DIGITALISATION COLLEGE

PROGRESSIVE - DIGITAL PROVINCE

Prof. Dr. Wolfgang Dorner, Prof. Dr. Roland Zink, Dr. Jane Käser, Kathrin Auer, Alexander Pflieger

WHY AND HOW?

THE CORE IDEA OF THE COLLEGE

- Receipt of funding in the tender from the Bavarian Research Institute for Digital Transformation for the format "Digitalization Colleges in Bavaria".
- 13 colleges were held at 19 universities, one of them at the THD.
- The aim is to strengthen students' digital skills.
- Digitalization skills will have a high priority in all disciplines in the future in theory, research and practice.
- The aim is also to strengthen social skills and interdisciplinary cooperation.

THE SUMMER SCHOOL

Visit from Chile to the GROW4Energy Startup Summer School

At the end of September, fifteen students from the Universidad de Concepión Chile (UDEC) visited the Technical University of Deggendorf (THD) for a week. Together with THD students from the field of energy management, they participated in the GROW4Energy Startup Summer School. The focus was on the development of joint ideas and the exchange of knowledge in topics such as solar, wind and hydro energy, energy from biomass and e- mobility. Furthermore, a long-term cooperation between UDEC and THD should be established and the entrepreneurial spirit in the respective regions should be strengthened.

Image (THD): Internationality also at the Startup Campus with the GROW4Energy Startup Summer School.

FORMER PROJECTS AND IMPRESSIONS

- Real existing Problems and Projects from Organizations!

SUMMER SCHOOL IN CHILE

At the beginning of May 2023 and April 2024, students of DIT visited the Universidad de Concepción, Chile.
Aim: Game Changers 2023 Summer school
Contents: Company visits & challenges, visit of the startup campus, Industry 4.0 labs & more

Challenges (1):

1. How to use energy surplus of wind and solar energy?
2. Multi purpose underwater sensors
3. Mesh for sun protection (agriculture)
4. Educational robots for STEM education in rural schools
5. Mitigation of side effects of wind energy (using sensors)

Further aims:
Interdisciplinary and intercultural collaboration
Knowledge generation (countries, cultures, companies, business models)

SUMMER SCHOOL IN CHILE - IMPRESSIONS

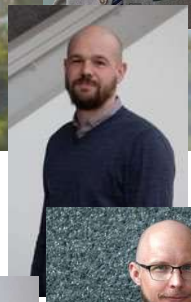
WHO HAS JOINED SO FAR?
THE TEAM OF PROFESSORS





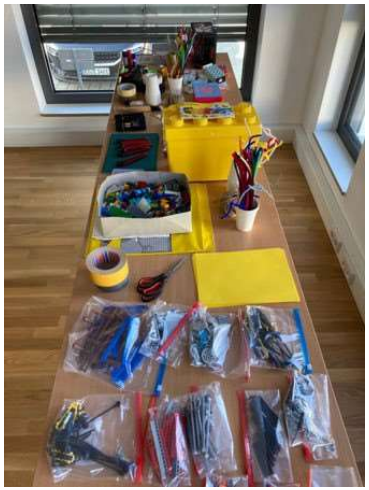





- **Prof. Dr. Wolfgang Dorner**
- **Prof. Dr. Roland Zink**
- Prof. Dr. Thomas Spittler
- Prof. Dr. med. habil. Thiha Aung, MHBA (Univ.)
- **Prof. Dr. Javier Valdes**
- **Prof. Dr. Christina Bauer**
- Prof. Dr. Harald Zimmermann
- Prof. Dr. Josef Scherer
- **Prof. Dr. Marcus Barkowsky**
- **Prof. Dr. Thomas Geiß**
- Prof. Dr. Richard Latzel
- **Prof. Dr. Kristina Wanieck**
- Prof. Markus Straßberger
- … and many others

