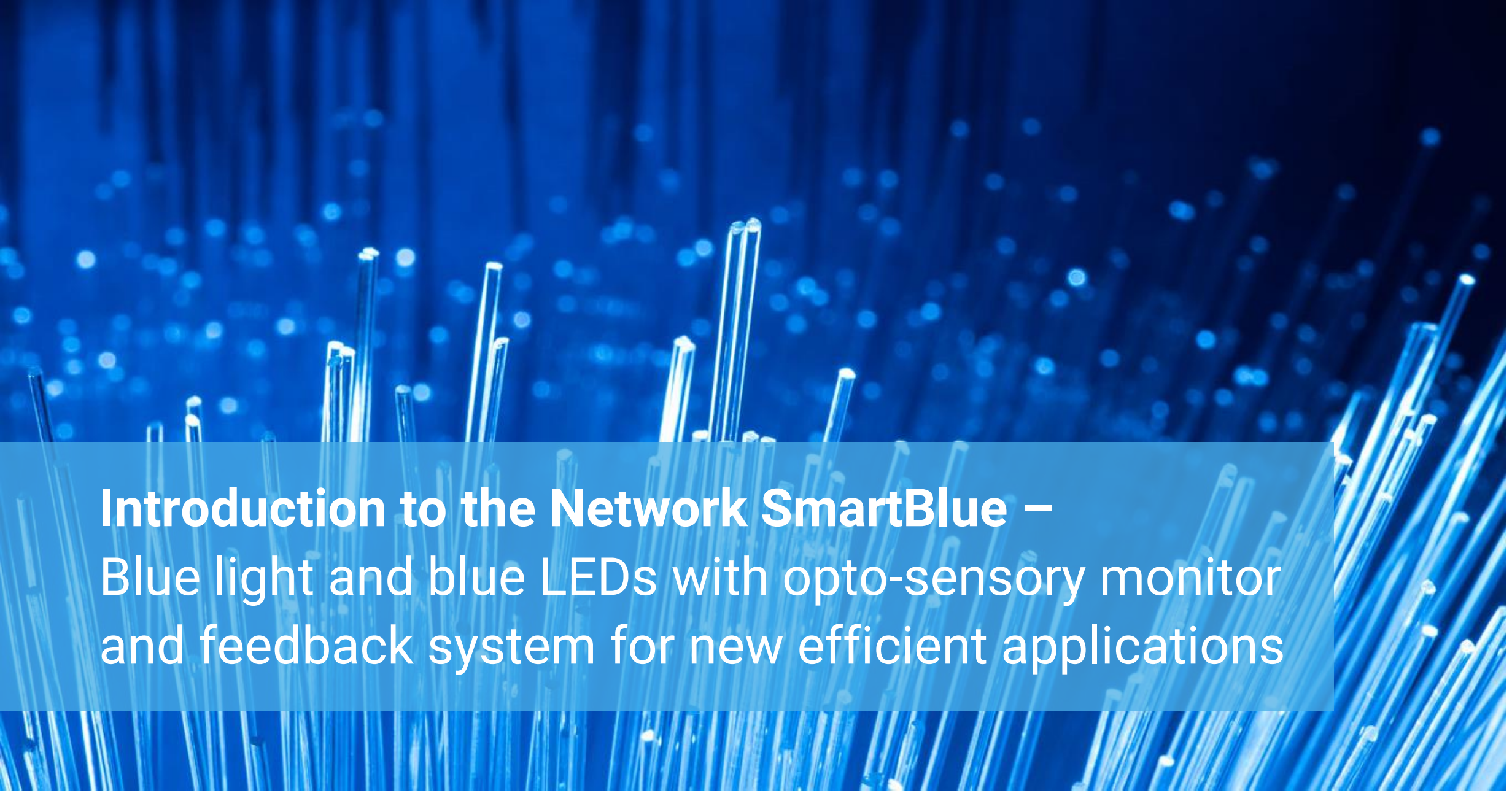
Kick-off Meeting

SmartBlue ZIM-Network
24.08.2022, IFNANO Göttingen

Agenda

Time	Agenda Point	Referee
10:00 – 10:10	Welcome	IFNANO, EurA AG
10:10 – 10:30	Introduction to the Network	EurA AG
10:30 – 10:40	Network Management Germany & Finland	EurA AG, Tamlink
10:40 – 12:00	Presentation of Network Partners and Project Ideas I	Network Partners
12:00 – 13:00	Lunch break	
13:00 – 14:00	Lab Tour IFNANO	
14:00 – 15:00	Presentation of Network Partners and Project Ideas II	Network Partners
15:00 – 15:05	Next steps	EurA AG
15:05 – 15:20	Coffee Break	
15:20 – 16:00	Discussion of first project ideas	Network Partners & EurA AG



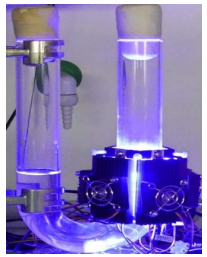
Introduction to the Network SmartBlue –
Blue light and blue LEDs with opto-sensory monitor and feedback system for new efficient applications

