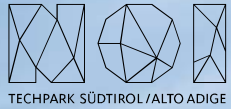# NOI TECHPARK SÜDTIROL / ALTO ADIGE

Vincent Mauroit

16.03.2023 Kick-Off Meeting PNRR iNEST Spoke 1

Nature of Innovation.

ABOUT US

Director of Innovation & Tech Transfer

VINCENT MAUROIT

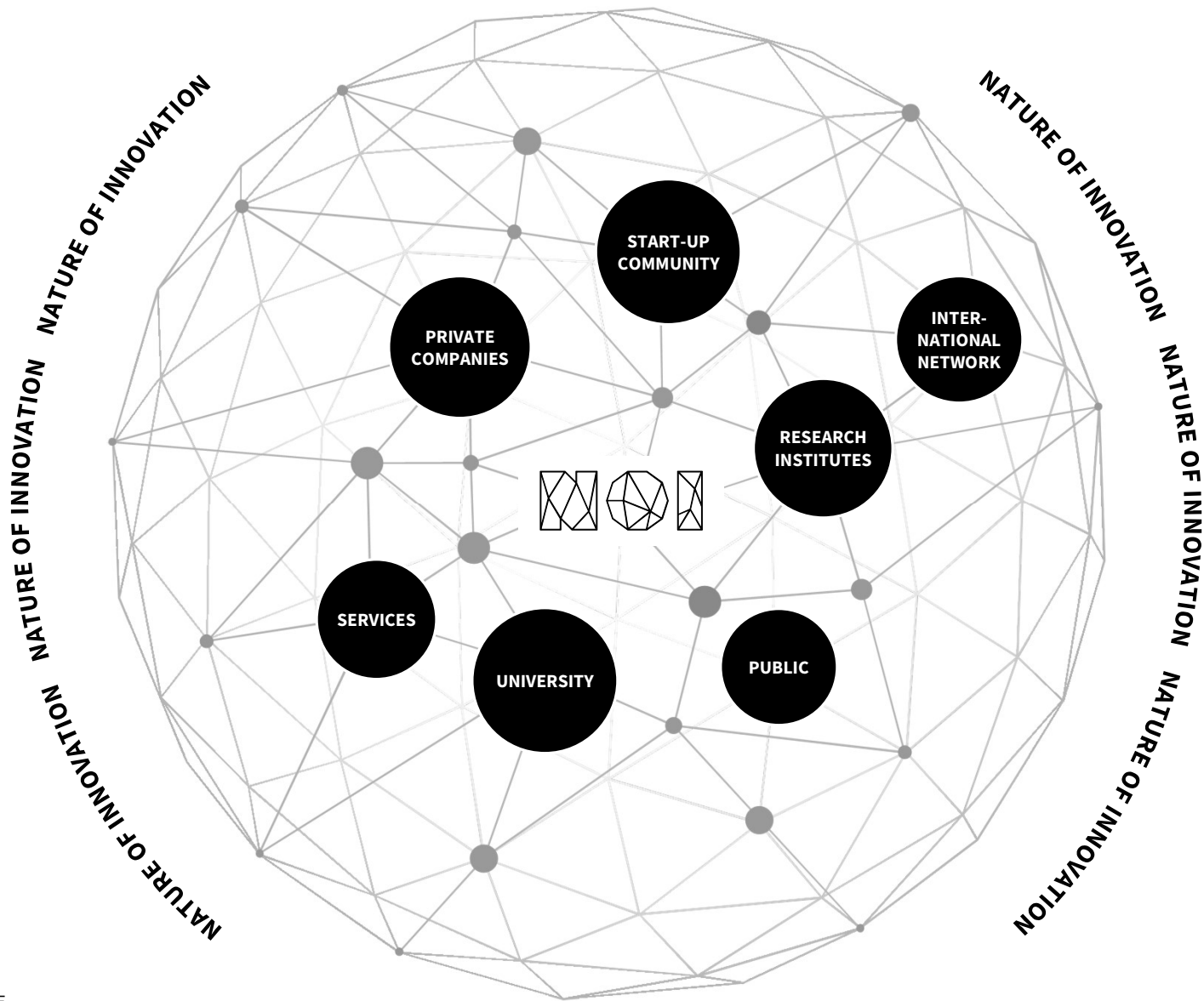v.mauroit@noi.bz.it

T +39 0471 066 683
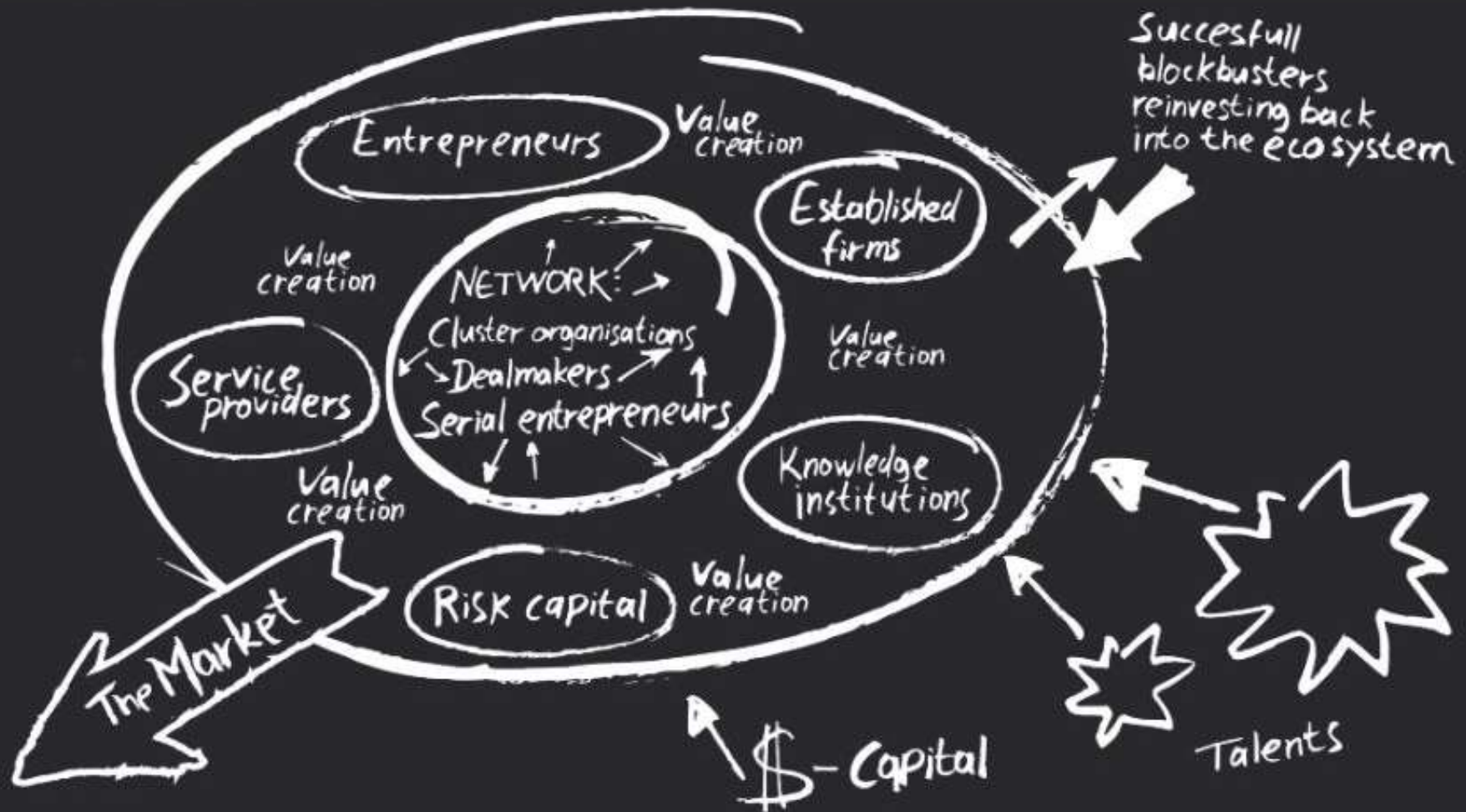
NOI TECHPARK SÜDTIROL/ALTO ADIGE

