, Research and Teaching Service (IRTS)



### Hoteliers and Innkeepers Association South Tyrol

- HGV Innovation Department



### SMACT

- Smact Live Demo

INSTITUTIONS

# FREE UNIVERSITY OF BOZEN-BOLZANO

INSTITUTIONS

Research is a cornerstone of the Free University of Bozen-Bolzano's five faculties. Within NOI Techpark, the university boasts 13 laboratories and the Centre for Family Business Management, which focus primarily on applied research in collaboration with companies and public bodies. Around 230 researchers and technicians across three faculties are dedicated to tackling current challenges and socially relevant issues. Their research spans diverse areas, including water scarcity and hydrological innovations, big data processing, the development of

smart food, waste management and technological innovations in agriculture. At NOI Techpark, these efforts are concentrated within the research fields of agricultural science, industrial engineering and automation, intelligent systems technologies, food production, water management, digital technologies and family business management.

## Biodegradable electronics

Duration: 2023–2025

Project budget (unibz): €79,500

Funding bodies: MIUR, EU

Partners: University of Venice, University of Modena and Reggio Emilia

Lab: Sensor System Technology Lab



Sustainable electronics is a new concept that focuses on the environmentally responsible design, manufacture, use and recycling of electronic components. The "BIOEL" project aims to lay the foundations for the next technological leap in thin-film electronics by developing circuit blocks that are not only powerful but also environmentally friendly and completely biodegradable. From conducting a comprehensive study on the biocompatibility of thin-film transistor materials to producing fully biodegradable base components and circuit blocks, the project aims to advance knowledge and enable practical applications.



## Simplifying data access

Duration: 2019–2023

Project budget: €765,500

Funding body: EU Horizon 2020

Partners: ZHAW, Athena, Fraunhofer IGD, SIRIS Academic, MPG, CNRS, SIB,

Infile Technologies SA

Lab: Smart Data Factory

Over the past decade, the expansion and democratisation of data have transformed how we explore it. The EU "IN-ODE" project aims to simplify data access through a set of flexible, fit-for-purpose and sustainable services designed for navigating open datasets. These services help users to link and use multiple datasets, access and search data, receive support in understanding and querying data and gain new insights through visualisations. The effectiveness of these techniques has been proven in three real-life use cases.

unibz

## Generational change in family businesses

Duration: 2023–2024

Project budget: €47,000

Funding body: Aspiag Service Srl

Centre for Family Business

Management

This project, conducted in collaboration with Aspiag Service, explores how family businesses navigate the transition from one generation to the next in the 21st century. It delves into the impact of generational shifts within entrepreneurial families and examines how traditions in family and business are used to drive innovation. The project's research structure comprises two parts: a theoretical framework and an empirical study involving case analyses. The empirical portion will assess the experiences of various family businesses associated with Aspiag Service, aiming to understand their strategies for generational transition and gain insights that could support future succession.



## Utilisation of rice by-products

Duration: 2 years

Project budget: €112,470

Funding body: NextGeneration EU

(NRRP)

Partners: University of Verona,

Riso Melotti Srl

Lab: Food Technology

The "RAINDROP" project focuses on the recycling of used frying oil through the use of rice bran, a by-product of rice milling. The rice bran is employed as an adsorption medium in a supercritical fluid extraction process. This technique removes low molecular weight compounds responsible for oil rancidity. In addition, bioactive compounds are extracted from the rice husks and added to the purified oil to enhance its nutritional value.



## Flexible automation

Duration: 2021–2023

Project budget: €30,000

Funding body: Autonomous Province of Bolzano

Partner: Thermo Tecno Management

Lab: Smart Mini Factory

TTM – Thermo Tecno Management specialises in tailored solutions for wrapping technical insulation materials. The company crafts customised solutions to meet diverse customer needs, underscoring the importance of flexible and efficient production processes. As part of the joint research project, the Smart Mini Factory team developed and tested an automated parts removal system using collaborative robots, known as cobots. Using the developed path control and new ultrasonic cutting technology, the company will be able to automate cutting processes that pose potential risks to employees. This advancement is poised to substantially enhance productivity levels.

## Black elderberry health booster

Duration: 1 year

Project budget: €50,000

Partner: Iprona SpA

Lab: Micro4Food

This project explores the potential of black elderberry as an ingredient in new functional beverages. The berries have many health-promoting properties, including antioxidant, anticarcinogenic, anti-inflammatory, antimicrobial, antispasmodic, antidiabetic, antidepressant and antiviral properties. The project's primary objective is to investigate how products containing black elderberry can influence intestinal health. To achieve this, the human gut microbial ecosystem simulator (SHIME®) is used to analyse the impact of these products on gut bacteria.

INSTITUTIONS

### FACTS AND FIGURES 2023\*

144 active research projects

€7.1 million – the budget for the research projects

240 collaboration partners and customers, 87 of which were companies

Founded: 1997

President: Ulrike Tappeiner | Rector: Paolo Lugli | Director: Günther Mathà

Total number of employees: 729 | Employees working at NOI: 230

\*This data pertains to all the research projects within the unibz research areas at NOI in 2023.

# EURAC RESEARCH

In South Tyrol's largest research centre, 650 professionals are actively shaping a brighter future for humanity. Notably, 40 per cent of this workforce is based at NOI Techpark. Here, Eurac Research operates 18 R&D laboratories focusing on crucial areas such as energy efficiency, environment monitoring technologies, climate simulation and molecular and cell biology. These facilities belong to institutes dedicated to Renewable Energy, Mountain Emergency Medicine, Mummy Studies and

Biomedicine, alongside the Center for Sensing Solutions and the terraXcube. Modern infrastructures, such as the extreme climate simulator terraXcube, and technologies for testing the performance of prototypes and systems offer great opportunities for companies and specialists. Through collaborative research, innovative ideas can be refined, product performance enhanced, certifications acquired, and new products' efficacy assessed.

## Characterisation of obesity subtypes

**Funding body:** Euregio "Environment, Food and Health"  
**Partners:** University of Trento, South Tyrolean Health Service  
**Institute for Biomedicine**

Obesity, a significant risk factor for many chronic illnesses, is prevalent across European countries and poses a substantial public health challenge. The Institute for Biomedicine is researching obesity in South Tyrol using health data from the CHRIS study. This research analyses multi-omics data from the study to identify new molecular markers to distinguish between healthy and unhealthy forms of obesity. Computational models have also been developed to differentiate between these obesity subtypes based on the new markers. This knowledge can be incorporated into future preventive measures for the local population.



## Climate testing electric vehicle charging stations

**Funding body:** Alpitronic Srl  
**Partner:** Alpitronic Srl  
**terraXcube**

Electric vehicle charging stations are subjected to a range of weather conditions throughout their lifespan. Therefore, they must remain watertight, intact and functional even under extreme conditions. Alpitronic conducted tests in the terraXcube, exposing the mechanical components of the charging station to snow and ice, as well as temperatures as low as -15°C. Pre- and post-testing inspections validated the charging station's accurate mechanical operation.

**eurac**  
**research**

### FACTS AND FIGURES 2023\*

177 active research projects  
 €11 million – the budget for the research projects  
 324 collaboration partners and customers, 265 of which were companies

Founded: 1992  
 President: Roland Psenner | Director: Stephan Ortner  
 Deputy Director: Roberta Bottarin  
 Total number of employees: 654 | Employees working at NOI: 280

\*This data pertains to the Eurac Research Institutes and Centers located at NOI Techpark.

## Drones as lifesavers

**Duration:** 2023–2024  
**Funding body:** Stiftung Fondazione Sparkasse (Fusion Grant)  
**Partner:** MAVTech Srl  
**Institute of Mountain Emergency Medicine**

In emergencies such as cardiac arrests, the availability of an automated external defibrillator (AED) can significantly increase survival rates. As more and more people visit mountainous areas, including older people more likely to experience cardiac arrest, the use of drones could revolutionise mountain rescue operations. This project investigates whether drones could reduce the time needed to deliver AEDs to remote locations. MAVTech's drone durability was tested under extreme conditions in the terraXcube environmental simulator. Its practicality was then tested at Lake Braies, where drone efficiency was compared with AED delivery by helicopter and by a mountain rescue team on foot.

## Effects of climate change on fruit cultivation

**Duration:** 2020–2024  
**Funding body:** Excellent Science – Horizon 2020  
**Center for Sensing Solutions**

Traditional mountain farming plays a crucial role in the socio-economic fabric of the Alps. Sustaining profitability necessitates ongoing innovation, exploring new plant species and varieties that are resilient to shifting environmental conditions while meeting stringent quality standards. Smart solutions that leverage data collection and innovative visual analyses are imperative. The "OB-VISLY" project seeks to enhance precision and sustainability in fruit cultivation, harnessing data visualisation tools to address the multifaceted challenges posed by climate change.