Motivation

- Blue LEDs (450 nm – 500 nm) exist since the 1990‘s and are part of our daily lifes, especially for lighting and displays
- Due to their **inexpensive** and **compact** design and the **anti-microbial, anti-proliferative and anti-inflammatory effects** the potential is much higher to be used for other applications, especially in the fields of:

MEDICINE

DISINFECTION & CLEANING



PLANTS

- State of the art:
  - spatially resolved actual state of the irradiated target is unclear, lack of location- and time-resolved monitoring
  - quantitative statements on the irradiation success only possible with great effort
  - sustainability of irradiation management is not taken into account

- **Goal of the network: Develop holistic systems with sensory, monitoring and feedback that increase or enable the effectiveness of blue light irradiation in a variety of applications, as well as energy-saving use and safety**

Medicine

- first proven applications: therapy and prevention of jaunice in newborns, treatment of skin diseases (acne)
- also used clinically in the stabilization of bone fractures (monomer is introduced into the bone to harden the plastic in the bone)
- Other potential applications investigated in research:
  - Psoriasis therapy (inhibition of keratinocytes cell division)
  - treatment of back pain
  - less painful and faster healing of wounds
  - disinfection of wounds (e.g., burn wounds) without need of antibiotics
  - prophylactic use for skin and wounds (e.g., after OP, tattoo removal)
- Important requirement: **ensuring reliable and safe use on humans**

- **Goal: develop new systems and solutions to transfer research results into medical applications with a focus on protection of the patients**

Disinfection & Cleaning

- …of surfaces, liquids, air, food to prevent infections and environmental pollution
- Advantages in comparison to UV light:
  - reduced health hazards for humans
  - reduced environmental pollution (due to ozone)
  - no requirement of any additives in contrast to likewise common disinfectants
- Initial applications in research:
  - disinfection of wastewater in siphons
  - active disinfection system for handrails, self-disinfecting toilet seats
  - air purification system for sanitary fascilities
  - blue light treatment in ambulance transport,
  - treatment of food (kill pathogenic germs, combat mold)

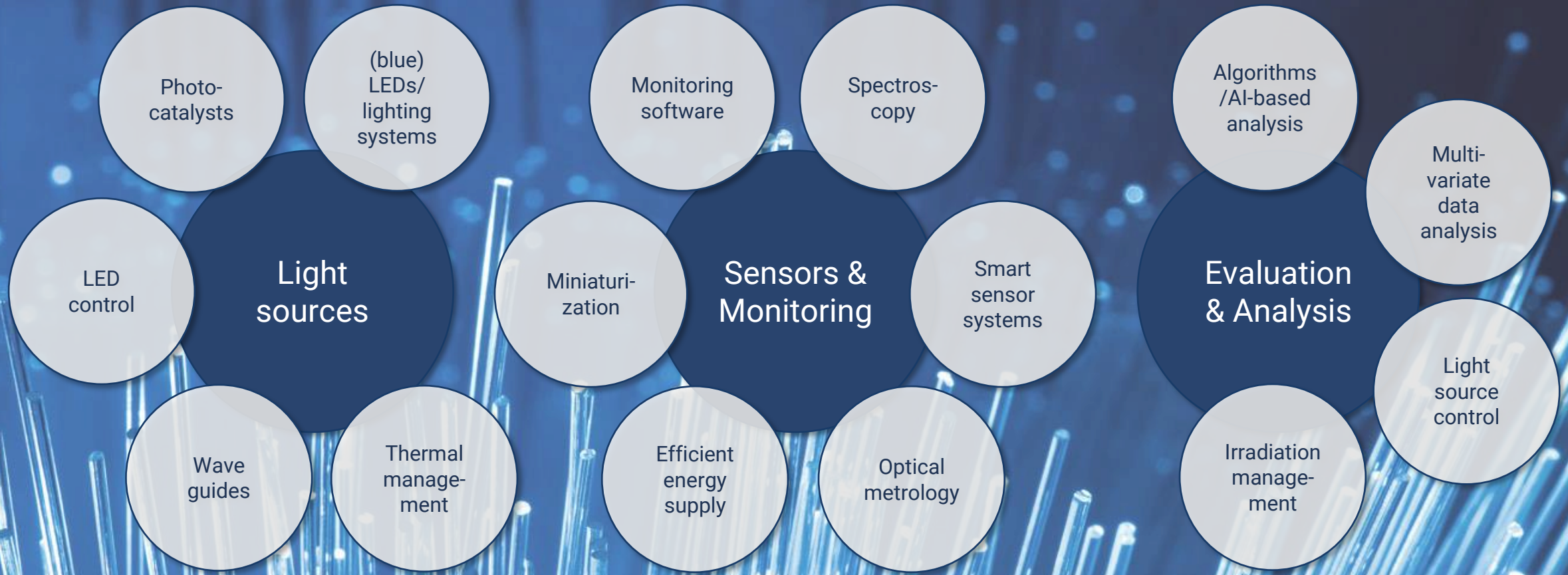
- **Goal: develop new systems for effective, efficient, gentle disinfection and cleaning**