YOUR TOOLS
GADGETS THAT SUPPORT YOUR WORK

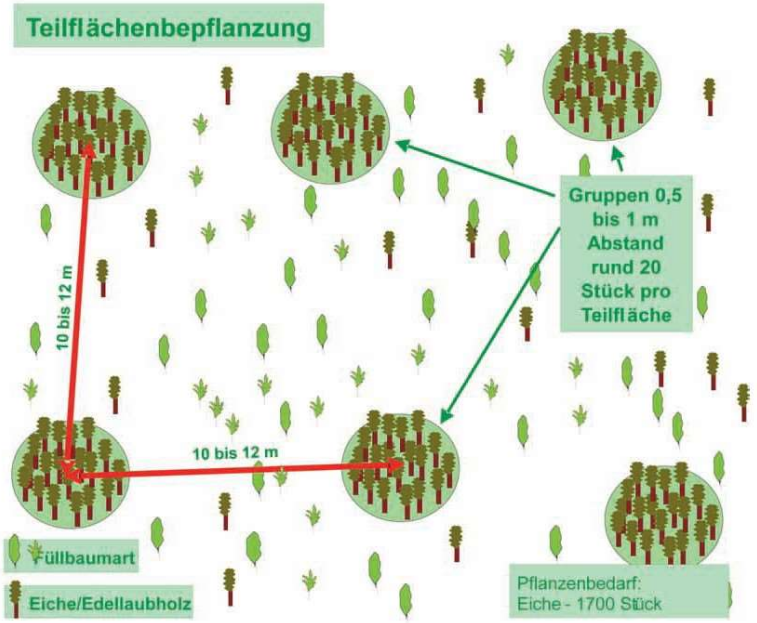


New Challenges

The Challenges for 2024/25

YOUR POTENTIAL CHALLENGES

ROUND 3 - Agricultural technology



Challenge 3: Create an app to calculate amount and space between trees for regrowing forests

YOUR POTENTIAL CHALLENGES

ROUND 3– art, culture, media

Bezirk Oberpfalz

Challenge 4: Create a virtual depot for regional museums for special exhibitions (example: Museum A wants to do a special exhibition on the topic of „suitcases“ and wants to know what related objects other museums have.

YOUR POTENTIAL CHALLENGES

ROUND 3– art, culture, media

Bezirk Oberpfalz

Challenge 5: Help the museums to get more volunteers and connect them with each other

YOUR POTENTIAL CHALLENGES

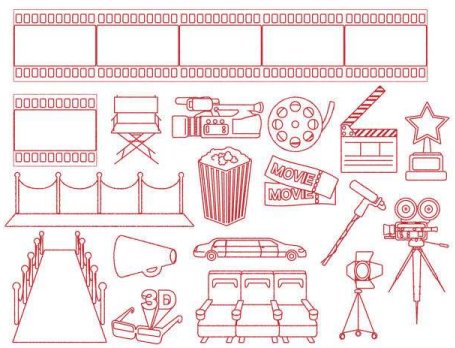
ROUND 3– art, culture, media

Challenge 6: How can we continue project musbi (www.musbi.de)? Also allow use in Oberpfalz and Niederbayern

YOUR POTENTIAL CHALLENGES

ROUND 3– art, culture, media

Bezirk Oberpfalz



Challenge 7: Create a virtual depot for clubs like theater groups for their materials (e.g. costumes, technical equipment, etc.)

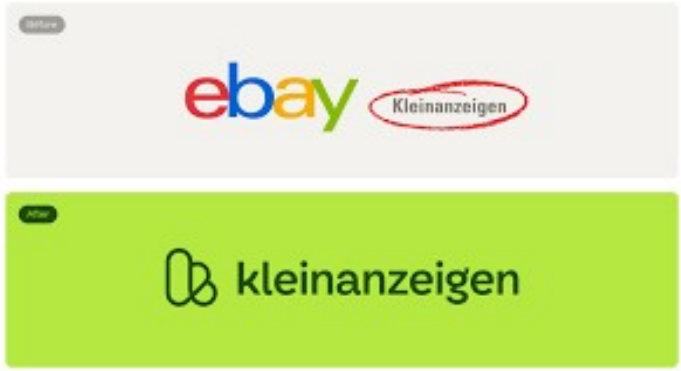
YOUR POTENTIAL CHALLENGES
ROUND 3– art, culture, media

Bezirk Oberpfalz

Challenge 8: Develop re-utilisation concepts for church buildings

YOUR POTENTIAL CHALLENGES
ROUND 3– art, culture, media

Bezirk Oberpfalz



Challenge 9: Create a kind of platform, database or marketplace for cultural offers/ services (event locations, bands, technical equipment, services,...)