## A new picture of Ötzi

**Duration:** 2020–2023  
**Funding body:** Co-funded by the Institute for Mummy Studies and the Max Planck Institute for Evolutionary Anthropology  
**Partner:** Max Planck Institute for Evolutionary Anthropology  
**Institute for Mummy Studies**

His complexion resembled those commonly found in North Africa today. A man of mature years, he was likely bald. Genetically, he was 92 per cent of Anatolian descent. A decade after the initial analysis of Ötzi's genome, a combined research team from the Max Planck Institute and Eurac Research achieved a more precise reconstruction of Ötzi's genetic material, thanks to advancements in sequencing technology. This enabled them to unveil new insights into his appearance and ancestry. The proportion of Ötzi's genes that could be traced to early farmers who had immigrated from Anatolia was unusually high – higher than in the genomes of his contemporaries, which were used for comparison in the study. This suggests he was likely a member of a relatively isolated Alpine population with limited interaction with other European groups.

## Recycling on the construction site

**Duration:** 2020–2023  
**Funding body:** Calchèra San Giorgio  
**Partner:** Calchèra San Giorgio  
**Lab:** Hygrothermal Testing Lab  
**Institute for Renewable Energy**

It is important to promote the use of sustainable products to reduce the impact of the construction sector on the environment. Calchèra San Giorgio, a Trento-based company, has developed a natural plaster made from various waste products from the agricultural, brick and food industries. Its development was supported by the Hygrothermal Testing Lab, which carried out hygrothermal tests with various plaster formulations and then evaluated their performance under realistic conditions using computer simulations. One of the tested products, the natural plaster "Calcedicampo", was awarded the Klimahouse Prize 2023 in the Circle category.

# LAIMBURG RESEARCH CENTRE

At South Tyrol's leading agriculture and food processing research institute, around 230 employees work on over 350 research and experimental projects in the areas of agriculture and food processing every year. These initiatives aim to bolster the competitiveness and sustainability of South Tyrolean agriculture while ensuring the quality of its agricultural products. Situated at NOI Techpark, the Laboratory of Flavours and Metabolites conducts studies related to food quality and plant health. In collaboration with unibz, the Laimburg

Research Centre manages the Laboratory of NMR Spectroscopy, which specialises in verifying and authenticating the origin of agricultural products. NOI Techpark is also home to the DIC pilot plant for producing innovative dried fruit and vegetables. Additionally, a large part of the research in the food sector takes place in the laboratories of the Laimburg Research Centre at its headquarters in Vadena.

## Authenticating hay milk

**Duration:** 2021–2023  
**Project budget:** € 70,146  
**Funding:** Doctoral scholarship  
**Partners:** Free University of Bozen-Bolzano, South Tyrol Dairy Association  
**Lab:** Laboratory of NMR Spectroscopy



In the production of South Tyrolean hay milk, certain fat molecules known as cyclopropane fatty acids (CPFA) play an important role as molecular markers. These molecules appear in the milk of silage-fed cows but are absent from hay milk. Therefore, refining analytical methods to detect the presence of CPFA is essential for identifying potential discrepancies in hay milk production and guaranteeing the product's authenticity. NMR spectroscopy allows for the creation of a detailed, atomic-resolution molecular spectrum for each molecule. A technique called "decoupling" enhances the signal, thereby raising the detection threshold. Such methods are vital tools for certifying the authenticity of regional food products.



## More than just beer

**Duration:** 2021–2023  
**Project budget:** € 145,607  
**Funding:** Autonomous Province of Bolzano  
**Fermentation and Distillation working group**

South Tyrol's breweries produce about 75,000 litres of beer annually. This process generates significant amounts of by-products, predominantly spent grains, which are rich in proteins and fibres. The "Cir-Beer" project aimed to incorporate these breweries into a circular economy by repurposing the spent grains to make baked goods such as biscuits, cakes and focaccia. Additionally, the project initiated experiments to infuse beer with various herbs, creating new flavour profiles. The knowledge gained should help local producers make their production cycle more sustainable. For food manufacturers, these beer by-products could come to represent an attractive alternative raw material.



## FACTS AND FIGURES 2023\*

98 active research projects

€3.37 million – the budget for the research projects

1,464 agricultural businesses have commissioned laboratory analyses

Founded: 1975

Director: Michael Oberhuber

Total number of employees: 230

\*This data pertains to the NOI research areas of the Laimburg Research Centre.

## Anti-inflammatory fruit and vegetable waste

**Duration:** Jan.–Dec. 2023  
**Project budget:** € 54,450  
**Funding body:** Stiftung Fondazione Sparkasse (Fusion Grant)  
**Partner:** Mirnagreen Srl  
**Lab:** Laboratory of Flavours and Metabolites

A primary focus of applied research at the Laimburg Research Centre is recycling food waste to create valuable resources within the framework of a circular economy. The collaborative "puRipiaNtA" project with Mirnagreen has developed innovative technologies to purify plant extracts abundant in so-called "small RNAs". These molecules, also present in fruit and vegetable waste, boast antioxidant and anti-inflammatory properties. Leveraging a patented extraction method, the way has now been paved for a scalable industrial process to yield highly pure extracts rich in these ingredients.



←



→

## New laboratory for sensory science

**Sensory Science working group**

How can we objectively describe the flavour and texture of a new apple variety? Is it possible to differentiate a reduced-sugar product from its original counterpart based on flavour? These questions, among others, are addressed by the new laboratory for sensory science, which opened in May 2023. This facility is dedicated to objectively assessing the sensory attributes of food and analysing the impact of various ingredients, processing techniques and storage parameters. The core of its mission is to create sensory profiles for various products. To achieve this, trained panels meticulously describe and evaluate products during tastings. Such methodologies are particularly important in new product development, as well as in the assessment and assurance of quality standards.



←



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## Health-promoting food prototypes

**Duration:** 2022–2023  
**Project budget:** € 125,812  
**Funding:** Autonomous Province of Bolzano  
**Partner:** Dr. Schär SpA  
**Lab:** Laboratory of Flavours and Metabolites

In collaboration with Dr. Schär, the "REALISM" project focused on creating innovative food products aimed at reducing the incidence of metabolic syndrome, a condition linked to increased risk of cardiovascular diseases and type 2 diabetes. The recipe leverages functional ingredients primarily sourced from by-products of South Tyrolean food processing, such as grapes, apples and oats. In the laboratory, the oat varieties with the most significant potential health benefits were identified. Thanks to optimised production processes, the valuable ingredients can be preserved to the maximum extent, as evidenced by the first prototypes, which included grissini, biscuits and rolls.

## Alternatives to mineral fertilisers

**Duration:** 2022–2024  
**Project budget:** € 119,751  
**Funding body:** European Union  
**Partners:** SBB, SBR, BRING, unibz  
**Lab:** Laboratory for Soil and Plant Analysis

The "INNONährstoffe" project aims to optimise regional organic nutrient cycles in fruit cultivation and viticulture and reduce mineral fertiliser use. In the past, agriculture was based on nutrient cycles that used liquid and solid manure as natural fertilisers. Nowadays, the use of mineral fertilisers in crop growing has increased, while at the same time, there are challenges in the use of the manure produced in livestock farming. This project aims to find a solution to both problems by exploring organic alternatives to mineral fertilisers, improving the processing and use of farm manure and encouraging cooperation between agricultural businesses.

# FRAUNHOFER ITALIA

This non-profit research institute based at NOI makes digitalisation practical and accessible for small and medium-sized enterprises (SMEs). The aim is to transform scientific discoveries into commercially viable, tailored solutions for businesses. Fraunhofer Italia offers expertise in automation, robotics, machine learning and intelligent sensor technology, as well as in the construction sector, focusing on integrated planning, lean construction, BIM and AR/VR. The Fraunhofer Italia

ARENA (Area for REsearch & iNnovative Applications) is a central platform where future trends in digitalisation and advanced automation can be explored. Various technology demonstrators illustrate the potential and challenges of the smart factories and construction sites of the future.

## Construction site robots of the future

Duration: 2021–2023

Project budget: €505,695

Funding bodies: Horizon 2020

Partners: Istituto Italiano di Tecnologia (IIT), Technical University of Munich, Profactor GmbH, Budimex, CIOP-PIB  
Lab: Fraunhofer Italia ARENA

The international research project “CONCERT – Configurable Collaborative Robot Technologies” aims to develop a versatile construction site robot. Designed to be assembled from individual modules, the robot will still be capable of carrying the heaviest loads. This robot is created with the dual purpose of transporting components and navigating hazardous or unhealthy work environments. Equipped with state-of-the-art robotic hardware and flexible software, it guarantees reliable, secure and efficient performance in unpredictable settings. A key element of this initiative is its emphasis on collaborative robotics: fostering cooperation between humans and robots to solve tasks. The proof of concept will be demonstrated on real construction sites.



## New competencies in the mobility value chain

Duration: 2023–2026

Project budget: €150,142

Funding bodies: ERASMUS+ 2022

Partners: University of Leoben, HTBLA Wolfsberg, Instituto Cuatrovientos, unibz, TFO Brunico, TFO Bolzano, NOI, Graz University of Technology, National Technical University of Athens, WING Österreichischer Verband der WirtschaftsINGenieure, Mondragon University, Wind Ellas Tilepikoinonion Aebe, Volkswagen Navarra, Tracasa Instrumental

The “Engineering Excellence for the Mobility Value Chain” (EE4M) project responds to the growing demand for enhanced education, training and advancement opportunities for engineers in the mobility sector. It aims to equip professionals with the necessary skills to navigate the evolving landscape of Industry 4.0/Industry 5.0, emphasising smart operations management and sustainability operations management. EE4M focuses on fostering the professional growth of individuals in the automotive industry through innovative vocational training modules, backed by the collaborative transnational Centre of Vocational Excellence.