Plants

- Plant seed irradiation to improve resistance to external influences
- In growth phase to ensure stronger and healthier growth (more pronounced photosynthesis and accelerated metabolism) → enhance harvest results in green houses, enhance generation of active substances such as flavonoids
- Gentle substitute for fungicides and pesticides to control and prevent infestation
  - via illumination with blue light and detection of chlorophyll fluorescence (infection detectable already 24h earlier than by eye)
  - camera-based in combination with, e.g., pattern recognition and illuminating with blue light to combat fungi, pests and plant diseases

- **Goal: develop new systems for broad agriculture application with sensor and monitoring systems and targeted control of irradiation (smart farming) for commercialization to increase plant quantity and quality, save fertilizer, pesticides, water, energy and to improve overall plant health**

Innovation areas



Network Structure

Network Management & Coordination

Research Institutes	Manufacturers Light Sources, blue LEDs	Manufacturers Sensors & Metrology	Manufacturers Analytics, Data Evaluation & Control	End users
GMBU e.V.	Roschwege GmbH	Nowinform GmbH	Nowinform GmbH	Youplant UG
TH Ulm	OUT e.V.	Gigahertz-Optik GmbH	Roschwege GmbH	mme UG
OUT e.V.	LED Tailor	Senetics GmbH	LabCognition	OUT e.V.
CiS gGmbH		CiS Systeme GmbH	GmbH	Vetrospace
		OUT e.V.	mme UG	

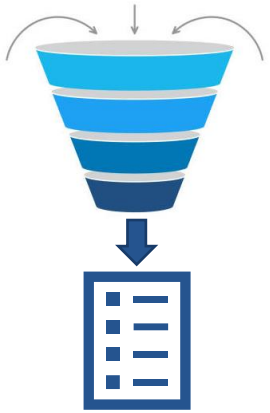
Milestones of the Network

Network concept & Roadmap

Identification of further partners

Exchange with (potential) users

First proposals: ZIM, EU, ...



Roadmap

Proposals: ZIM, EU, …

Elobaration of project ideas / generation of further ideas

Further growth of the network

Phase I (1,5 years)

Phase II (3 years)

Self-financed network

May 2022

Nov. 2023

Nov. 2026

3-4 network meetings per year & project specific workshops

Tasks of the Network Management

WP 1 Analysis of state of the art, evaluation of experience with R&D and scientific-technical goals of the network partners

WP 2 Support of network partners in joint research work in the network, preparation of R&D projects, moderation and coaching of agreements and processes

WP 3 Project initiation, project concepts and support of network partners in applying for R&D funding

WP 4 Advertising, public image, events and public relations (homepage, flyer, fairs, etc.)

WP 5 Acquisition of further companies and research partners

WP 6 Market analysis, network controlling, management of contractual obligations, documentation, final report

Tasks of International Coordinator:

- provides and exchanges information
- Provides and supports contacts to finnish companies and research institutes
- finances and designs its services and contributions from its own resources (e.g., national funding)

Network Management Germany & Finland

Network Management Germany

Dr.
Susann
Spindler

Network Manager I
+49 7961 / 9256-187
susann.spindler@eura-ag.de

Dr.
Manfred
Rahe

Network Manager II
+49 15255144869
manfred.rahe@eura-ag.de

Andreas
Schillerwein

Controlling
+49 7961 / 9256-219
andreas.schillerwein@eura-ag.de

EurA AG – Who we are

- Founded in 1999
- 184 employees with industry experience
- Market leader in technology networks (>70)
- Authorized innovation consultancy