NOI. NATURE OF INNOVATION

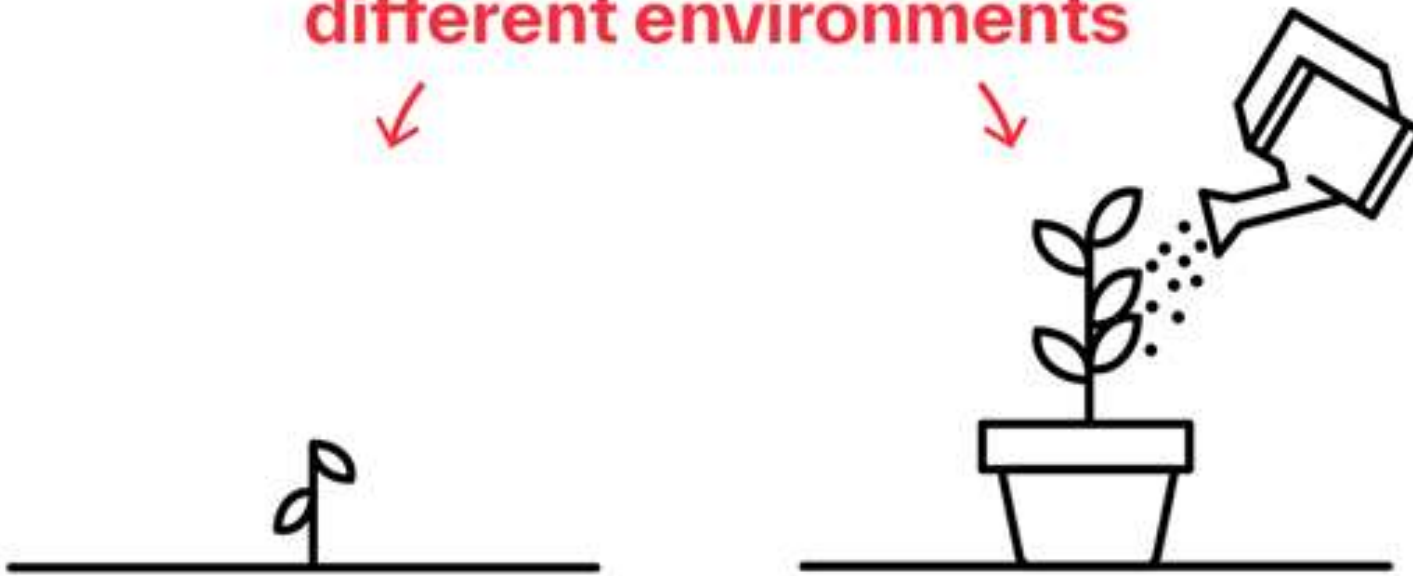Nature is core in our name, vision, strategy and activities.
Empowered by research and technology, we shape a sustainable future for the world.

NOI TECHPARK SÜDTIROL/ALTO ADIGE

START-UP COMMUNITY

PRIVATE COMPANIES

INTER-NATIONAL NETWORK

RESEARCH INSTITUTES

SERVICES

UNIVERSITY

PUBLIC

NATURE OF INNOVATION

same innovation
different environments

STRATEGY: NETWORKING AND SUPPORT

RESEARCH LABS & MAKER SPACE

AREA DEVELOPMENT, CUSTOMERS & BRAND

PRIVATE COMPANIES

START-UP-COMMUNITY

RESEARCH INSTITUTES

NOI

SERVICES

UNIVERSITY

PUBLIC

INT. NETWORK

START-UP INCUBATOR

KNOW-HOW TRANSFER HUB

INNOVATION AS A PROCESS
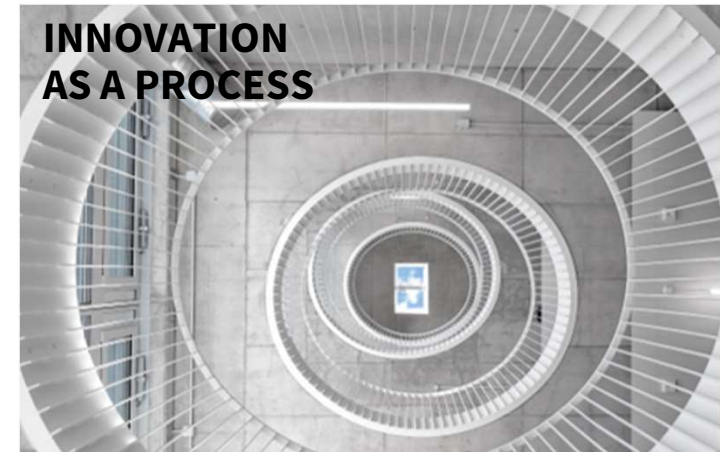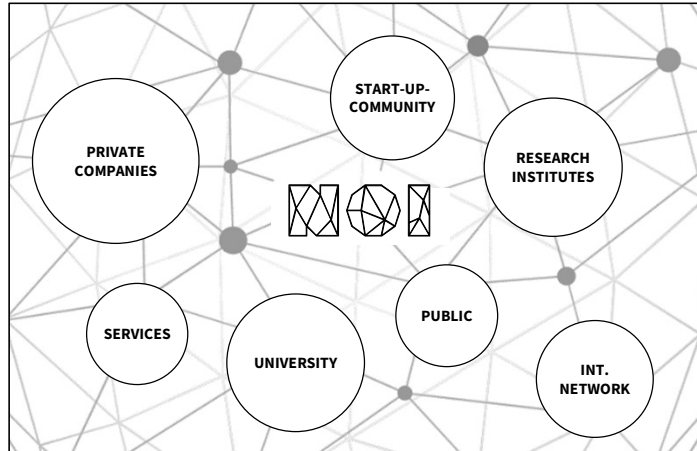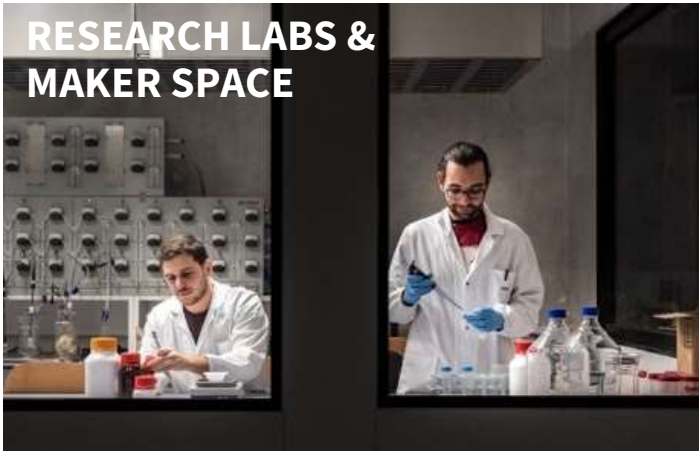
HARD FACTS