### FACTS AND FIGURES 2023

33 active research projects

€1.3 million – the budget for the research projects

101 collaboration partners and customers, 63 of which were companies

Founded: 2009

Institute Director: Dominik Matt

Employees at NOI: 35

Interns, students & doctoral candidates: 25

# KLIMAHHAUS CASACLIMA

The Energy Agency South Tyrol – CasaClima is an auxiliary body of the Autonomous Province of Bolzano. This agency is recognised as a competence centre for energy-efficient and sustainable building practices, impacting construction and renovation efforts in South Tyrol and beyond. Located at NOI Techpark and staffed by over 40 employees, CasaClima primarily focuses on evaluating and certifying buildings and construction materials based on energy and environmental quality

standards. Additionally, the agency provides an extensive range of training and education programmes for professionals in the construction sector. It also offers tailored programmes to guide and support companies and municipalities towards enhanced energy efficiency and sustainability.

## Sustainable construction standards

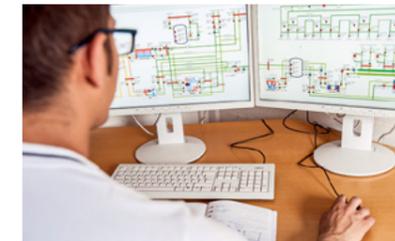
Duration: 3 years

Project budget: €2,492,700

Funding body: Interreg Central Europe

Partners: 10 partners from 6 countries

The “MESTRI-CE” project was launched in recognition of the necessity of significantly reducing energy consumption in buildings to achieve a climate-neutral Europe. Its objective is to streamline and improve sustainable construction and green financing standards, facilitating greater investment in energy efficiency initiatives. The project thus aims to surmount the existing technical, political and financial obstacles hindering the renovation of the building stock. To achieve this, the project will address both demand and supply on the market and bring together political decision-makers, project developers, financial institutions and investors.



## Decarbonisation in companies

Duration: 3 years

Project budget: €1,842,112

Funding body: EU LIFE Programme (LIFE21-CET-AUDITS-EnTRAINER)

Partners: 8 partners from 4 countries

The “EnTRAINER” project is designed to facilitate energy transition and decarbonisation efforts in Greece, Romania, Spain and Italy by introducing “Energy Transition Audits” (ETA) to replace traditional energy audits. The project involves conducting energy scans at 80 sites, followed by 40 detailed ETAs by consortium partners and another 40 by external auditors. Additionally, it includes the development of guidelines, a web portal featuring innovative calculation tools and a platform for ongoing interaction and knowledge sharing. The project also aims to develop and implement training programmes for energy auditors, energy experts and university students.

### FACTS AND FIGURES 2023\*

10 active research projects

€370,000 – the budget for the research projects

\*This data pertains exclusively to the R&D department of CasaClima.

Founded: 2006

General Manager: Ulrich Santa

Employees at NOI: 42



# LVH.APA

With over 8,000 members, lvh.apa advocates for the interests of the craft and service sector in South Tyrol and is one of South Tyrol's most important business organisations. Its mission is to create conducive conditions for SMEs, ensuring their competitiveness and future viability. The Innovation & New Markets Department serves as the primary point of contact for the crafts sector at NOI Techpark. It offers guidance on innovation funding, crowdfunding, product development,

exports and working abroad. These topics are addressed through various channels, such as events, training sessions, workshops and in-depth consulting packages. The department also connects companies with innovation service providers and laboratories at NOI to initiate collaborations.

## Second sustainability course

Partner: ACMI

In spring 2023, lvh.apa hosted the second edition of its sustainability course for skilled trades. Over eight days and seven modules, the course focused on crafting personalised sustainability roadmaps for participants' businesses. Attendees gained insights into the broad dimensions of sustainability and acquired methods and tools to implement sustainable practices within their operations. The course also included a visit to Eurac Research's Institute for Renewable Energy, where participants explored the laboratories. The impact of the course is already evident. Graduates Mathias Piazzzi from the first course and Martin Zuegg from the second have co-founded LokHaus+. With lvh.apa's support, they initiated a crowdfunding campaign, and together with Studio Oberhauser, they were recognised with the Design Skill Award for their collaborative product development.



## Skilled trades challenge at the Hackathon

Client: Mooovex  
Partner: NOI SpA

In September, the NOI Hackathon SFSCON Edition was held, marking the third instance where the skilled trades contributed a specific challenge. This year's focus was on Mooovex, a newly founded company developing a digital system for managing transfer services and taxi journeys. The system allows drivers to input journey data, which is then digitally distributed, eliminating the need for further calls. The Hackathon challenge tasked participants to use voice recognition to capture journey details in the Mooovex system without manual data entry. Three teams competed, delivering innovative solutions that notably impressed the founders, Martin Bauer, Andreas Insam and Iwan Hofer.



### FACTS AND FIGURES 2023\*

179 companies supported
16 R&D projects by companies supported
€1.3 million – the budget for the supported R&D projects
Crowdfunding: 3 financed projects with a total investment volume of €8,000

Founded: 1945
President: Martin Haller   Director: Thomas Pardeller Head of Innovation & New Markets Department: Kathrin Pichler
Total number of employees: 140   Employees working at NOI: 4

\*This data pertains to the activities of the lvh.apa Innovation & New Markets Department located at NOI Techpark.

# SOUTH TYROLEAN FARMERS' ASSOCIATION

As one of the largest business associations in South Tyrol, the South Tyrolean Farmers' Association actively represents and supports over 21,000 member companies. Its mission is to strengthen the farming community economically, socially, culturally and politically. Recognising the importance of future-proofing agriculture, the association established the Innovation & Energy Department about ten years ago. Located at NOI Techpark, this department is a vital resource for farmers

seeking to innovate. It provides guidance on innovation, analyses new business sectors and trends, assists with project and funding opportunities and promotes initiatives for product development and enhancing the visibility of agricultural innovations. As a conduit between science and its practical applications, the Innovation & Energy Department focuses on networking with companies, laboratories, start-ups and research institutes.

## Less sugar, more fruit

Duration: 2023–2025  
Partners: NOI SpA, Partschiller Hof  
Lab: Kitchen Lab

Less sugar – this global health trend is a challenge for South Tyrol's direct marketing companies as well. Take, for instance, farm products such as fruit spreads. The key challenge is to increase the fruit content while maintaining shelf life and product safety. To address this, the South Tyrolean Farmers' Association conducted a case study in collaboration with Partschillerhof. On one production day at the Kitchen Lab, four batches of fruit spread with different sugar concentrations were produced. These batches are now undergoing periodic sensory and microbiological analyses. The insights gained from this study will benefit approximately 2,000 agricultural direct marketers and other interested fruit-processing companies.



## Sustainable meat packaging

Duration: 2023  
Partner: NOI SpA

In pursuit of more sustainable packaging solutions, the South Tyrolean Farmers' Association commissioned a study focused on packaging solutions for meat-processing direct marketers. The goal was to find an alternative to the traditional vacuum bag that would meet the diverse needs of fresh meat packaging. The research revealed that packaging contributes only a small portion to the ecological footprint of meat products. Therefore, it is crucial that any new, more sustainable material does not compromise the product's shelf life. Based on these findings, packaging trials combined with shelf-life analyses are now being conducted to offer concrete answers to local meat producers.

### FACTS AND FIGURES 2023\*

240 companies supported, 10 of them in collaboration with partners at NOI
7 active research projects
€510,500 – the budget for the research projects

Founded: 1904
Regional Chairperson: Daniel Gasser   Director: Siegfried Rinner Head of Innovation & Energy Department: Matthias Bertagnolli
Total number of employees: 259   Employees working at NOI: 2

\*This data pertains to the activities of the South Tyrolean Farmers' Association Innovation & Energy Department located at NOI Techpark.



# HDS – UNIONE

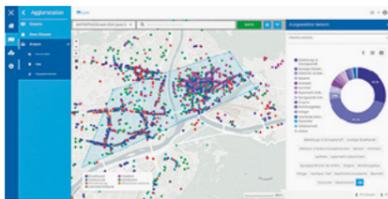
The hds Unione business association represents the interests of South Tyrol's companies in the retail, service and catering sectors. As one of the largest and most important business associations in the province, it promotes the interests of its more than 5,500 member companies at various levels. Building on the expertise and experience of its employees and its nationwide network of volunteer functionaries, it offers solutions for the various member groups and their sectors. With the establishment of the hds Competence Centre for Local Development, Sustainability and Digitalisation at NOI Techpark in 2023, the business association is furthering its efforts and offering its members innovative expertise and support. The hds business association is also intensifying its cooperation and dialogue with the research institutes and institutional partners located in the innovation district.