EurA is authorized by

Bundesministerium für Wirtschaft und Klimaschutz

Bundesamt für Wirtschaft und Ausfuhrkontrolle

Certified service quality

Qualitätsmanagement Tervis Zertifizierungen GmbH zert. nach DIN EN ISO 9001:2015

go-inno autorisiertes Beratungs-unternehmen go-innovativ

EurA Sites

13 sites in 3 countries

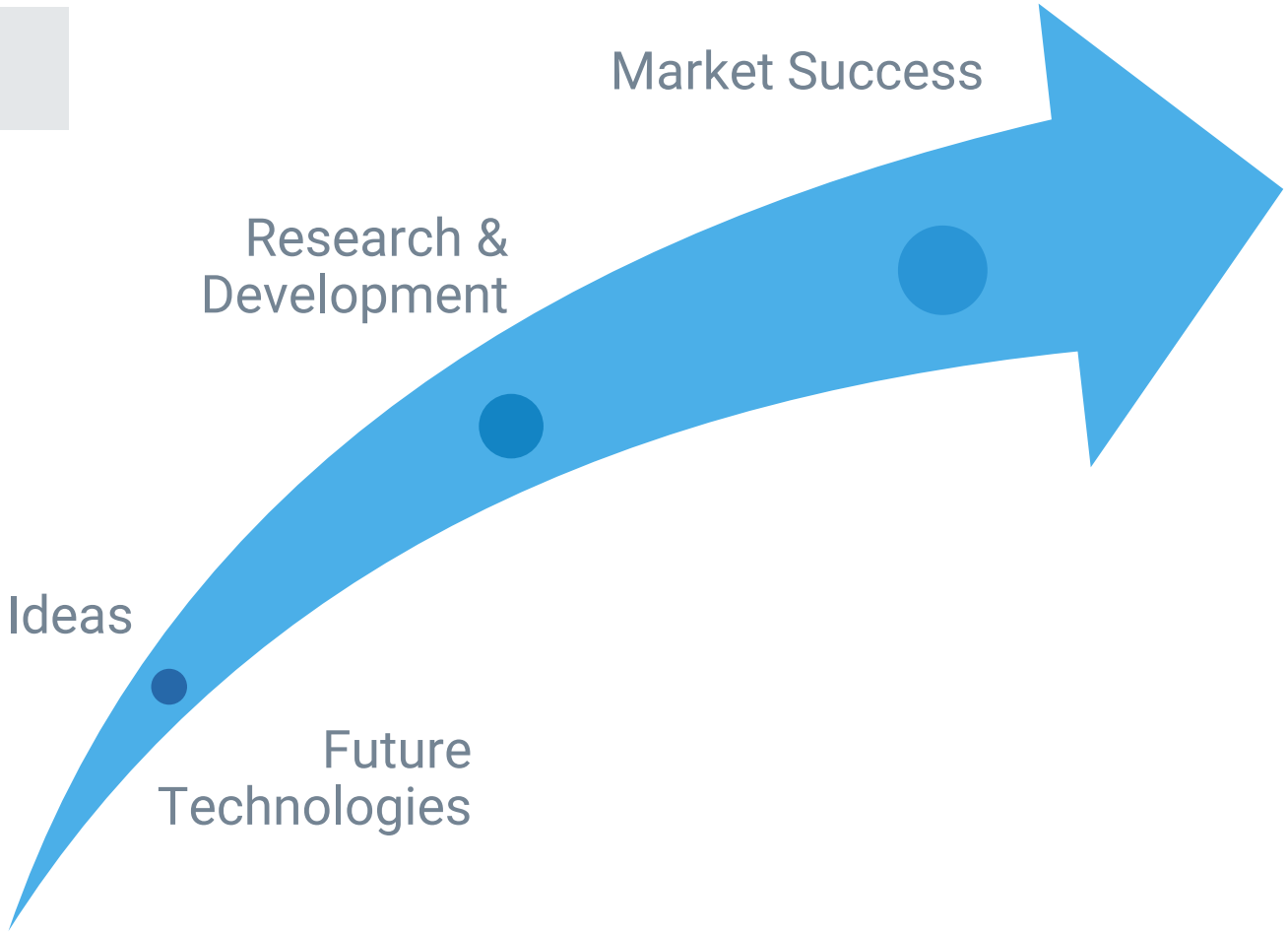
Headquarter: Ellwangen (Germany)

Sites:

- Aachen
- Berlin
- Brussels
- Enge-Sande
- Erfurt
- Hamburg
- Herten
- Kiel
- Oldenburg
- Pfarrkirchen
- Porto
- Zella-Mehlis

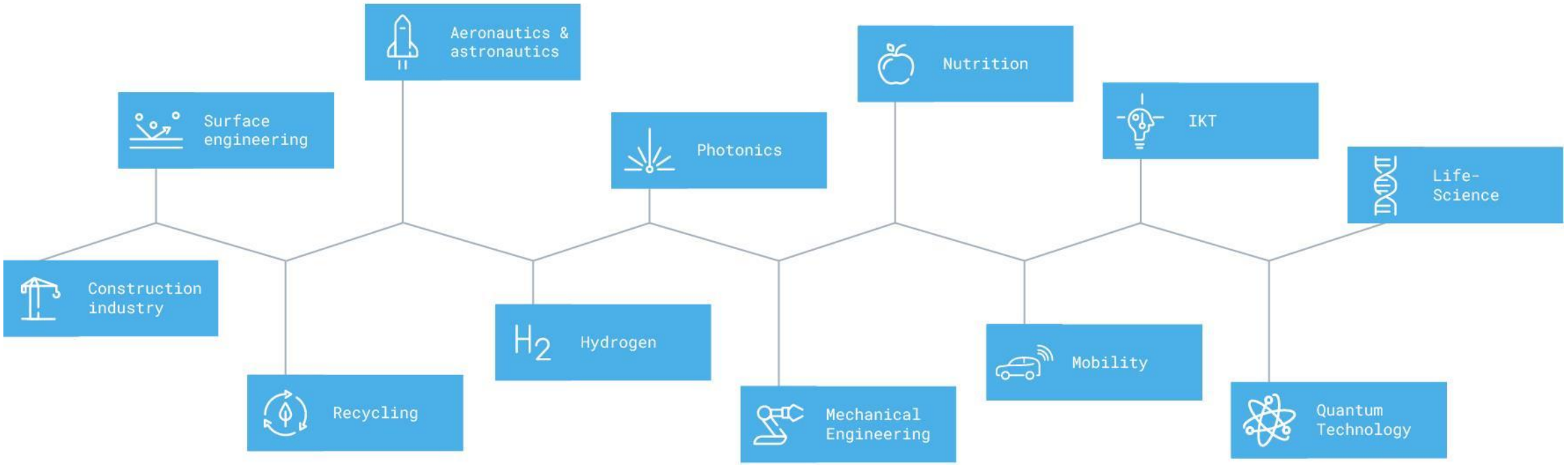
EurA services along the innovation process