1.100 PEOPLE

15 LANGUAGES

12 HECTARE CAMPUS

3 UNIVERSITY FACULTIES

3 RESEARCH INSTITUTIONS

63 COMPANIES

26 START-UPS

45 RESEARCH LABORATORIES

INSTITUTIONS

UNIVERSITY

unibz

RESEARCH INSTITUTIONS

eurac research

LAIMBURG
NATURE & SCIENCE: HAND IN HAND

Fraunhofer ITALIA

INSTITUTIONAL SUPPORT

KlimaHaus CasaClima®

Südtiroler Bauernbund

lvh apa

Azienda Sanitaria dell'Alto Adige
Azienda Sanitera de Südtirol

enterprise europe network

competence center SMACT

hds unione
we are economy

START-UPS

3DKG

Fortissimo

AIAQUA

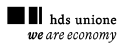hantverk

aigritec

kibun.io

alpmine

LU NE

uwu animeshon

ODIS

ARXAX

profarms

CAEmate

REVEON MOTORCYCLES

care4u

Santelmo

CarX

SHER

{catchsolve}

Sirius Game

datteco

SQLOS

ET

The Garum Project

FF COSMETICS

Wittypower

COMPANIES

LEITNER®
Prinoth
Demaclenko
Agudio
Minimetro
Leitwind

endian

KWB

property

FRIGOTHERM · Ferrari

LabID

pwc

Alvus

Functional

LIVING FUTURE EUROPE

R3GIS

Bio4Dreams

GRUPPO FOS

Loacker

GENSIT Technologies

BIOLOGIK

HBI

LB LYOpharm

SENSORY DESIGN

BiSTEMS

HiWeiss®

INNOVATION CENTER MACCAFERRI

SYMPHONIE PRIME

by WAY

HOLZ PICHLER

MAV Tech

TECHNE

CARTORENDER

hydrocell

MiCROTEC

Terra

CID

Hydrosnow

MIRNAGREEN

thauma

CISMA

iD.

MOUNTAINEERING

Truckscreenia®

DERGA CONSULTING

INDUSTRIO

MULTINEXT

V&D ENGINEERING

E.I.M.A.

inewa

nutramentis

veloxia

EBITmax

iridenergy

Nutrire

vmware®

ECOBEE

IT WORMHOLE

ONTO PIC

WÜRTH

ECOsteer

KERR s.r.l.

PGUM

YANOVIS

EMOTITECH®

KONVERTO

PIANO GREEN

YoY
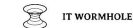
595

R&D Project

Ongoing between research institutions and companies at the NOI Techpark , of which 114 with EU funding

816

Customers

Use NOI services
of which 663 enterprises

31,5

Mio. Euro

Total budget of the projects,
Of which €9 million EU-funded

434

Kunden

have contracted NOI laboratories for
R&D projects and services, including 294 companies
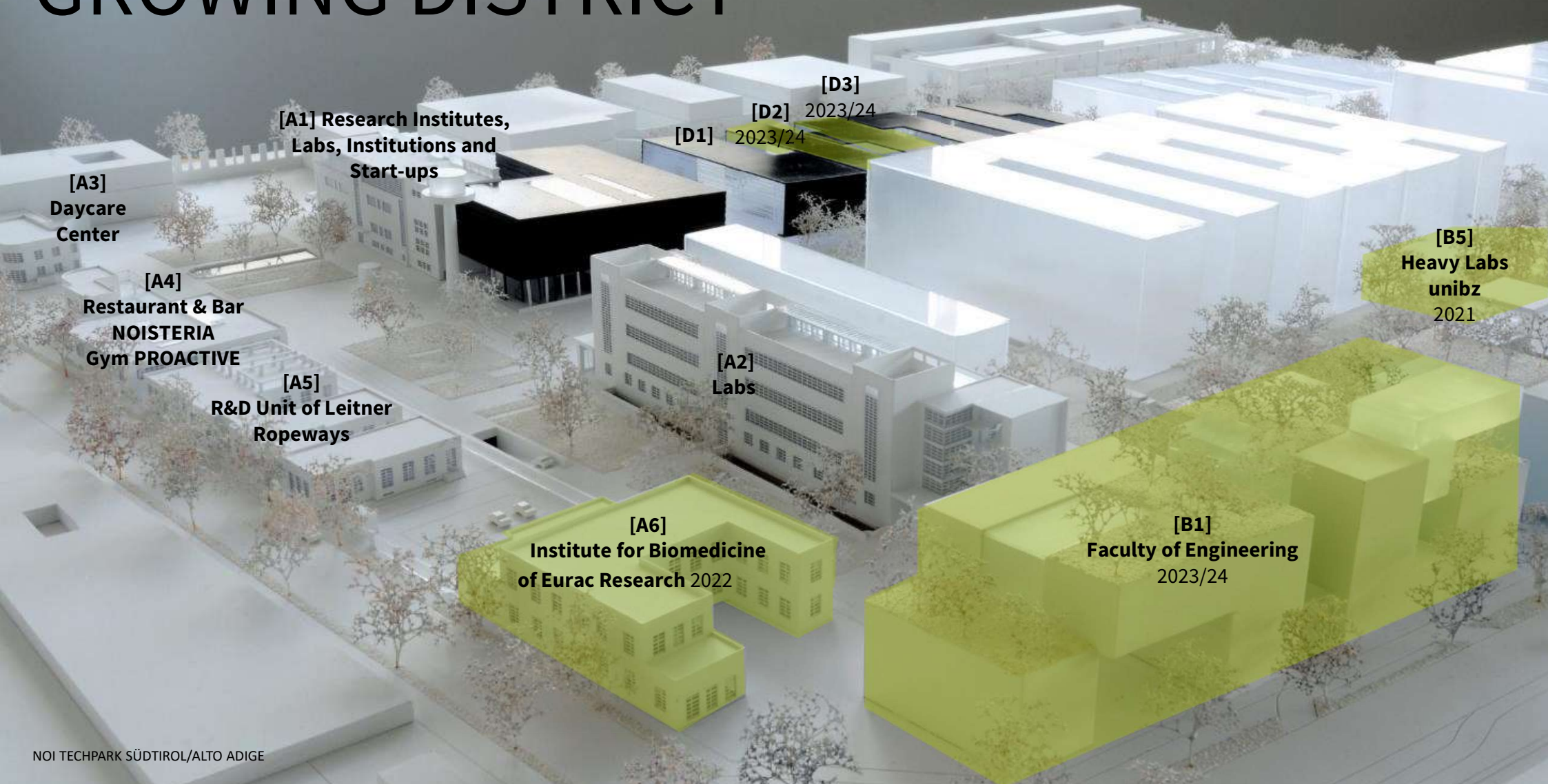
TECHNOLOGIE FIELDS