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## Academy for local and urban development

Partner: Trade and Services Office of the Autonomous Province of Bolzano

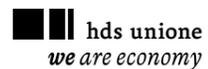
In 2023, the hds Unione business association once again organised the South Tyrolean Academy for Local and Urban Development. As part of the event organised by the hds Competence Centre at NOI, renowned speakers and experts from Italy and abroad shared their knowledge on the topics of urban and location development, destination management, marketing, tourism and mobility, as well as the environment. The primary goal of the event was to provide political and tourism decision-makers with the necessary knowledge and tools to promote healthy local and urban development. This imperative task ensures the preservation of the unique charm of South Tyrol's towns and villages, maintaining them as appealing destinations for both locals and tourists.



## hds geoanalysis

Partners: Trade and Services Office of the Autonomous Province of Bolzano, KPMG

How would a new shopping centre in South Tyrol impact the environment or the development of a city, town or district? How might a new bypass road affect foot traffic in a South Tyrolean village? How would visitor flow patterns change? The hds geoanalysis tool provides answers to these and other questions. Managed and continually improved by the hds Competence Centre at NOI Techpark, this digital map of South Tyrol can simulate future effects. It offers insights into footfall and pedestrian flows, serving as a reliable indicator of the attractiveness of South Tyrol's towns and cities.



### FACTS AND FIGURES 2023\*

16 events organised with 800 participants

Founded: 1946

President: Philipp Moser | Director: Sabine Mayr | Head of the Competence Centre for Local Development, Sustainability and Digitalisation: Martin Stampfer

Total number of employees: 150 | Employees working at NOI: 2

\*This data pertains to the activities of the hds Competence Centre for Local Development, Sustainability and Digitalisation based at NOI Techpark.

# NOI SPA

A constantly expanding community of around 1,200 innovation leaders, start-ups, companies, researchers and students thrives at NOI Techpark; orchestrating this ecosystem is the role of NOI SpA. As the development and operating company, it oversees the seamless functioning of NOI Techpark while continuously advancing South Tyrol's innovation district. With intensive networking and a wide range of services, it helps to initiate and support R&D projects, promote talent and start-ups and ensure the province and its companies are competitive

and fit for the future. NOI SpA's strategic direction is guided by representatives from research institutions and prominent interest and business groups in the region. These stakeholders make up the NOI Board, which ensures the park's activities and the companies' interests are aligned, enabling NOI to evolve in harmony with the needs of the local economy.

## NOI SpA is the development and operating company of NOI Techpark.

As an official partner of the Enterprise Europe Network (EEN), NOI SpA connects innovative companies to Europe. EEN is the largest support network for businesses with international aspirations, linking over 600 organisations across more than 60 countries, and is co-financed by the EU. Additionally, NOI SpA coordinates the European Digital Innovation Hub (EDIH NOI), a key contact point for Artificial Intelligence. EDIH NOI offers subsidised services, expert advice and training for companies aiming to integrate AI into their operations and production processes.

NOI SpA's services are presented in the following pages. → pp. 44–63



### FACTS AND FIGURES 2023

101 R&D and innovation projects supported

€9 million – the budget for the supported R&D and innovation projects

414 customers supported, 376 of which were companies

18,000 participants in NOI initiatives

30,000 participants in 470 events held in the Seminar Area

Founded: 2019

President: Helga Thaler Ausserhofer | Director: Ulrich Stofner

In-house company with 100% provincial participation

Company capital: €179 million

Employees: 90



# SERVICES



Labs



Tech Transfer



Start-up Incubator



Innovation Management



EU Opportunities



Open Data Hub



Public Engagement



Area & Spaces

## LABS

- Lab Desk
- Maker Space & Prototyping
- Kitchen Lab
- Free Software Lab

Our facility's over 50 scientific and prototyping labs are made available to companies. These labs support endeavours to improve energy efficiency, develop healthier and more digestible foods and automate processes. Our Lab Desk helps companies find the right lab and research team for their needs.  
→ pp. 46–47

## TECH TRANSFER

- Networking & Cooperation
- R&D Consultancy
- Know-how Transfer Events
- Sustainability Assessment

Our core competencies span four technology sectors: Green, Food & Health, Digital, and Automotive & Automation. Within these areas, we provide companies and research institutes with specialised consulting, networking opportunities, R&D project support and themed events and workshops.  
→ pp. 48–51

## START-UP INCUBATOR

- Inventors & Pre-Incubation Programme
- Incubation Programme

In our Start-up Incubator, we offer services and programmes that help prospective start-up teams and start-ups bring their ideas to life. We support innovative business ideas by providing premises, personalised advice, workshops and a network of mentors and investors.  
→ pp. 52–53

## INNOVATION MANAGEMENT

- Alpha Innovation
- Pi Innovation
- Start-up Match
- Students Sprint

Using our tools, expertise and extensive network, we support companies in developing new products, services and business models. Our in-house innovation method, Alpha Innovation, helps companies identify unforeseen opportunities and explore new directions. This method serves as a guide, a springboard for ideas and a decision-making aid.  
→ pp. 54–55

## EU OPPORTUNITIES

- EU Partnering
- EU Funding

We help companies capitalise on the innovation opportunities Europe offers, including financing, research and development tenders, project consulting and technology transfer, as well as finding companies international partners for business, technology and research.  
→ pp. 56–57

## OPEN DATA HUB

- Data Access
- Data Sharing
- Data Visualisation

Leveraging the internet and approximately 3,000 beacon antennas across South Tyrol, we collect data on public transport, tourism, traffic, mobility and weather. We support companies in accessing this data and understanding how it can best be used for their business.  
→ pp. 58–59

## PUBLIC ENGAGEMENT

- MiniNOI
- Arts & Culture
- Guided Tours
- NOISE

With initiatives like MiniNOI, we introduce children to research and technology topics in a playful way. We also promote a diverse cultural programme, operating on the interface between science, art and innovation. Our guided tours provide insights into our structures, innovation processes and research topics.  
→ pp. 60–61

## AREA & SPACES

- Areas for Rent (Offices, Labs, Pilot Projects)
- Seminar Area

Our spacious Seminar Area offers an exclusive, fully equipped environment where companies, associations and public bodies can host events. Companies can rent offices, laboratories and spaces to conduct prototype and pilot tests.  
→ pp. 62–63

# LABS

**W**ith 52 state-of-the-art laboratories and researchers from around the globe, our facilities give private companies access to the latest scientific discoveries to enhance their products and services and drive their innovation. These labs, managed by various research institutes, offer opportunities for joint research, contract research, scientific consultations, analyses and laboratory tests. Additionally, NOI Techpark features a Maker Space and two prototyping labs



SERVICES

dedicated to the digital and food sectors, operated directly by NOI SpA. Companies can use these spaces for prototype development, product testing and small-batch production. Some of the labs at NOI Techpark have been co-financed by the European Regional Development Fund (ERDF). Our Lab Desk helps companies find the laboratory and research team to meet their needs. We also offer financial support through the Lab Bonus, a co-financing tool established by the Autonomous Province of Bolzano to promote research and development in South Tyrolean companies, with its administration entrusted to us.

### Successful networking



In 2023, the Free Software Lab received an enquiry from Wow Project, a professional photo studio specialising in product image creation. The studio sought to learn how to use photogrammetry to create 3D product models for e-commerce. After an initial consultation, we connected Wow Project with Arc-Team, a company with over 20 years of experience developing open software and hardware solutions. Arc-Team introduced Wow Project to an intuitive open-source software program tailored to their needs and guided them as they turned a series of photos into a fully realised 3D model. This successful collaboration was made possible by the Lab Bonus, which Wow Project utilised to access the Free Software Lab's services.

**120**

customers have utilised our prototyping labs

### Creators of tomorrow

As part of the FabLab network, our Maker Space has always been centred on collaboration with and support for young people. In 2023, we strengthened our synergies with the Tech Transfer Digital Unit and the Start-up Incubator. In collaboration with the Digital Team, the Maker Space actively participated in the NOI Hackathon SFSCON Edition, a 24-hour programming marathon. For nearly 20 hours, our prototype workshop was open to participating developers and creatives, with six experienced makers on hand to offer advice and support. Expertise and technology also formed the foundation of a second project launched in 2023: the Inventors & Pre-Incubation Programme in partnership with the Start-up Incubator. In this new extended version of the programme for prospective start-uppers, the Maker Space team supports young inventors in the development of their hardware projects.