- Networking and strategic partnerships
- Funding and financing
- Writing proposals and project coordination
- Technical advice and technology transfer
- Business model analysis & innovation workshops
- Sustainability consulting
- Digitalization consulting
- Commercial consulting & Venture Capital
- Sales and marketing consulting



Technical know-how

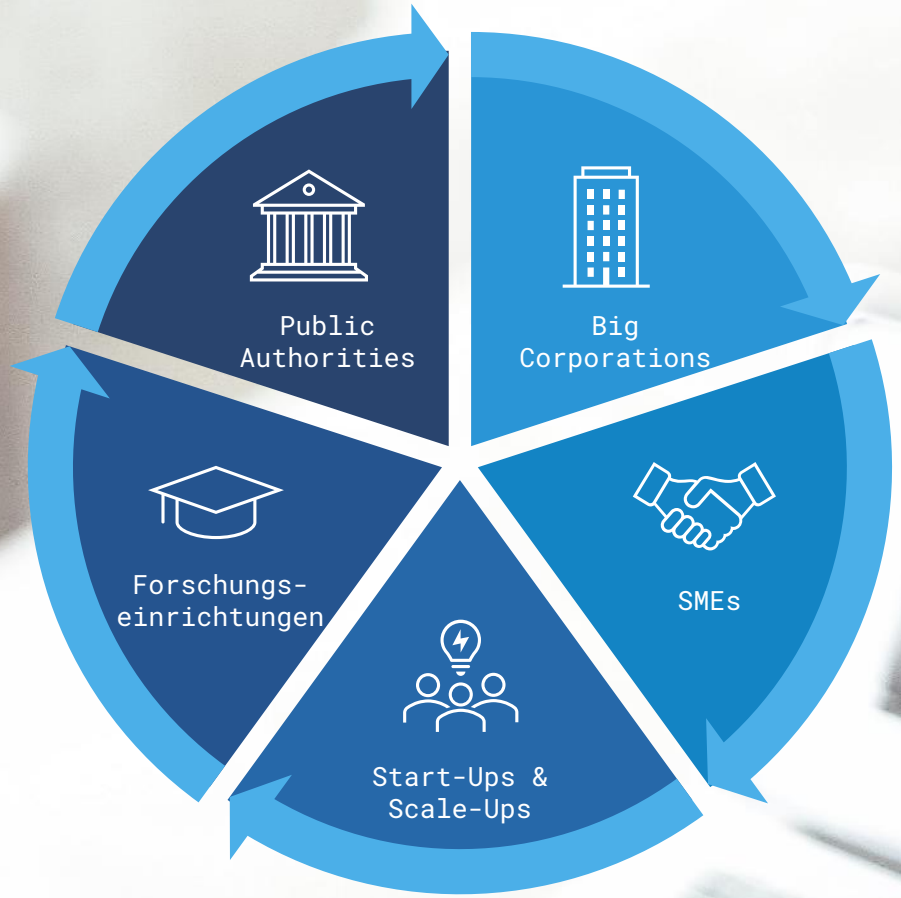
We develop innovation ecosystems, network strategic partners and contribute technical expertise.



Commitment for Innovators

EurA Customers at a glance

2.600 Industry Customers
1.300 Research Institutes
1.600 Mio. funded Project Volume
70+ Innovation Networks
100+ Network Meetings annually