YOUR POTENTIAL CHALLENGES

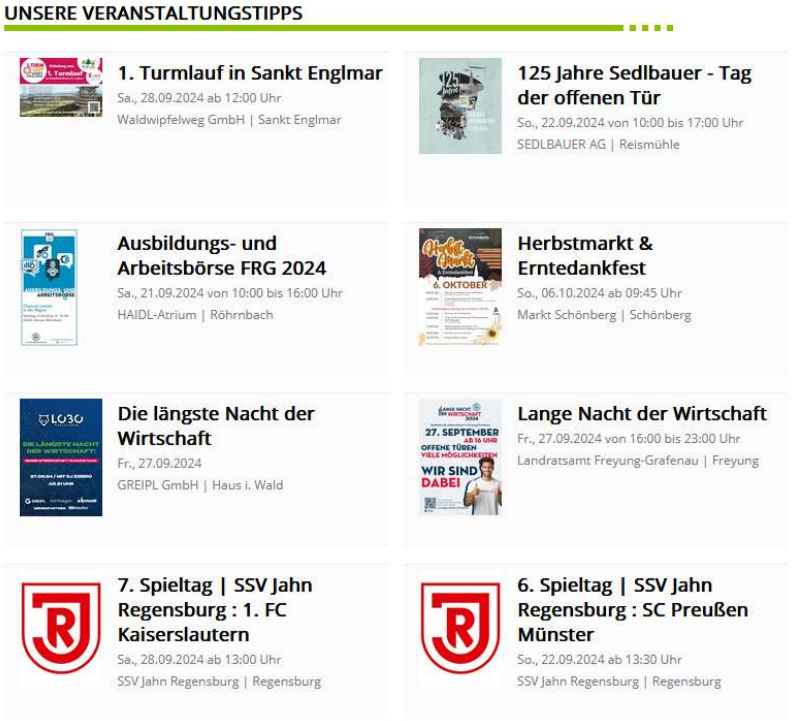
ROUND 3 – art, culture, media

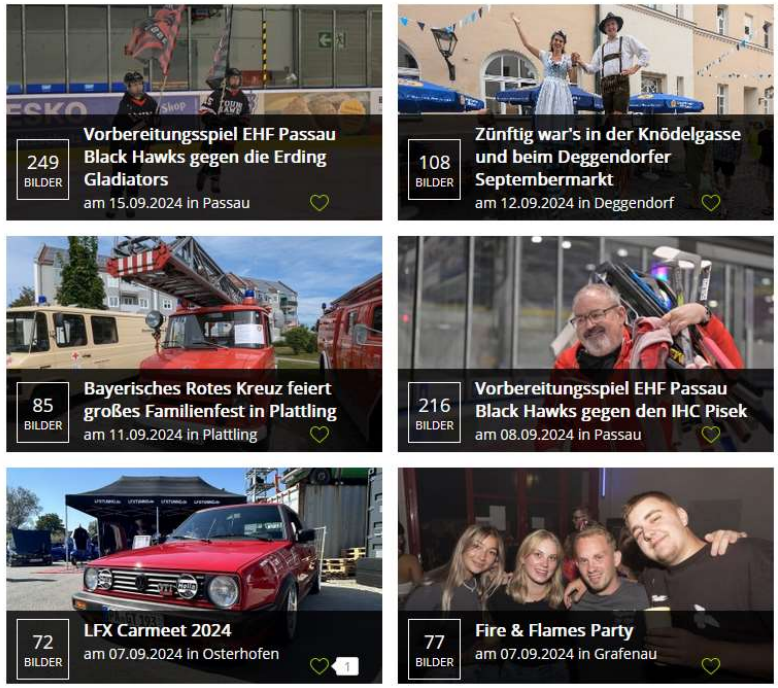
Bezirk Oberpfalz

Challenge 10: Create new contents for the „Heimatmobil“

YOUR POTENTIAL CHALLENGES

ROUND 3– art, culture, media

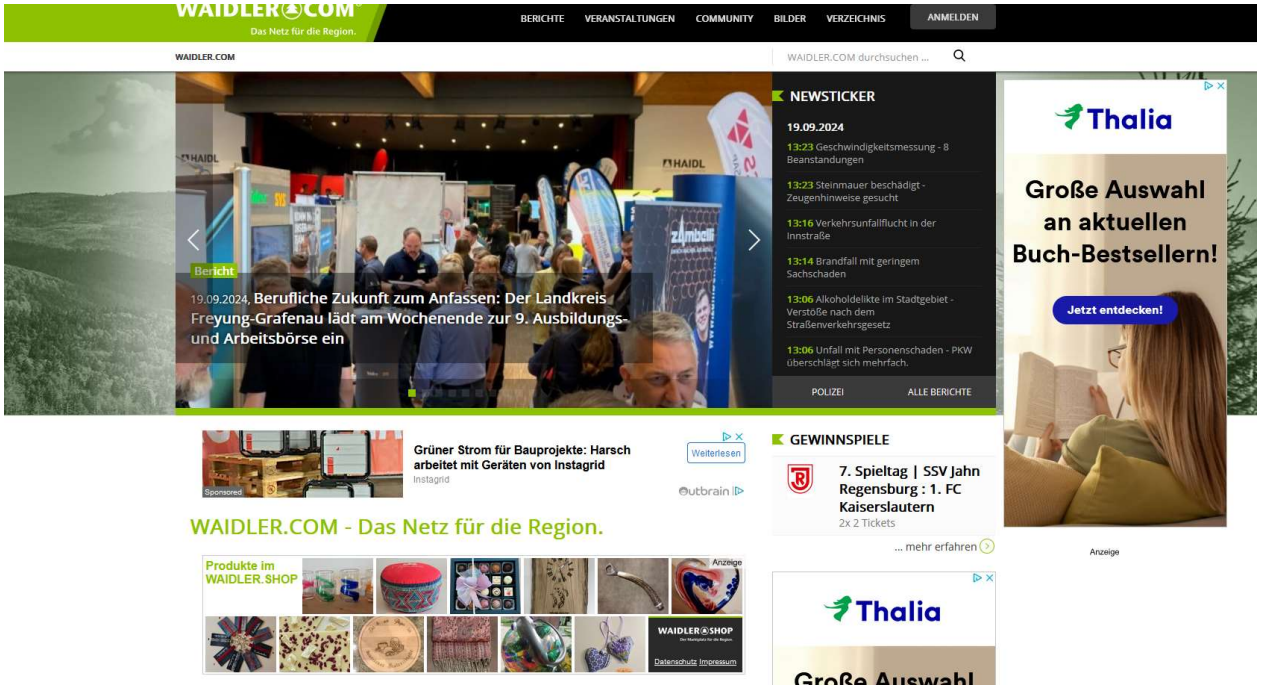




Challenge 11: AI- based sourcing of event dates, formatting and publication for event media

YOUR POTENTIAL CHALLENGES

ROUND 3– art, culture, media



Challenge 12: Check user-generated posts and emails for editorial articles using AI, enhance them and publish them.

YOUR POTENTIAL CHALLENGES

ROUND 3– AI & construction

The aim of this challenge is to develop a "proof of concept" or an initial prototype of a system that records the words spoken during a customer consultation, transcribes them into text and then analyses them in order to extract relevant information. This information could be, for example Information on the desired size or square footage of the home's living space, the number of rooms, specific design preferences or other relevant details.

Challenge 13: Wolf Haus: Create a smart system to support the planning of prefabricated houses.

YOUR POTENTIAL CHALLENGES

ROUND 3– art, culture & media

After the COVID times, the campuses of our university are emptier than ever before. This might have many sources, but what can we do in order to improve the quality of studying and coziness at the campus?

Challenge 14: THD university campus(es): How can we make our campuses more lively again by improving the campuses according to students‘ needs? Are there technologies that help in this endeavour?

YOUR POTENTIAL CHALLENGES

ROUND 3– art, culture & media

Challenge 15: Create an app that combines the location of the car (map/navigation) and related activities for families in cases of traffic jams (can include additional games)

YOUR POTENTIAL CHALLENGES

ROUND 3– digitization of traffic

Challenge 16: Help optimize the traffic flow of Hoffman-La Roche site in Penzberg

YOUR POTENTIAL CHALLENGES

ROUND 3– agricultural technology

Challenge 17: How can partially completed machines be better localised in the depot? (+route optimisation)