**73**

per cent of operating costs of the prototyping labs were covered by private third-party funding



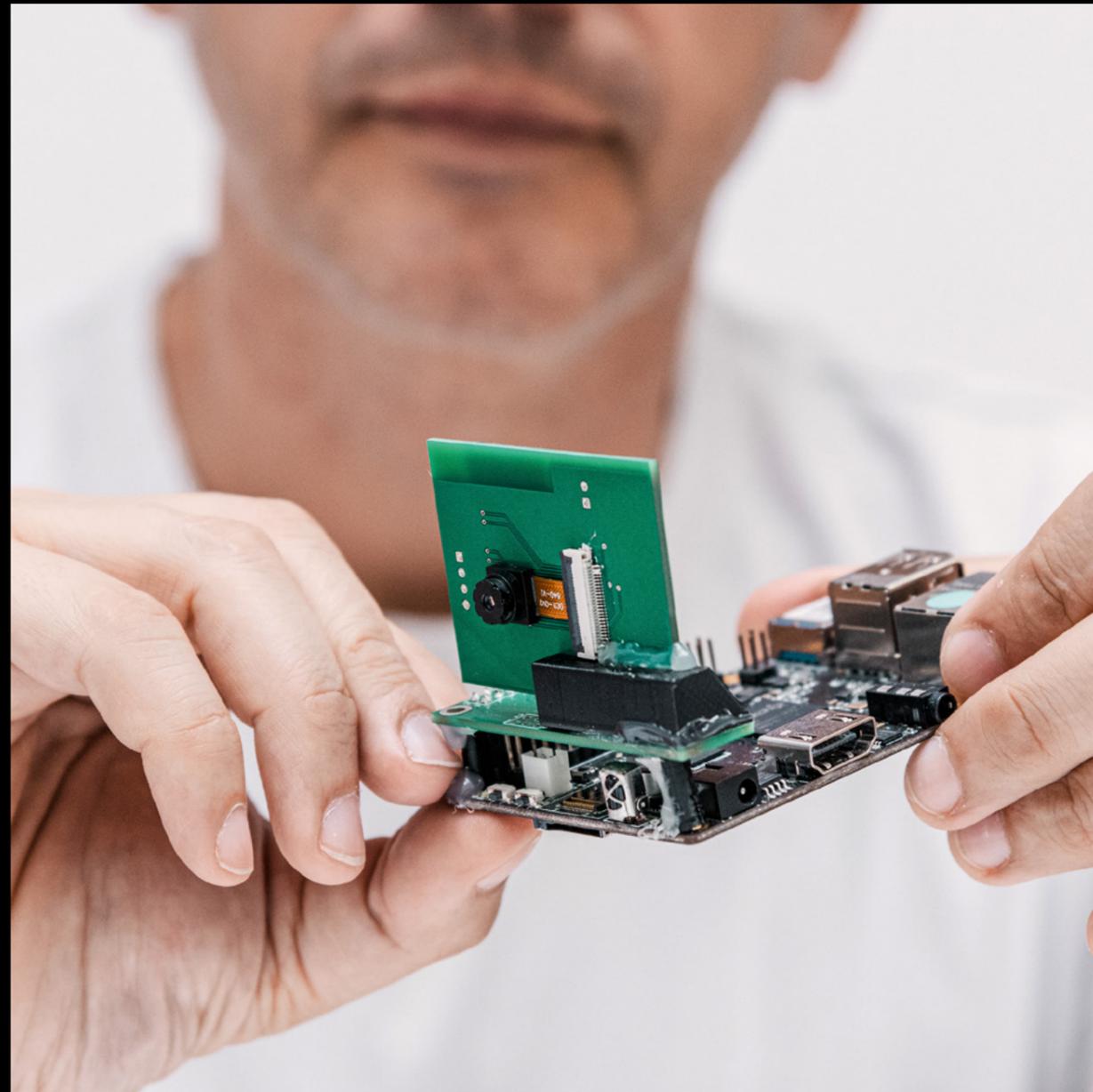
### Innovative toppings

Pizza – fresh from a robot instead of a traditional pizzaiolo. That's Cibo Labs' vision. Their concept is backed by modern automation and packaging technologies. In developing four new pizza toppings, numerous recipe formulations and baking trials were conducted in the Kitchen Lab. Four approaches were tested in our experimental kitchen: mozzarella gel, silicone moulds, sausage casings and food adhesives. The challenge was to balance sensory properties, shelf life and machine manoeuvrability, and the goal was to move from prototype to industrial application. This was achieved – with the help of a Milan-based company, the results were subjected to a practical test, and a framework for industrialisation was defined.

SERVICES

# TECH TRANSFER

**T**echnology transfer is essential in bridging the gap between companies and research. It is through this transfer of expertise that scientific and technological discoveries are transformed into new products and services or used to improve existing ones. We aim to facilitate this interaction by promoting and supporting R&D projects, streamlining communication, setting timelines and aligning objectives. Most importantly, we advance networking and knowledge sharing within a framework of open innovation and digital



SERVICES

transformation. We impart knowledge and expertise and guide R&D projects in four technology sectors: Green, Food & Health, Digital, and Automotive & Automation.

## GREEN

Solutions and expertise for the energy transition

### Focus on water

Climate change and the energy crisis present new challenges for water network operators. The National Symposium on Sustainable Water Supply, which took place on 10 February 2023, explored technologies and innovative solutions for the more efficient and sustainable management of water. This 10th edition of the national symposium was the first hosted in South Tyrol and was a collaboration among CSSI, NOI Techpark, the Free University of Bozen-Bolzano and the University of Perugia. Researchers, well-known regional network operators from Italy and Germany, as well as technology manufacturers and companies – around 350 participants in total – entered into a dialogue on the critical issues facing the sector. Topics included best practices for water reuse, innovative solutions for reducing water loss and the application of Artificial Intelligence in maintenance planning. The event also featured a mini expo where eight companies showcased their most impressive technological innovations.



### Hydrogen from biomass

TerraX, based at NOI Techpark, is capitalising on the shift towards a CO<sub>2</sub>-neutral economy through its specialised expertise in converting wood biomass into hydrogen. This endeavour aligns with the company's broader commitment to advancing the bioeconomy, with a specific focus on the production of biofuels like biomethane and biohydrogen, as well as biofertilisers. Supported by our Tech Transfer Unit Green, TerraX launched a project to develop an innovative facility that converts solid biomass into a synthesis gas mixture composed of methane, hydrogen and carbon monoxide, which is subsequently processed into hydrogen. Having made this technological breakthrough, TerraX is now moving into the authorisation phase for the facility at select sites and actively seeking investors to fund the construction of the first pilot plants.

SERVICES

# 2,462

participants have taken part in 39 know-how transfer events

# FOOD & HEALTH

Food and health innovation for people and the planet

## Mummies and modern health research

“You are what you eat.” This bold statement lies at the heart of the Food & Health technology sector. Research & development and technology transfer in this area are working to build bridges between laboratories and companies, merging diverse expertise – from mummy research to biomedical knowledge and insights into the human digestive tract. The Human Microbiome Symposium, organised in 2023, focused on precisely this issue. Our microbiome is crucial to our health. The microorganisms in our digestive tract, combined with our diet, are key to our well-being. At NOI, we explore this interaction from various perspectives, with the aim of protecting these microorganisms. The Institute for Mummy Studies conducts microbiome studies on millennia-old subjects. The Micro4Food platform of the Free University of Bozen-Bolzano investigates fermentation and the human-food axis. Meanwhile, the Eurac Research Institute for Biomedicine combines medical research with molecular biology and cutting-edge technologies to improve modern healthcare. Know-how transfer events like the Human Microbiome Symposium bring these diverse players together, making their expertise accessible to businesses.



←



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### Three pillars

The human microbiome is only a small part of the research taking place in the Food & Health technology sector. The scientific and R&D activities in this area can be grouped into three pillars: Raw Materials & By-Products, Optimal Processing & Fermentation, and Omics & Precision Health. These three pillars cover the entire value chain – from raw materials and processing to the effects on the human body.



→

# DIGITAL

Data as the backbone of a smart, green region

## Artificial Intelligence and smart health

SFSCON, the international conference on Free Software, was a tremendous success again in 2023. Two days in November were full to overflowing with 100 talks, more than 100 speakers, 10 thematic tracks, a hackathon and numerous side events, as well as the presentation of the European SFS Award. Decision-makers, developers, companies and researchers gathered at NOI to share their experiences and visions for the future of Free Software. The conference also served as a hub for major global Free Software organisations, including the Free Software Foundation Europe, the Eclipse Foundation, the Open Source Initiative (OSI) and OW2. Notably, the main topics revolved around Artificial Intelligence and smart health, focusing on AI applications in healthcare. The SFS Award, presented at the European level for the first time, was awarded to Frank Karlitschek, founder and CEO of Nextcloud.

### A bootcamp for developers

The European Commission’s Data Act has spurred the development of dataspace to accelerate European innovation processes. In South Tyrol, the Open Data Hub is a leading player in this field. It was, therefore, all the more noteworthy that Giulia Giussani from the International Data Spaces Association presented the European vision at the Open Data Hub Day 2023. Following her presentation, companies and researchers demonstrated how they use the Open Data Hub as a dataspace in the areas of mobility and tourism. For the first time, an Open Data Hub Bootcamp was also organised, providing software developers from businesses and research institutes the opportunity to collaborate with the Open Data Hub’s software architects to test innovative solutions for advancing the Open Data Hub.