GREEN

FOOD & HEALTH

AUTOMOTIVE | AUTOMATION

DIGITAL

GROWING DISTRICT

[A3]
Daycare
Center

[A4]
Restaurant & Bar
NOISTERIA
Gym PROACTIVE

[A5]
R&D Unit of Leitner
Ropeways

[A1] Research Institutes,
Labs, Institutions and
Start-ups

[A2]
Labs

[A6]
Institute for Biomedicine
of Eurac Research 2022

[D1]   2023/24

[D2]   2023/24

[D3]

[B1]
Faculty of Engineering
2023/24

[B5]
Heavy Labs
unibz
2021

NOI TECHPARK SÜDTIROL/ALTO ADIGE

Faculty of Engineering [B1]
unibz

NOI TECHPARK SÜDTIROL/ALTO ADIGE

Faculty of Engineering [B1]
unibz

unibz

B1

NOI TECHPARK SÜDTIROL/ALTO ADIGE

New Labs [D2]
Laimburg & Gastronomy

NOI TECHPARK SÜDTIROL/ALTO ADIGE

NOI Techpark
Brunico

NOI TECHPARK SÜDTIROL/ALTO ADIGE

LABS

45 SCIENTIFIC LABS

3 PROTOTYPING LABS

LABS

GREEN (12)

– Accelerated Life Testing Lab
– Bioenergy & Biofuels Lab
– Building Physics
– Energy Exchange Lab
– Façade System Interactions Lab
– G-value Lab
– Heat Pumps Lab
– Hygrothermal Testing Lab
– Multifunctional Façade Lab
– PV Integration Lab
– Solare PV Lab
– Thermo Fluid Dynamics Lab

FOOD (16)

– Enology
– Fermentation and Distillation
– Fodder Analysis
– Food Microbiology
– Food Technology
– Fruit and Vegetable Processing
– Kitchen Lab
– Laboratory for Flavours and Metabolites
– Laboratory for Residues and Contaminants
– Laboratory for Wine and Beverages Analytics
– Micro4Food
– NMR Lab
– Oenolab
– Sensory Science
– Soil and Plant Analysis Lab
– Storage and Postharvest Biology

AUTOMOTIVE | AUTOMATION (8)

– Agroforestry Innovations Lab
– ARENA – Area for Research and Innovative Applications
– Covision Lab*
– Field Robotics Lab
– Human Centred Technologies and Machine Intelligence Lab
– Maker Space
– Smart Mini Factory
– terraXcube

DIGITAL (4)

– Free Software Lab
– Media Interaction Lab
– Sensor System Technologies Lab
– Smart Data Factory

OTHERS (4)

– Ancient DNA Lab
– Anthropology Lab
– Conservation Lab
– Modern DNA Lab

GREEN

STRATEGY HOUSE GREEN
VISION STATEMENT 2030

2030
To be a centre of excellence for energy transition to carbon neutral rural & urbanized areas

ENERGY SYSTEMS

The **decarbonisation** of the energy system requires an **increasing level of integratio**n between its various components. Today, network operation and planning, market design, and regulatory provisions are developed separately by type of energy carrier.

Sector integration means linking the various energy carriers - electricity, heat, cold, gas, solid and liquid fuels - with each other and with the end-use sectors, such as buildings, transport or industry. Linking sectors will allow the optimisation of the energy system as a whole, rather than decarbonising and making separate efficiency gains in each sector independently.

SUSTAINABLE BUILDINGS & DISTRICTS

The construction sector plays a key role in the shift towards a low-carbon economy. The construction industry's transformation towards more sustainability can be solved optimising individual buildings, but also and especially whole districts.

Sustainable construction means building with renewable and recyclable resources and materials. During construction projects, care must be taken to reduce waste and energy consumption where possible and protect the natural environment around the site. The end result of a sustainable construction project must be an environmentally friendly building or environment.

WATER TECHNOLOGIES

The proper and efficient management of water resources is one of the most **important challenges for pursuing environmental sustainability and decarbonisation goals**. Modern water management requires an integrated approach that combines the different needs of use (human, agricultural and industrial) with those of the natural ecosystem, as well as the introduction of multiple use of water.

Water Technologies means all those techniques solutions and knowledge that make it possible to enhance, preserve and monitor the quantity and quality of the water resource, as well as to treat it after use, in order to return it safely to the environment.

EXCELLENCE   PIONEERING   SUSTAINABLE

STRATEGY HOUSE GREEN
VISION STATEMENT 2030

2030
To be a centre of excellence for energy transition
to carbon neutral rural & urbanized areas

ENERGY SYSTEMS

LABS
- Bioenergy & Biofuels Lab
- Solare PV Lab
- Thermo Fluid Dynamics Lab
- Energy Exchange Lab

SUSTAINABLE BUILDINGS & DISTRICTS

LABS
- Building Physics
- Façade System Interactions Lab
- G-value Lab
- Heat Pumps Lab
- Hygrothermal Testing Lab
- Multifunctional Façade Lab
- PV Integration Lab
- Solare PV Lab
- Accelerated Life Testing Lab

WATER TECHNOLOGIES

LABS
- Thermo Fluid Dynamics Lab

EXCELLENCE   **PIONEERING**   **SUSTAINABLE**

FOOD & HEALTH

STRATEGY HOUSE FOOD & HEALTH
VISION STATEMENT 2030

2030
Pioneering food innovation
and foster a holistic health approach

RAW MATERIALS & BY-PRODUCTS

High-quality raw materials are the foundation of high-quality products. The selection of suitable **raw materials** depends on technologies to determine, exploit and enhance their composition.

The utilization of **by-products (secondary raw materials)** creates an additional source of functional compounds and increases the sustainability of the food chain.

OPTIMAL PROCESSING & FERMENTATION

Valuable ingredients and attributes need to be **exploited** and **preserved**. **Optimal processing methods** pave the way to preserve and accentuate the organoleptic and health properties of food.

Fermentation is a vital technology to optimize sensorial, nutritional and functional food attributes.

OMICS & PRECISION HEALTH

Omics technologies enable important food and health science applications, opening the door for new products and solutions.

We offer all-encompassing services and develop new **precision health solutions** in a real-world, dynamic research environment.