TRUSTED PARTNER IN R&D AND
TECHNOLOGY TRANSFER
TAMLINK
EST. 1986

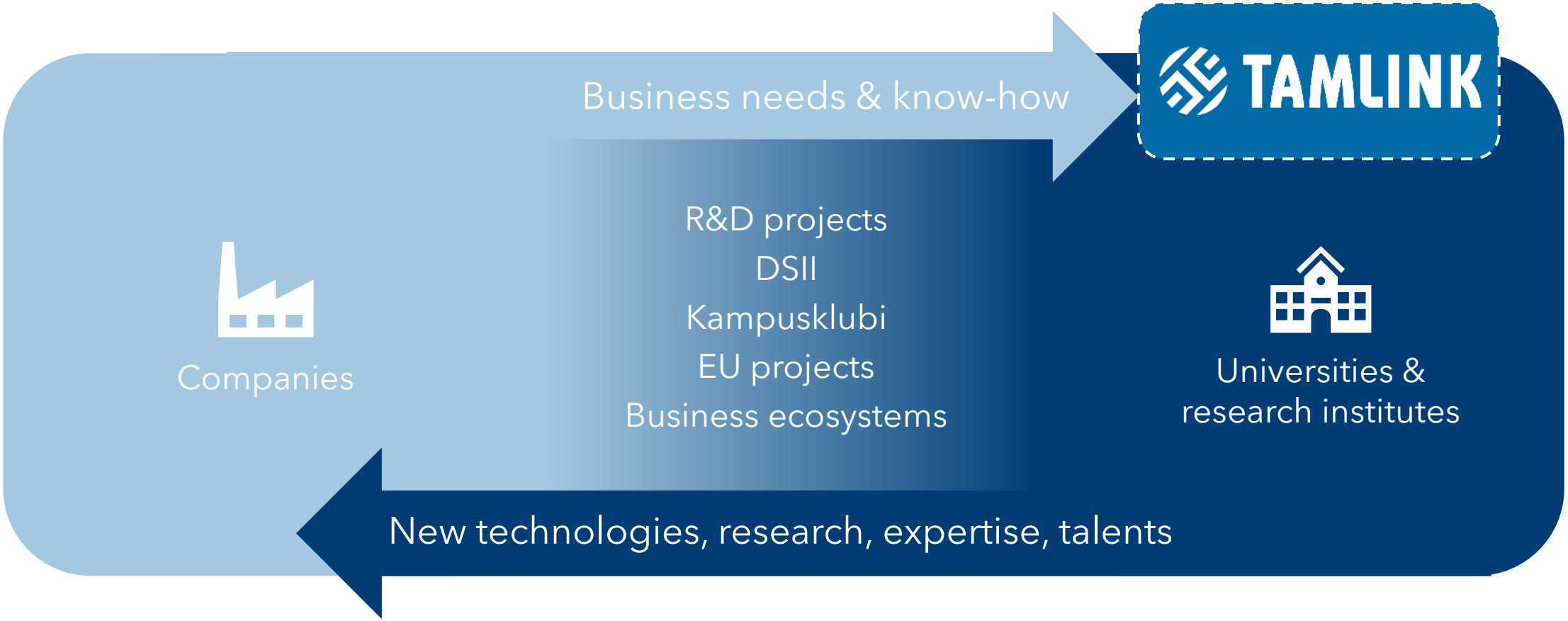
TAMLINK

The **most experienced Finnish company operating between industry and high-level scientific research** (est. 1986).

Tamlink **develops and co-creates collaboration actions between industry and technological research organizations.** Tamlink has been coordinating company-specific R&D and large consortium projects with SMEs and large corporations for over thirty years.

Owned by Tampere University, VTT Technical Research Centre of Finland, City of Tampere, and Tampere Technical Society. No corporate or private ownerships.

Bridging academic research and industry



Tamlink's services

R&D projects

EU projects

Kampusklubi –
Collaboration platform for companies, researchers and students.

Ecosystems & consortiums

DSII - Doctoral School of Industry Innovations

TAMLINK

Examples of on-going Tamlink activities:

IAQe – Indoor Air Quality **ecosystem**

E3 Pandemic Response **project**

More at www.tamlink.fi

TAMLINK

Indoor Air Quality ecosystem (IAQe)

What can we offer?

IAQe is an open cooperation platform that bridges all parties of the building's life cycle to achieve healthy indoor air.

We are a gateway to the high-level Finnish knowhow with 25+ partner companies, 10+ research & technology organizations (RTOs), and various international partners.

Goals

- Get companies, research institutes, municipalities and other organizations in the industry involved in joint activities.
- Create collaboration and new concrete solutions to objectively improve indoor air quality.
- Development of Indoor Air Quality service and pioneering.

Main functions

- R&D&I Projects
  - Joint projects with the consortium
  - Company specific
  - Generating project ideas and funding
- Co-creation
  - IAQ as a Service
  - New business models
  - Joint marketing and offering
- Networking
  - Sharing experience and knowledge
  - Internationalization

IAQe PARTNER COMPANIES

AHU & Ventilation systems

FläktGroup · ImL AEROSEAL · KOJA SINCE 1935 · VALLOX HOME of FRESH AIR

Air filters

FILTERPAK TRADITIONS OF CLEAN AIR

Air terminal devices

alme · FläktGroup

Air purifiers

AirØ · genano · alme · ISEC · AERÖFF

Building materials

TIKKURILA

Cooling / Heating

TPICONTROL

Data communication & data analysis

alme · AirØ · REALIN

Modular working spaces

VETRESPACE™

Design and consulting

A-INSINÖÖRIT

INDOOR AIR QUALITY ECOSYSTEM

Building automation

Fidelix

Sensors / monitoring

AirØ · DEKATI · SMARTWATCHER · VAISALA

Research services

FMI · A! Aalto University · VTT · Tampereen yliopisto

Coordinator

TAMLINK

E3 Pandemic Response

The E3 project wants to harness modern science and technology to create effective countermeasures to prevent the spreading of novel infectious diseases.

www.pandemicresponse.fi

E3 Ecosystem

EXCELLENCE IN PANDEMIC RESPONSE AND ENTERPRISE SOLUTIONS

Science-based world-class solutions to global markets with high business and societal impact.