6

million euros  
the budget allocated to NOI-supported research, development and innovation projects

187

networking and consulting services  
provided to companies as part of R&D and innovation projects

# AUTOMOTIVE & AUTOMATION

Sustainable automotive, mobility and manufacturing solutions

## Intelligent and sustainable production

One of the biggest challenges for manufacturing companies today is the shortage of skilled labour. Other challenges include volatile raw material prices, interrupted supply chains and, last but not least, rising energy costs. To navigate these obstacles, companies must adopt smarter and more sustainable production methods. This was precisely the objective of the International Mechatronics Forum, which took place in September 2023 at NOI Techpark in Brunico. The event drew 200 participants from the manufacturing sector who, alongside experts and researchers, delved into topics ranging from automation solutions and human-robot collaboration to digital technologies, decarbonisation, 3D printing, Artificial Intelligence and eco-friendly electronics. In addition to captivating presentations from representatives of research and industry, attendees engaged in B2B meetings, toured local showcase companies such as GKN Automotive, Intercable, GKN Hydrogen, Durst and Loacker, and networked during an evening reception organised by Automotive Excellence.



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## Off to a flying start – electrically

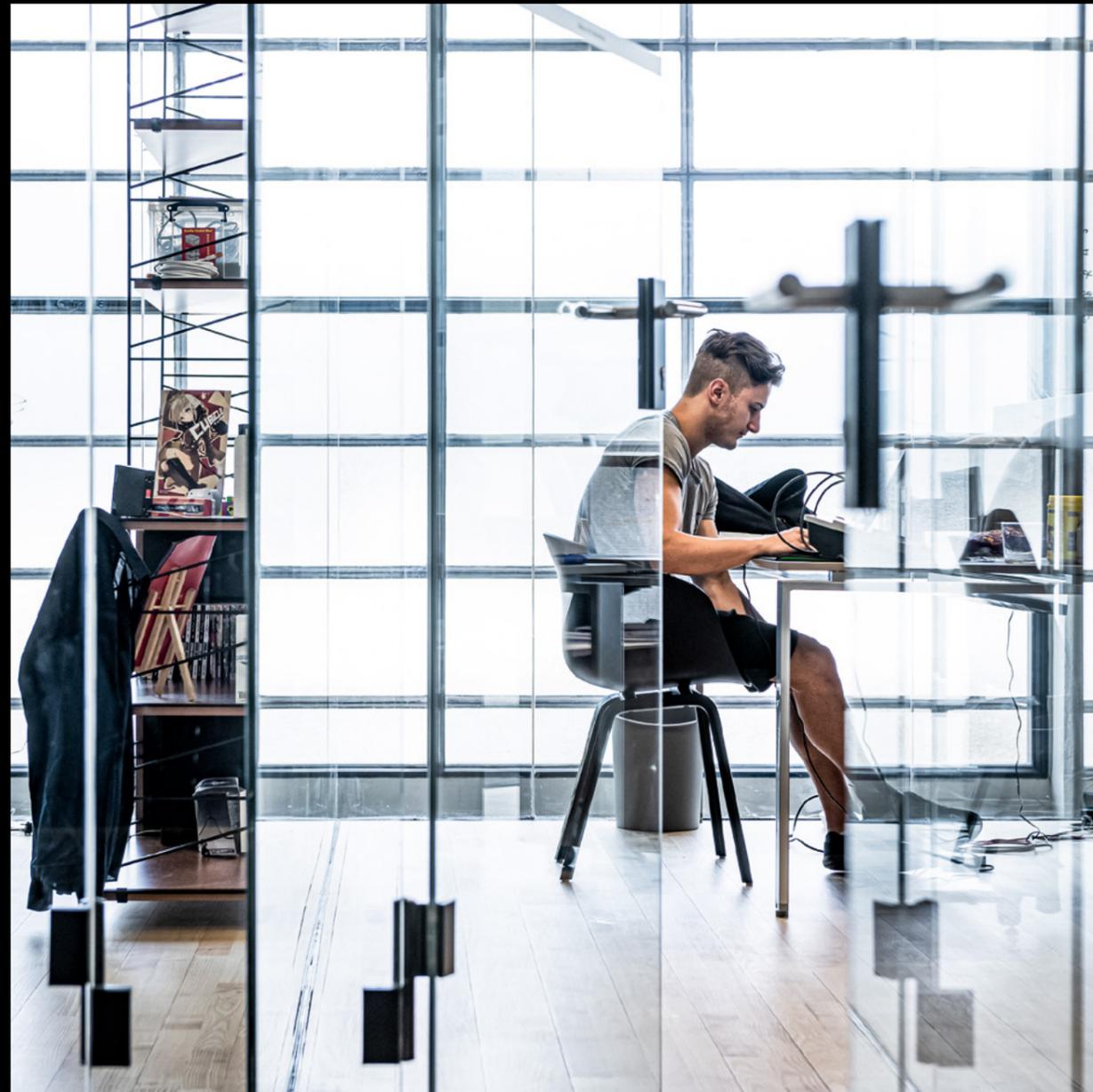
“Redefining the boundaries of electromobility” is the ambitious goal of xelom, a South Tyrolean provider of fully electric all-terrain commercial vehicles and machines. The company’s success story began at NOI Techpark. The company, at that time still under the name E-Powertrac, received support from the Tech Transfer Unit Automotive & Automation to conduct a research and development project that resulted in the first vehicle of the DustCat line. Unlike comparable vehicles, it does not simply replace the combustion engine with a battery but is designed and built entirely around the battery. In 2022, a new venture, Lanatec, was established to focus on advanced lithium-ion battery technology. E-Powertrac was subsequently acquired by TechnoAlpin Holding, and in 2023, the company rebranded as xelom. Using Lanatec’s powerful batteries, they developed a new all-electric all-terrain tracked vehicle for Alpine applications. With the support of NOI Techpark’s automotive network, these two companies are off to a flying start – electrically.

SERVICES

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# START-UP INCUBATOR

**H**ere, teams find space and support for their business ideas, start-ups or spin-offs. Our Start-up Incubator nurtures the growth of young companies by providing a comprehensive range of services, including coaching, workshops, access to mentors and investors and accelerator programmes. We offer flexible workspaces, offices and laboratories and foster community connections at NOI, in South Tyrol and the Euregio partner regions of Tyrol and Trentino by organising various events and initiatives. Teams in



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the initial stages of developing their business idea can participate in the Inventors & Pre-Incubation Programme. This programme assists them for several months as they develop their product or service and devise their business model and financing strategy. After this phase, they can apply to join our three-year Incubation Programme. Our Start-up Incubator is certified by the Ministry of Economic Development.

**7.8**

million euros  
the total investment in 9 start-ups  
by private investors

**5**

million euros  
in public financing was received  
by start-ups in 2023

## An inventive spirit takes hold

The year 2023 saw the second edition of the newly designed Pre-Incubation Programme. Four teams were chosen during a three-day workshop in January to advance their innovative ideas and further develop their business models. The teams presented their concepts on Pitch Day in May, and the RoboAlpin team emerged victorious, earning six months of free access to our Start-up Incubator services. RoboAlpin has since successfully transitioned into the Incubation Programme. Before the next Call 4 Business Ideas opened in autumn 2023, we refined the Pre-Incubation Programme to better engage inventors and tinkerers. The new “Inventors & Pre-Incubation Programme” was created in collaboration with the Maker Space. This initiative received 33 applications, from which seven teams were selected. These teams will receive several months of support to develop their ideas under expert guidance in the lead-up to Demo Day in June 2024.

## Community-booster FUSE



FUSE, short for Fire Up the Start-up Ecosystem, is a dynamic community initiative that ignited the local start-up and innovation scene in September 2023 under the motto “The Power of Networks”. The evening was dedicated to one central focus: networking. With over 200 attendees, including aspiring founders, established start-ups, investors, mentors, coaches, companies and other partners, the NOI-hosted event was a hub for sharing ideas and making valuable connections. Twenty-two innovative start-ups from our network presented their products and services – from aquaponics systems to robotic applications for agriculture to electric motorbikes. Experts from the fields of financing, marketing, sales, law and HR offered advice, and the start-ups had the opportunity to pitch their ideas to investors and business angels prior to the event. FUSE 2023 was a resounding success, prompting its eagerly anticipated return in 2024.



SERVICES

# INNOVATION MANAGEMENT

**W**e specialise in guiding companies through the innovation maze with the help of our strategies, comprehensive toolkit, expert knowledge and broad network. Our in-house Alpha Innovation method lays the foundation for radical innovation in three steps. Representing new beginnings, “Alpha” aptly signifies the initial phase of the innovation process – front-end innovation – where the fog of possibilities is thick, and orientation is difficult. Our approach helps companies uncover



untapped opportunities for their business. Alpha Innovation is designed for organisations eager to explore new business domains, invest in cutting-edge technologies or stay abreast of evolving trends. It acts as a navigational tool, an idea catalyst and a decision-making aid. Our Pi Innovation service, on the other hand, helps companies refine their products or services through a five-step, incremental innovation process, drawing on market signals as catalysts for innovation. In Students Sprint, companies collaborate with multidisciplinary student teams to address real-world innovation challenges. Lastly, Start-up Match facilitates strategic matchmaking between established companies and innovative start-ups.