EXCELLENCE   PIONEERING   SUSTAINABLE

STRATEGY HOUSE FOOD
VISION STATEMENT 2030

2030
We pioneer food and beverage innovation
inspired by nature to foster planetary health.

RAW MATERIALS, BY-PRODUCTS & MINIMAL PROCESSING

- Lab for Soil and Plant Analysis
- Lab for Storage and Postharvest Biology
- Lab Food Technology Platform
- Laboratory of NMR Spectroscopy
- Fruit and Vegetable Processing
- Sensory Science
- Lab for Residues and Contaminants
- Lab for Flavours and Metabolites
- Lab for Wine and Beverage Analysis
- Lab for Enology
- Oenolab
- Kitchen Lab

FOODBIOTICS

- Micro4Food Lab
- Lab Food Technology Platform
- Lab for Fermentation and Distillation
- Institute for Biomedicine
- Lab for Food Microbiology
- Lab for Flavours and Metabolites
- Lab for Wine and Beverage Analysis
- Lab for Fodder Analysis

PRECISION HEALTH

EXCELLENCE   **PIONEERING**   **SUSTAINABLE**

STRATEGY HOUSE FOOD & HEALTH
VISION STATEMENT 2030

2030
Pioneering food innovation
and foster a holistic health approach

RAW MATERIALS & BY-PRODUCTS   **OPTIMAL PROCESSING & FERMENTATION**   **OMICS & PRECISION HEALTH**

OPTIMAL PROCESSING

PRECISION NUTRITION

RAW MATERIALS

FERMENTATION

QUALITY AND TASTE

POPULATION STUDY
HEALTH DATA
CELL MODELS

HEALTH FOOD

BY-PRODUCTS

EXCELLENCE   **PIONEERING**   **SUSTAINABLE**
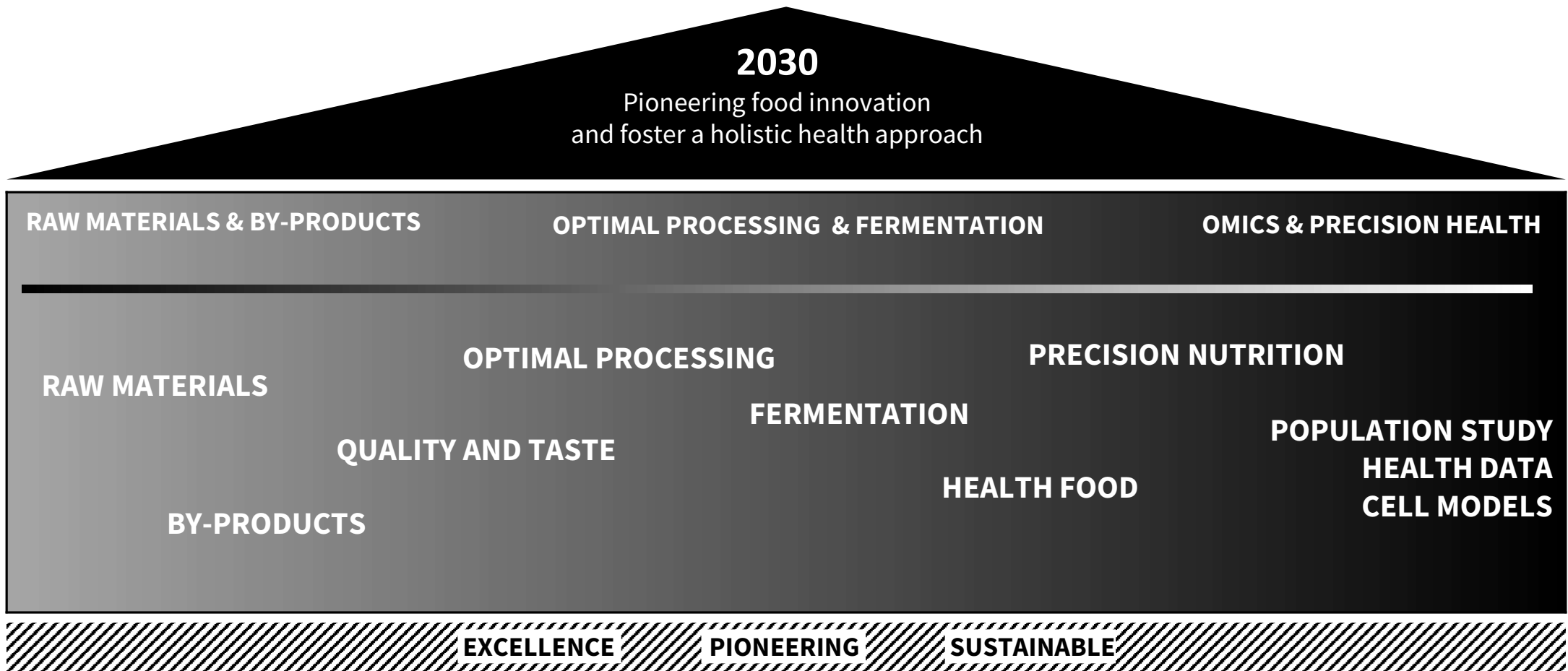
DIGITAL

STRATEGY HOUSE DIGITAL
VISION STATEMENT 2030

2030
Establish the digital backbone
to enable smart green regions.

IOT (INTERNET OF THINGS)
DATA COLLECTION

IoT and Edge Computing create an environment in which micro-computers are all around us. This transforms the way computation is done, more on the edge or in the fog. New challenges like "OTA Programming Strategies", "Cyber-Security Risk Mitigation" and "Blockchain" will become key for a sustainable digital environment.

OPEN DATA HUB
DATA SHARING AND COMMUNITY

Software Development is rapidly changing, topics like Agile Software Development, Continuous Compliance, Licensing, … require a strong competence in Open Source, Open Standards and Open Data to connect as many systems as possible and to open up data silos. Enabling the involved companies and research institutions to gain visibility and increase the ROI for their I&R&D activities.

AI (ARTIFICIAL INTELLIGENCE)
DATA PROCESSING

Hyperconnected Services enable new Business Models like XaaS, everything as a service. MaaS is already in development and deep learning will change how users will be involved in the customer journey.

EXCELLENCE   PIONEERING   SUSTAINABLE

STRATEGY HOUSE DIGITAL
VISION STATEMENT 2030

2030
Establish the digital backbone
to enable smart green regions

IOT (INTERNET OF THINGS)
DATA COLLECTION

- Sensor System Technologies Lab
  (EURAC & UNIBZ)

- Media Interaction Lab
  (UNIBZ)

OPEN DATA HUB
DATA SHARING AND COMMUNITY

- Free Software Lab
  (NOI Techpark)

AI (ARTIFICIAL INTELLIGENCE)
DATA PROCESSING

- SMART Data Factory
  (UNIBZ)

EXCELLENCE **PIONEERING** **SUSTAINABLE**

EDIH
EUROPEAN DIGITAL INNOVATION HUB

NOI AS EUROPEAN DIGITAL INNOVATION HUB
TECHNICAL WP TOPICS

WP2	WP3	WP4	WP5
SUSTAINABLE AGRI-FOOD SYSTEMS	**CONSTRUCTION, ENERGY AND WATER**	**WORKING AND LIVING IN SMART ALPINE AREAS**	**SMART MANUFACTURING**