Indoor Health Safety

WP1 Risk Assesment, Prevention & Control Strategies

WP2 Pathogens & Human Being

WP3 Emissions, Dispersion, Deposition & Exposure

WP4 Detection & Monitoring & Diagnostics

WP5 Airborne Contamination Control

WP6 Integration of Indoor Concepts & Solutions

WP7 Project Coordination & Coordination of Business Cooperation

thl VTT

Ilmatieteen laitos
Meteorologiska institutet
Finnish Meteorological Institute

HUS

Helsingin yliopisto
Helsingfors universitet
University of Helsinki

TAMLINK

Finnish Institute of Occupational Health

Tampere University
Tampere University of Applied Sciences

Use cases as a platform for joint development of need-based solutions focus on pandemics:

Use Case 1: Smart Modular Healthcare
Use Case 2: Smart Office
Use Case 3: Dynamic interaction of people and indoor environment

Multidisciplinary joint research

Monitoring & diagnostics

OLFACTOMICS
SMARTWATCHER
Biomensio
Roche
HUS

System integration

Granlund
AFRY
AW² ARCHITECTS
Halton
RAPAL

Clean air

alme
ISEC
Lumikko
AirO
LIFAair®
FILTERPAK

People & infection control

Royal Caribbean Group
KONE
CLEAMIX
RUNE BERG
HUS

Consortium

EXCELLENCE IN PANDEMIC RESPONSE AND ENTERPRISE SOLUTIONS

More information

Website www.tamlink.fi

@TamlinkLtd

@Tamlink

Contact information

Jutta Kannisto
Project manager
jutta.kannisto@tamlink.fi

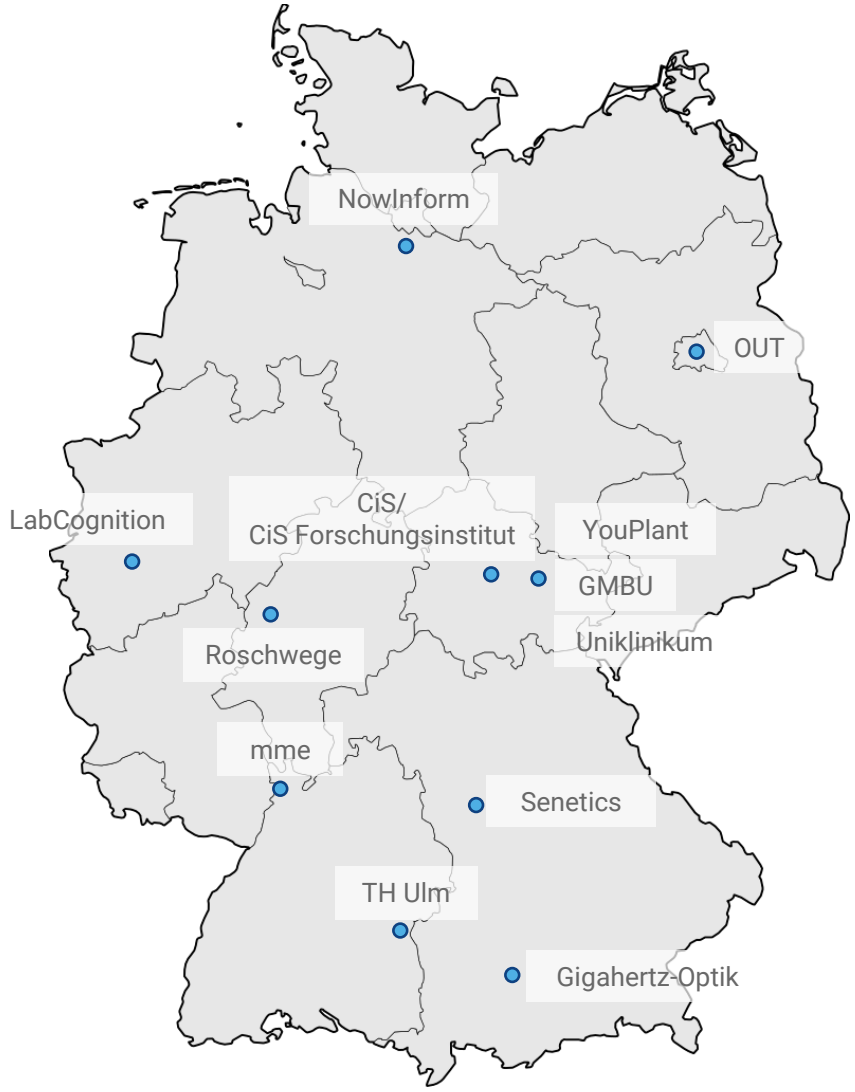
Nea Alanen
Communications coordinator
nea.alanen@tamlink.fi