## Greener cities on the radar



# 4.7

out of 5  
the Customer Satisfaction Score for  
the services provided

# 16

innovation projects  
supported

The cities of tomorrow will be smarter and greener. That is the vision R3GIS aims to realise. Their forward-looking approach not only benefits the environment but also enhances residents' quality of life. Green areas don't just beautify cities; they also serve as rich sources of information and data. For years, the company has crafted innovative web GIS solutions and digital tools aimed at shaping tomorrow's cities. Founder and CEO Paolo Viskanic focuses on optimising the management of public green spaces, using data to boost urban quality of life. To maintain a competitive edge, he and his team utilise the Alpha Innovation Radar to monitor cutting-edge technologies. Our innovation management team identified the most promising global technologies and evaluated their compatibility with the current business model and their potential over the next 5, 10 and 15 years. Notably, Artificial Intelligence and digital twins have emerged as powerful tools for effectively managing smart green spaces.

## Würth sets the course for timber construction

Würth Italia's own Innovation Hub has been part of NOI Techpark since 2020. The proximity to research expertise, innovative companies and start-ups helps the company drive forward its R&D projects and develop new services and products. The company also seized the opportunity to launch an Alpha Innovation Challenge to enlist our assistance in scouting ideas and technological solutions for a topic that is becoming increasingly important to this manufacturer of fastening and assembly technologies: timber construction. The first of the two “Future Timber Challenges” was about optimising the planning and construction of timber houses, while the second was about simplifying their maintenance and extending their service life. The company received dozens of suggestions. Together with NOI, Würth identified the most promising ideas and subjected them to technical and economic feasibility studies to define further opportunities for cooperation.



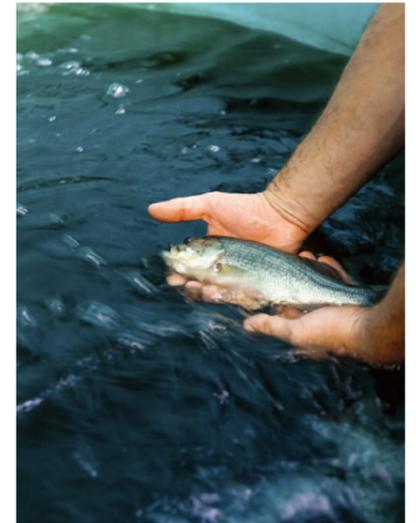
# EU OPPORTUNITIES

**A**s an official partner of the Enterprise Europe Network (EEN), we offer innovative companies a gateway to engage with the European Union. Our partnership grants companies access to the full range of opportunities provided by the EU. The benefits include funding applications for innovative business ideas, participation in collaborative EU projects with international partners and research institutions, and the use of our network to connect with the right technological partners in Europe for R&D collaboration.



SERVICES

With over a decade of expertise, our team specialises in strategic consulting on European innovation funds, finding technology partners and accessing large European innovation networks.



93

companies have utilised the unit's services



### Cooperation exchange as a door opener

Last September, the NOI-based company Vehicle Engineering & Design, specialising in mechanical engineering, demonstrated the effectiveness of our B2B cooperation exchange at the International Mechatronics Forum in Brunico. The event, which focused on key technological fields such as mechatronics, robotics and Industry 4.0, drew over 100 participants from across Europe. More than 90 bilateral meetings were held between companies and research stakeholders, and several led to new collaborations. Notably, Vehicle Engineering & Design secured two cooperation agreements with a major regional automotive company, setting the stage for a long-lasting and fruitful relationship. This is just one of the many successful collaborations made possible by the EEN's events over the years. Since its inception in 2008, the network is estimated to have facilitated 785,000 contacts between over 280,000 SMEs and business and research entities at B2B meetings. The connections fostered by the EEN enable our team at NOI to provide local companies with access to an expansive European network.

20.8

million euros the budget of the supported applications submitted for EU projects

### Promoting sustainable fish farming

The start-up Solos, based at NOI Techpark, focuses on aquaponics – a sustainable farming system that combines vegetable cultivation with fish farming. This eco-friendly method operates in a closed-loop environment, significantly reducing water use and eliminating the need for chemical fertilisers, pesticides and antibiotics. Since its foundation in 2022, Solos has made considerable breakthroughs, including increased lettuce production, which is now available throughout South Tyrol. However, Solos' research and innovation efforts continue. The young founding team aims to make fish farming more environmentally friendly and sustainable. Currently, farm fish feed is often sourced through intensive wild fish capture, a practice that contributes to overfishing and declining wild fish populations, severely impacting marine ecosystems. In 2023, Solos turned to our EU Opportunities Team to tackle the challenge of traditional fish feed sourcing. We identified the Interreg Italy-Austria programme as a suitable

107

B2B meetings organised between local companies and international partners

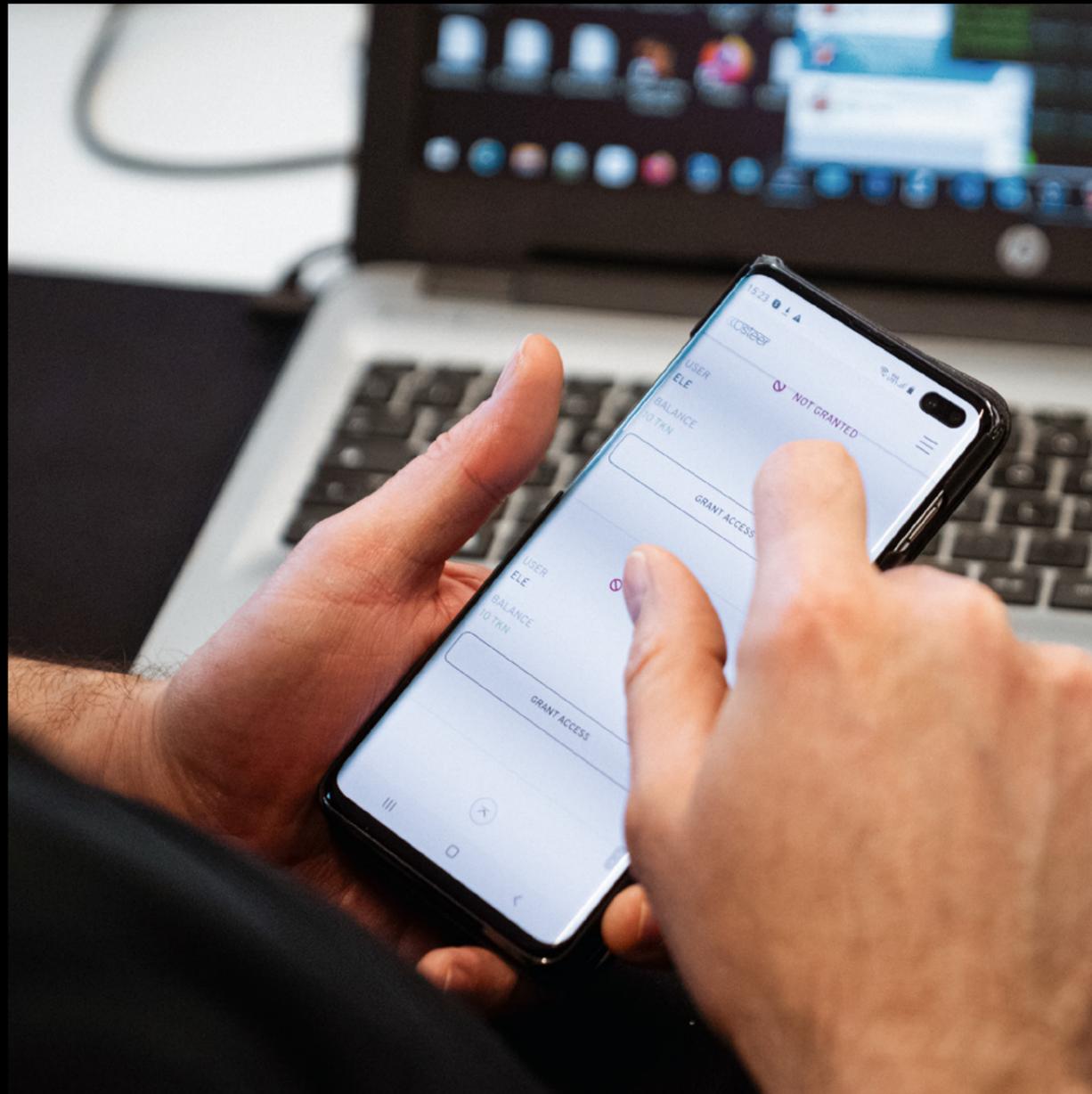


SERVICES

# OPEN DATA HUB

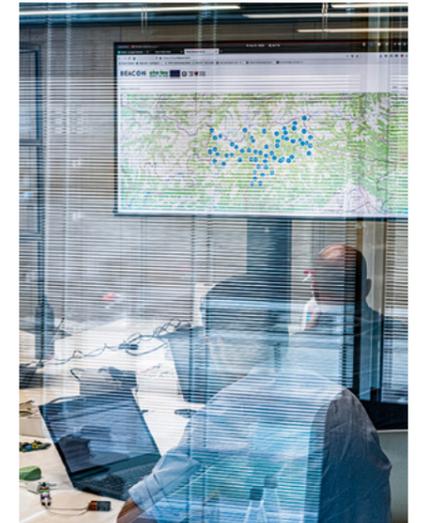
W

We gather extensive data on public transport, tourism, traffic, mobility and weather across South Tyrol. This is made possible by enhanced broadband connectivity, a vast sensor network and the proliferation of the Internet of Things. In the Open Data Hub, we centralise this flood of data, make it public and support companies in accessing it and understanding how it can best be used. Beyond reporting availability in the hotel and catering sector, the locations



SERVICES

and operating hours of tourist attractions and real-time mobility data, the Open Data Hub can be expanded to incorporate other sectors and datasets crucial to economic growth and innovation in South Tyrol, such as the agriculture sector. This expansion grants software companies direct access to comprehensive, regularly updated and accurate data from reliable sources. What's more, not only research institutes but also start-ups and emerging talents can use this data to develop innovative applications based on the latest technologies, such as Artificial Intelligence.