NOI AS EUROPEAN DIGITAL INNOVATION HUB
TECHNICAL WP TOPICS

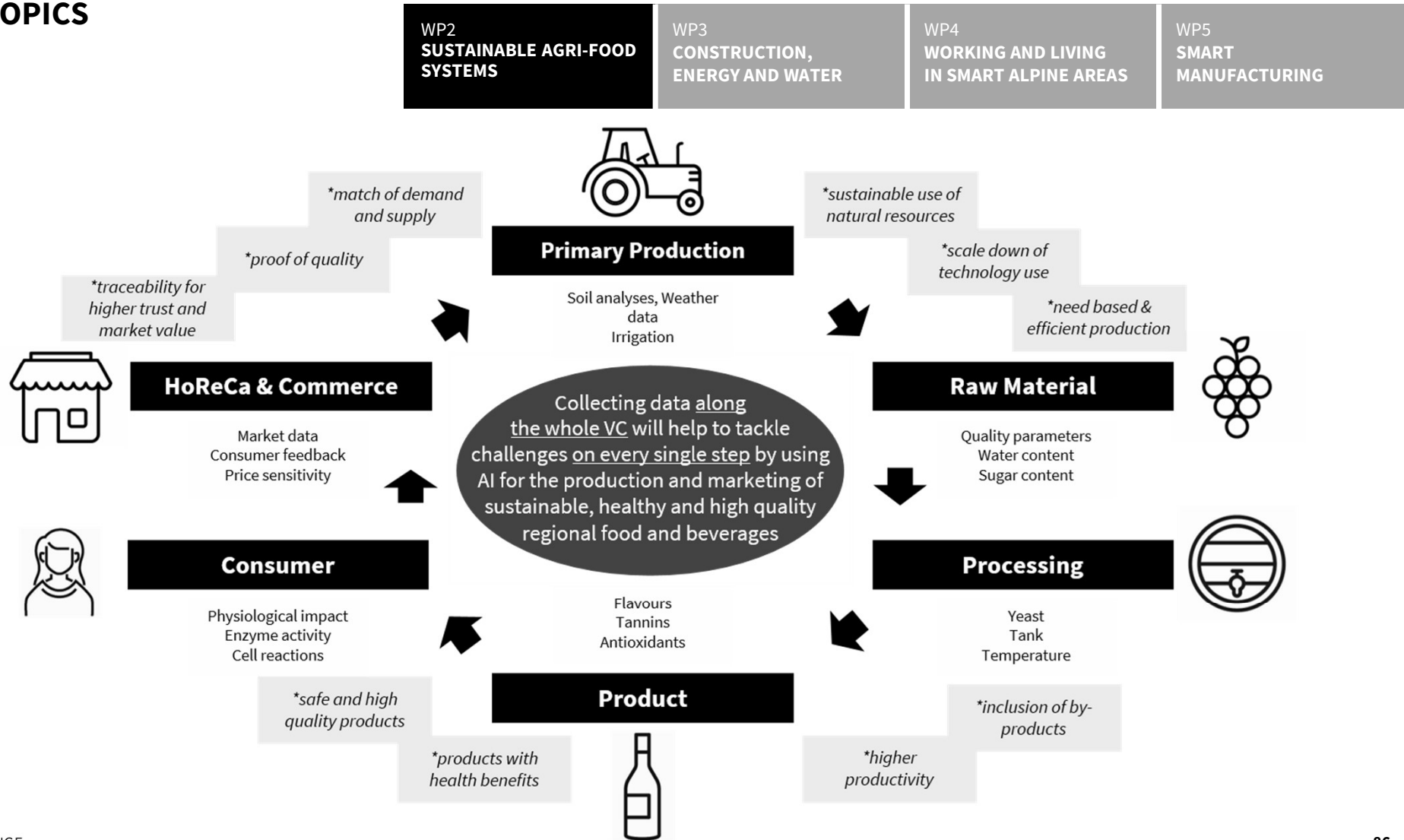| WP2 **SUSTAINABLE AGRI-FOOD SYSTEMS**	WP3 **CONSTRUCTION, ENERGY AND WATER**	WP4 **WORKING AND LIVING IN SMART ALPINE AREAS**	WP5 **SMART MANUFACTURING**

*match of demand and supply

*proof of quality

*traceability for higher trust and market value

*sustainable use of natural resources

*scale down of technology use

*need based & efficient production

Primary Production

Soil analyses, Weather data
Irrigation

HoReCa & Commerce

Market data
Consumer feedback
Price sensitivity

Raw Material

Quality parameters
Water content
Sugar content

Collecting data along the whole VC will help to tackle challenges on every single step by using AI for the production and marketing of sustainable, healthy and high quality regional food and beverages

Consumer

Physiological impact
Enzyme activity
Cell reactions

Processing

Yeast
Tank
Temperature

Flavours
Tannins
Antioxidants

Product

*safe and high quality products

*products with health benefits

*inclusion of by-products

*higher productivity

NOI AS EUROPEAN DIGITAL INNOVATION HUB
CONSTRUCTION, ENERGY AND WATER

WP2 SUSTAINABLE AGRI-FOOD SYSTEMS	WP3 CONSTRUCTION, ENERGY AND WATER	WP4 WORKING AND LIVING IN SMART ALPINE AREAS	WP5 SMART MANUFACTURING

BUILDING COMPONENTS (ENERGY EFFICIENCY)
CONSTRUCTION PROCESS (RESOURCE EFFICIENCY)

Smart building materials (products): Analysis and performance measurements of new innovative material used in the building process
Speeding up the planning and the construction process.
Smart coordination of all stakeholders involved in the planning process thanks to technologies and digitally supported planning approaches e.g. BIM
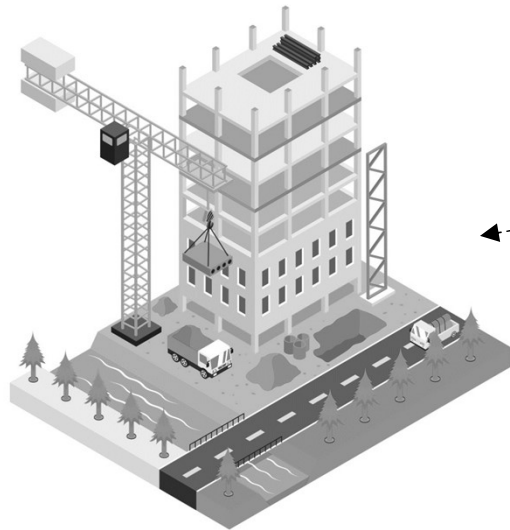
ENERGY AND WATER MANAGEMENT

Energy demand and forecasting, Energy community, Resource efficiency, BIM

NOI AS EUROPEAN DIGITAL INNOVATION HUB
WORKING AND LIVING IN SMART ALPINE AREAS

WP2 **SUSTAINABLE AGRI-FOOD SYSTEMS**	WP3 **CONSTRUCTION, ENERGY AND WATER**	WP4 **WORKING AND LIVING IN SMART ALPINE AREAS**	WP5 **SMART MANUFACTURING**

TOURISM

How can we guarantee that tourists coming from all the world can sustainably enjoy our territory?

RURAL LIVING AND WORKING

How can we guarantee that people continue to live and work efficiently in the remote areas of our region?