TAMLINK

Introduction of Network Partners and Project Ideas

Network Partners

#	Partner		Location
1	Cis Systeme GmbH	SME	Erfurt
2	CiS Forschungsinstitut für Mikrosensorik GmbH	RI	Erfurt
3	Gigahertz-Optik GmbH	SME	Türkenfeld
4	GMBU e.V.	RI	Jena
5	Lab Cognition GmbH	SME	Köln
6	mme UG	SME	Mannheim
7	NowInform GmbH	SME	Buchholz in der Nordheide
8	Out e.V.	RI	Berlin
9	Roschwege GmbH	SME	Greifenstein
10	Senetics HealthCare GmbH & Co. KG	SME	Ansbach
11	TH Ulm	RI	Ulm
12	YouPlant UG	SME	Jena
13	Tamlink Ltd (Finnland, Coordinator)	SME	Tampere
14	LED Tailor (Finnland, KMU)	SME	Halikko
15	Vetrospace (Finnland, KMU)	SME	Littoinen
16	Klinik für Hautkrankheiten, Uniklinikum Jena	Clinic	Jena



8 SME
4 Research Institutes
1 Clinical Partner

3 SME

Next steps

Follow-up	• Contact list & Sharepoint • Questionnaire
Ideas	• Collect & consolidate • Set priorities
Projects	• Workshops • Develop roadmap • Prepare proposals
Marketing	• Logo • Website • Flyer
Next Meeting	• Find date (~ December 22) • Collect topics

Discussion of first project ideas

Project Ideas

#	Project Title	Idea from/ Project Partners	Status
1	LED irradiation device for wound infection prophylaxis and improvement of wound and wound infection healing in humans	GMBU, Uniklinik Jena, OUT e.V., Gigahertz-Optik, TH Ulm	Workshop will be invited
2	Construction and clinical testing of a mobile blue light LED phototherapy system for suicide prevention	GMBU, CiS Forsch.Institut/ Systeme, LED Tailor	Workshop will be invited
3	Light therapy for treatment of neurodegenerative diseases	GMBU	
4	Lighting system for the prophylaxis and prevention of progression of myopia (short-sightedness), especially in school children	GMBU, TH Ulm	
5	Germ killing in endotrachial tubes with blue LED	TH Ulm, Senetics, OUT e.V.	Sketch in preparation for KMU innovativ Medizintechnik
6	Development of an irradiation therapy device mastitis - BeTMa	CiS Forschungsinstitut, GMBU, Uniklinik Jena	Maybe IGF, InnoKom
7	Online blood pressure measurement with blue LEDs	MME UG, CiS	Meeting will be invited
8	Disinfection of contact lenses (and case)	TH Ulm	Look for industrial partners

Project Ideas

#	Project Title	Idea from/ Project Partners	Status
9	Disinfection inside humans (catheters, eye…)	TH Ulm	
10	Antimicrobial/antiviral white light	TH Ulm, LED Tailor	
11	Far-UVC disinfection of surfaces, air, …	TH Ulm, LED Tailor, OUT e.V.	Maybe combine with 12
12	(Continuous) Disinfection of surfaces and monitoring of contamination level	Vetrospace, LED Tailor, OUT e.V., TH Ulm, Gigahertz-Optik	Invite first workshop, look for funding opportunities
13	Development of a standardized test setup to measure effectiveness of irradiation	Work together with DIN, EPIC, …	Mr. Rahe will talk to DIN at meeting in Berlin
14	Disinfection of toilet seat	TH Ulm	
15			
16			

Project Reflection Method

So that we…

Why is this important?

for …

Why is this important?

What is your project idea?

How do we realize this?

by …

How do we realize this?

through …

What is your project idea?

…

What motivates you?

…

How could a solution look like?

…

How does the solution go beyond the state of the art?

…

Do you need additional know-how for the project?

Project Reflection Method – Example „Moss wall“

Air pollution is a complex problem with diffuse influencing factors. Each location is individual and plant systems are particularly well suited for site-adapted and large-scale use.

Why is this important?

Mosses have shown in laboratory tests that they have good properties to bind fine dust. Currently, there is a great demand for the reduction of particulate matter.

Why is this important?

★ Development of a moss wall to reduce air pollution.

How do we realize this?

By increasing the residence time of polluted air, we increase the efficiency of the plant systems.

How do we realize this?

Through a surface specially adapted to the location, the airflow of traffic is exploited to create air vortices on the surface of the plant systems. The reduced speed of movement of the air increases the deposition on the plants.

● Development of a site-adapted plant system to maximize air penetration

We are a leading company in the field of plant systems. We receive requests for solutions, but existing systems do not deliver the promised benefits. We want to play a leading role in this increasingly important field in the future.

What motivates you?

Based on calculations of air turbulence, a surface structure is developed that breaks the rapid air movements and turns them into smaller turbulences .

How could a solution look like?

Existing systems are not adapted to the location and conditions. Thus, these systems have a correspondingly low efficiency, the plants die, …

How does the solution go beyond the state of the art?

We are experts in plant systems. We need partners for the modelling of air turbulence as well as suitable carrier systems.

Do you need additional know-how for the project?

EurA®