>3

million enquiries per month

500

websites and apps use our data

55

customers use the services of the Open Data Hub

## Big data: sowing the future

In the competitive landscape of agriculture, the demands for high product quality and environmental sustainability have made efficient and resource-conserving practices in site selection and management crucial, particularly in fruit cultivation. The South Tyrolean company Konverto, which specialises in software and cloud computing, leverages its extensive experience in local agriculture through its platform KULTIVAS. This big data platform enhances decision-making in apple cultivation by storing and visualising data, enabling agricultural businesses to generate complex forecasts to maintain the quality of South Tyrolean apples. KULTIVAS has initiated a pilot project, the "Variety Location Study", to address a seemingly simple yet complex question: Which apple variety best suits a specific location? Utilising big data, including weather data sourced from the Open Data Hub, Konverto produces a variety of location forecasts and map-based visualisations, which are accessible via an application programming interface (API) on our Open Data Hub.



## Seamless data access

In 2019, we embarked on a pioneering project alongside the spin-off Ontopic to develop a virtual knowledge graph using real-world data. The goal was to enable seamless access to real-time mobility and tourism data through a SPARQL endpoint. SPARQL, a query language widely used for accessing vast data sets on the internet, is employed by major global open data providers such as Wikidata, DBpedia and the European Environment Agency. In 2020, we introduced the first version of the SPARQL endpoint. This ground-breaking tool made it easy to access data from the two primary data areas of the Open Data Hub – mobility and tourism. And so, the SPARQL endpoint quickly became the preferred resource for querying and accessing valuable information. By 2021, Ontopic had introduced a more user-friendly interface for the SPARQL endpoint, enhancing its intuitiveness for data consumption and accurate query formulation. Although the test phase concluded in 2023, it can be reinitiated, depending on the specific needs of Open Data Hub users.

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# PUBLIC ENGAGEMENT

**N**OI Techpark is strongly rooted in South Tyrol's region and community, albeit with an international perspective. We actively engage the local population in our endeavours through events, workshops and guided tours, keeping them informed about developments at NOI. Our goal is to communicate the work and research taking place in our labs and offices in an easily understandable way. To achieve this, we organise various events and produce informational materials. The MiniNOI project targets children aged 6 to 14,



offering workshops and interactive sessions that explore diverse topics from science and research. Additionally, our Arts & Science programme hosts various cultural events each year, including concerts, art installations and activities. These initiatives share a subtle yet essential common thread: they encourage us to push boundaries, experiment with new ideas and shift our perspectives on the mundane. Finally, we offer guided tours to provide deeper insights into the activities and innovations at NOI.

## A blend of innovation and culture

NOI has strengthened its position as a hub of innovation and culture through strategic partnerships with various local institutions. In autumn 2023, the Crane Hall showcased Thomas Feuerstein's monumental piece, METABOLICA (Moby Dick). This installation, developed in collaboration with MUSEION for the HOPE exhibition, illustrates a post-industrial metabolic system where algae and bacteria circulate through a network of tubes spanning over a kilometre. Through biological and photosynthetic processes, these organisms produce a new material, sustained by a sculptural photobioreactor.



## MiniNOI meets AI

In 2023, in collaboration with the Italian education authority, the MiniNOI team introduced a three-stage course on Artificial Intelligence for primary and secondary school students. Approximately 250 pupils engaged in workshops designed to deepen their understanding of AI, learning how it operates, how it can learn new tasks and how it can be applied in practice, including in educational settings, such as creating images or brainstorming ideas for stories or fairy tales. This initiative was their first encounter with a transformative technology that is increasingly influencing various sectors, including education.

# 1,700

**children**  
have taken part in the MiniNOI workshops

# 6,000

**attendees**  
have visited our Arts & Culture events

## Open Day for Schools doubles in scope



The format of the Open Day for Schools, aimed at secondary school students in South Tyrol, was expanded in 2023 due to a growing number of requests. It was also made more targeted in order to better engage students according to their individual interests. Over 20 labs, start-ups and technology companies at NOI participated in the new format, which organised various tours and meetings for each technology sector. A total of 480 curious students from schools across South Tyrol got to explore activities in the innovation district, gathering inspiration for their future career paths.

# 480

**students**  
have taken part in the Open Days for Schools

# AREA & SPACES

**N**OI Techpark expands on a 120,000 m<sup>2</sup> campus, with 30,000 m<sup>2</sup> dedicated to scientific laboratories, workshops, seminar rooms and spaces designed to develop new ideas. Companies involved in research and development across South Tyrol's key technology sectors can rent office and laboratory space here, allowing them to relocate their research teams or project groups to our site. Our facility offers the highest sustainability standards within a unique historical and cultural setting. Above all, however, this is the place



where companies, research and a university can connect on a daily basis. Our infrastructure and the events we organise encourage interaction between the academic and the business world, inspiring new R&D projects. We accept new companies twice a year, depending on the number of applications and the space we have available. As the operating company, we oversee the continuous development of the campus, including current and future construction, as well as the upkeep of existing buildings and spaces. Our 1,900 m<sup>2</sup> Seminar Area, featuring four seminar rooms, can be booked by companies and institutions within NOI, as well as external innovators, to host conferences, workshops, corporate gatherings and other events. The event must fit in with NOI's mission, focusing on inspiration and education rather than sales and marketing.

**30,000**  
participants  
have attended 470 events in the Seminar Area

## Two new records set

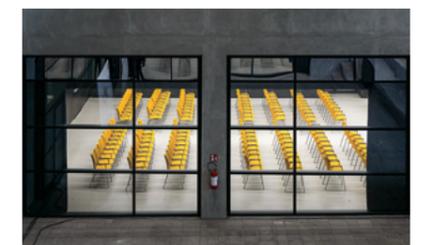
In 2023, our Seminar Area in Bolzano once again hosted a diverse array of events and initiatives. With 470 events and over 30,000 attendees, we set two new records. The wide range of topics was particularly striking: The "Symposium for Ecological Green Space Maintenance" provided a platform for professionals in the green spaces sector to gather information and network. The "EARTO" conference brought together high-ranking representatives from European institutions, research and technology organisations (RTOs) and industry to discuss the role of RTOs in implementing the EU's innovation agenda. Prominent figures from South Tyrol's industry took advantage of our facilities for various events and training sessions focused on their products and innovations. A notable highlight was the start of a 1,000-day countdown to the Milan-Cortina 2026 Winter Olym-

pics, which began in the Crane Hall in the company of past and future South Tyrolean Olympians. Nobel Prize winner Prof. Dr. Kurt Wüthrich visited NOI Techpark during the "NMR Symposium". The inaugural "Mountain Innovation Fair" organised by the United Nations Environment Programme (UNEP) and the UN University, among others, focused on the challenges facing mountain regions and their conservation. In addition to the major events, numerous smaller seminars, workshops and information sessions were held, bringing local, national and international guests together to exchange ideas and network.



## Developments in Brunico and Bolzano

The year 2023 marked a turning point for the NOI sites in Brunico and Bolzano. In May, we celebrated the grand opening of our new site in Brunico. Just one month after its inauguration, the building was teeming with activity. Automotive Excellence Südtirol, the Free University of Bozen-Bolzano and the co-working space "startbase" all established themselves there. The rapid population of the new infrastructure highlights the strong demand for such facilities and their importance for companies and research institutions, even in outlying areas. Significant progress was also made in Bolzano, particularly with the construction of the D2 and D3 extension modules and the Free University of Bozen-Bolzano's new Faculty of Engineering. The D2 building will include, among other features, a three-floor laboratory for the Laimburg Research Centre and a cafeteria for students of the new university faculty. The developments of the past year point to a promising future for South Tyrol and its people, opening up new opportunities for collaboration, innovation, sustainable growth and progress.



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### Editor's note

In the Italian Autonomous Province of Bolzano, every road, mountain, river and landmark has an Italian name alongside its German counterpart, with Ladin names present in certain areas as well. The decision to use Italian names throughout this report is purely a stylistic choice.

### Acknowledgement

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### Foot notes (pp. 5-7)

(1) Third-party funding includes public and private funding obtained by research institutes or the university over a calendar year through competitive tenders, projects and third-party services.

(2) Highly qualified employees are those with a specialised degree (Bachelor's or Master's) in a technical or scientific field and three years of relevant experience (or those with a research doctorate), working in research, development or innovation.



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