MOBILITY

How can we guarantee that people (local inhabitants, tourists and occasional travelers) and goods can move efficiently and sustainably in our region?
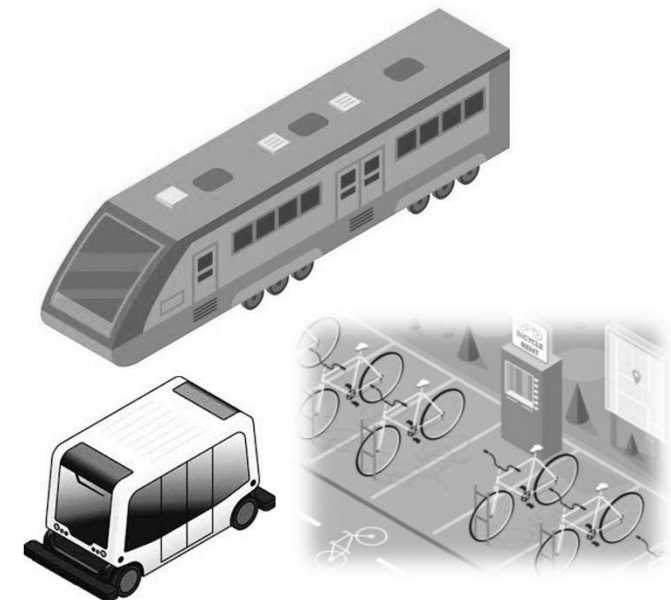
NOI AS EUROPEAN DIGITAL INNOVATION HUB
SMART MANUFACTURING

WP2 SUSTAINABLE AGRI-FOOD SYSTEMS	WP3 CONSTRUCTION, ENERGY AND WATER	WP4 WORKING AND LIVING IN SMART ALPINE AREAS	WP5 SMART MANUFACTURING

Application of a digital business model complementary to the existing manufacturing business model.

Improve the reconfigurability, real-time response, self-organization/-optimization of flexible manufacturing systems

Improve manufacturing and supply chain performance and resilience based on balanced and optimized resource consumption (costs, energy, materials, …)

Introduce human centered systems in advanced manufacturing systems and understand how VR/AR can facilitate production steps.

AUTOMOTIVE | AUTOMATION

STRATEGY HOUSE AUTOMOTIVE / AUTOMATION
VISION STATEMENT 2030

2030
Excellence in automation processes
and innovative technologies
for sustainable manufacturing, automotive and mobility solutions

AUTOMOTIVE & MOBILITY

NOI Techpark facilitates the **development and application of Automotive & Mobility solutions**, especially:

Automotive components and systems

- Off-road mobility solutions
- Connected, Autonomous, Shared, Electric and Lightweight Mobility (CASEL)
- Smart Logistics and supply chains
- Last mile solutions

MANUFACTURING

NOI Techpark facilitates the digital and sustainable transformation of manufacturing companies including: Automation and Robotics

Human Machine Interaction

- Smart factory – Industry 4.0 - IIoT
- Product Engineering & Process development (CAx, XR)
- Production and material technologies
- Predictive Maintenance
- Industrial quality assessment

AGRI-AUTOMATION

NOI Techpark facilitates the **development and application of Agro-Automation solutions**, especially:

- Land and vegetation monitoring
- Product development (CAx, XR)
- Agricultural robots: (pruning, weeding, spraying, irrigation, harvesting)
- Automated food inspection and sorting
- Precision agriculture
- Smart farming and AIoT

EXCELLENCE   PIONEERING   SUSTAINABLE

SPECIALIZATION STRATEGY

GREEN

To be a centre of excellence for the energy transition towards carbon neutrality

ENERGY SYSTEMS

Systems designed to link various components of energy carriers and make one integrated efficiency gain.

SUSTAINABLE BUILDINGS & DISTRICTS

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

WATER TECHNOLOGIES

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

EXCELLENCE — PIONEERING — SUSTAINABLE

FOOD & HEALTH

Pioneering food innovation and foster a holistic health approach

RAW MATERIALS & BY-PRODUCTS

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

OPTIMAL PROCESSING & FERMENTATION

Processing methods to exploited and preserve valuable ingredients and organoleptic attributes.

OMICS & PRECISION HEALTH

Omics technologies for food and health applications.

All-encompassing Precision Health solutions.

EXCELLENCE — PIONEERING — SUSTAINABLE

DIGITAL

Establish the digital backbone to enable smart green regions

INTERNET OF THINGS (IOT)

Sensors for data collection to tackle new challenges for a sustainable digital environment.

OPEN DATA HUB

The platform to enable accessing and sharing of data, knowledge and algorithms.

ARTIFICIAL INTELLIGENCE (AI)

Technological advances in data processing to improve how users get involved in the customer journey.

EXCELLENCE — PIONEERING — SUSTAINABLE

AUTOMOTIVE AUTOMATION

Excellence in automation processes and innovative technologies for sustainable manufacturing, automotive and mobility solutions

AUTOMOTIVE & MOBILITY

Components and systems for sustainable automotive and mobility solutions.

MANUFACTURING

Technologies to facilitate digital and sustainable transformation in manufacturing companies.

AGRO-AUTOMATION

Technologies for the smart automation in Agriculture.
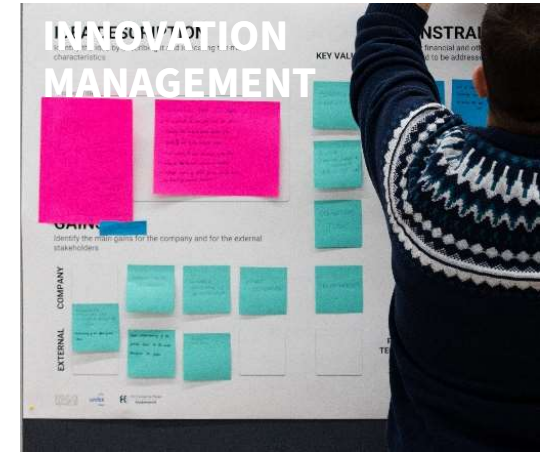
EXCELLENCE — PIONEERING — SUSTAINABLE

# OUR ACCOMPANIMENT: FROM THE OPPORTUNITY TILL PROPOTYPE & PRODUCTION PILOT

Opportunity Identification & Analysis

Idea Generation, Enrichment & Validation

Concept Validation & R&D-Projects

Prototyping & Small Series

Go-to-Market & Sales

NOI INNOVATION & TECH TRANSFER

SERVICES

LABS

TECH
TRANSFER

START-UP
INCUBATOR

INNOVATION
MANAGEMENT

AREA &
SPACES

EU-
OPPORTUNITIES

OPEN DATA
HUB

PUBLIC
ENGAGEMENT

SERVICES

| LABS	TECH TRANSFER	START-UP INCUBATOR	INNOVATION MANAGEMENT
Lab Desk Maker Space & Prototyping Kitchen Lab Free Software Lab	Networking & Cooperation R&D Consultancy Know-How Transfer Events Sustainability Assessment	Pre-Incubation Start-up Incubator	Alpha Innovation Pi Innovation Corporate & Start-up Matching Students & Company Sprint
AREA & SPACES	**EU-OPPORTUNITIES**	**OPEN DATA HUB**	**PUBLIC ENGAGEMENT**
Areas for Rent (Offices, Labs, Pilot Projects) Seminar Area	EU-Funds & Programs EU-Partnering Services	Data Access Data Sharing Data Visualization	MiniNOI Arts & Culture Guided Tours NOISE

Technology Transfer
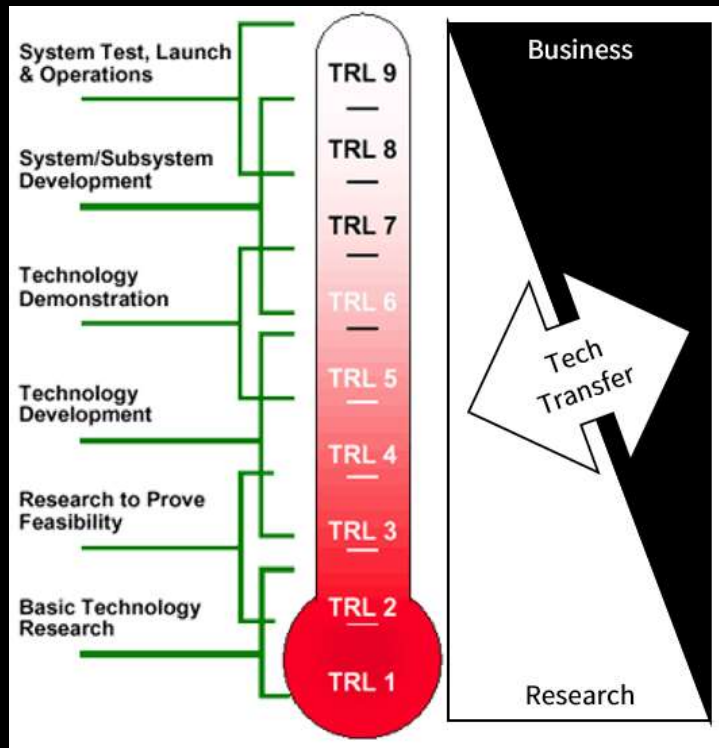
BIDIRECTIONAL TECH & KNOW-HOW TRANSFER

The detached consideration of the innovation cycle "From market to market" suggests a pure market pull process.
However, disruptive innovations usually arise from technology push, which usually requires intensive R&D activity.
This can be illustrated by the model extended by two further research cycles:
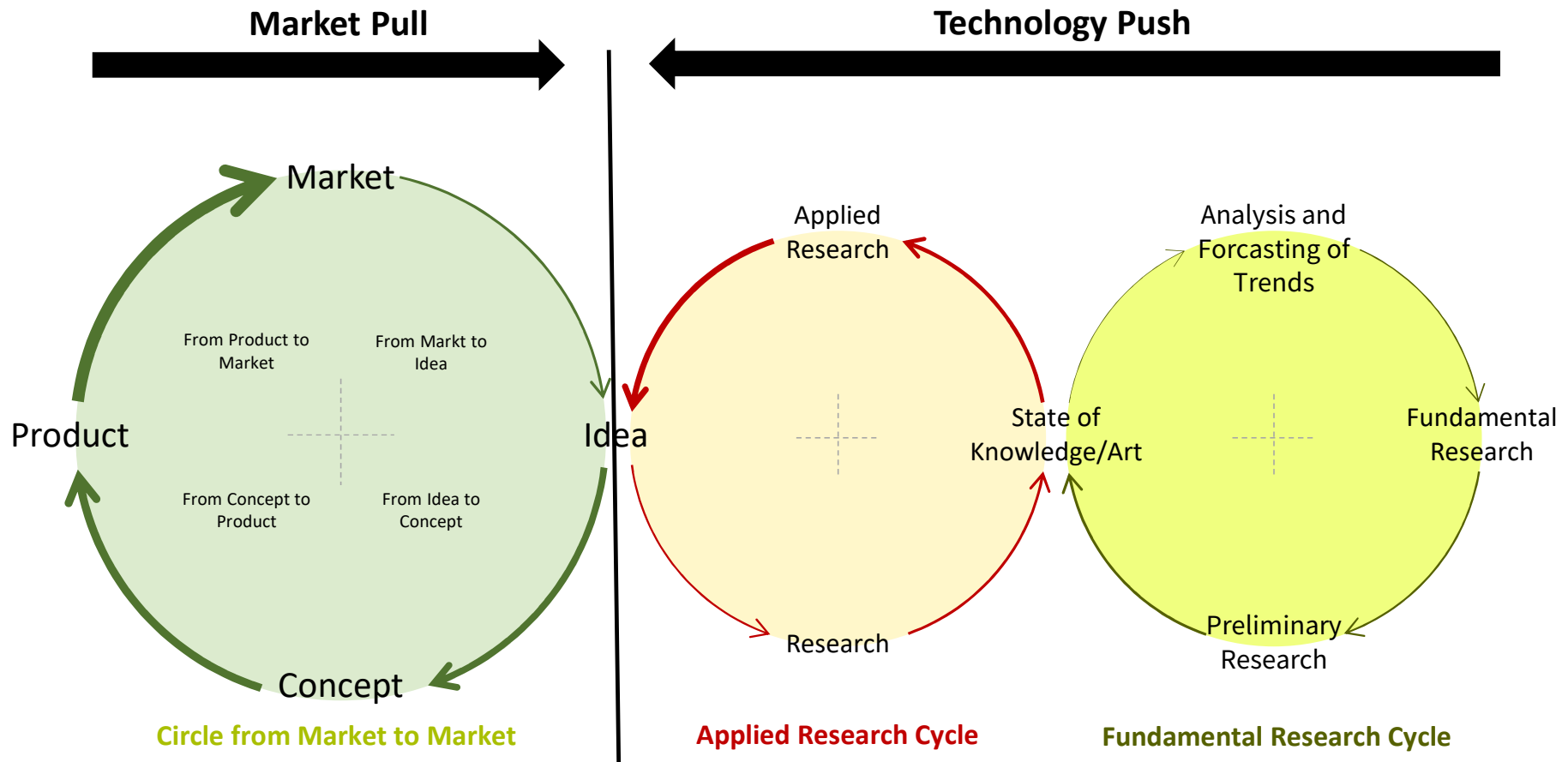
QUALI SERVIZI OFFRIAMO? LA NOSTRA MISSIONE...

KNOW HOW TRANSFER EVENTS	NETWORKING & COOPERATION	R&D CONSULTANCY
Organizzazione di • - Convegni • - Seminari • - Workshop tematici • - Webinar • - Delegazioni relativo ad argomenti rilevanti e richieste o requisiti specifici	• Ricerca di partner tecnologici • Ricerca di partner accademici • Coaching tecnologico • Accompagnamento alla cooperazione fino alla stesura MoU • Supporto nello sviluppo di progetti di cooperazione • Gestione di Tavoli di Lavoro e confront	• Analisi dei fabbisogni/pre-assessment • Scouting tecnologico & Market intelligence • Identificazione clienti e/o siti pilota • Supporto nello sviluppo di progetti di innovazione, ricerca e sviluppo • Segnalazione e supporto nella partecipazione a bandi, contributi o fondi (locale, nazionale e EU)

APPROCCIO TRASVERSALE   **APPROCCIO INTERSETTORIALE**

THANK YOU.

NOI TECHPARK
SÜDTIROL/ALTO ADIGE

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THANK YOU.