YOUR POTENTIAL CHALLENGES

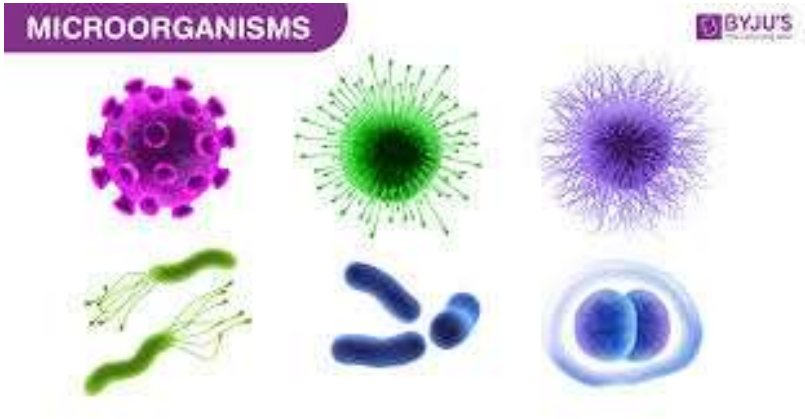
ROUND 3– agricultural technology

Challenge 18: How can partially completed machines be better localised in the depot? (+route optimisation)

YOUR POTENTIAL CHALLENGES

Life Sciences & Molecular Biology

microbify

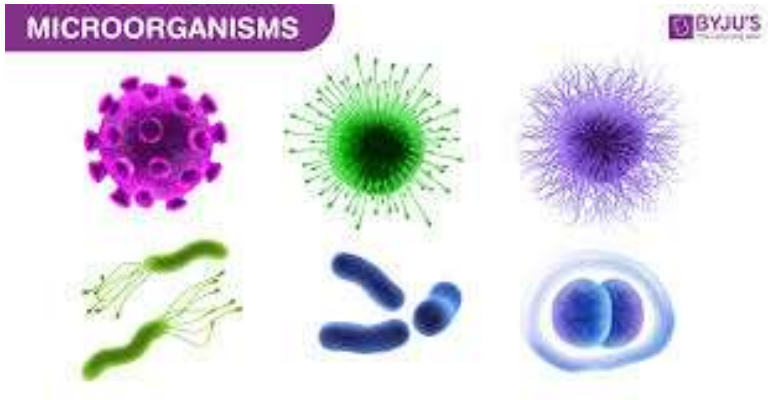


Challenge 1: Development of a business model for the use of extremophilic* microorganisms in agriculture

Expremophiles = microbes that thrive under harsh conditions, e.g. high salt concentrations, low pH, temperatures > 100°C, anaerobic environment etc.

YOUR POTENTIAL CHALLENGES

Life Sciences & Molecular Biology



Challenge 2: Development of a business model for the use of extremophilic* microorganisms in pharma

Expremophiles = microbes that thrive under harsh conditions, e.g. high salt concentrations, low pH, temperatures > 100°C, anaerobic environment etc.

YOUR POTENTIAL CHALLENGES

ROUND 3– Entrepreneurship

Background: The Deggendorf start-up ecosystem offers a wide range of support services for people with ideas, start-ups and scale-ups. The key players include ITC1 with its Digitalisation Lower Bavaria start-up centre, THD with its StartUpCampus and the Hans Lindner Foundation. In addition, the IHK Niederbayern, the HWK Niederbayern-Oberpfalz and many other partners also offer various programmes in the same area. Despite this extensive range of offers, many teams have difficulty finding their way through the "jungle of offers".

Task: Develop innovative solutions to make the existing services easier to find, understand and use from the user's perspective.

Challenge 19: Improving the usability of the Deggendorf start-up ecosystem

YOUR POTENTIAL CHALLENGES

ROUND 3– Entrepreneurship

Background: The Innovations Technologie Campus Deggendorf (ITC1) is a technology-oriented business park and start-up centre that accommodates around 50 companies on 13,500 m². These range from large companies with 100 employees and 2,000 m² of space to smaller companies and coworking users. The campus consists of several buildings with numerous entrances and is very labyrinthine due to its former use as a mannequin and curtain factory. Many visitors and suppliers, especially freight forwarders and parcel services, have difficulty finding their way to the respective company, despite signage and building designations with letters and colours. As a result, parcels are often not delivered or are simply left somewhere, which is particularly problematic for parcel services under time pressure.

Task: Develop an innovative but simple system that solves these problems. Consider the following aspects:

1) Signature: Companies have to receive parcels themselves due to internal regulations.
2) Access: There are two barriers to enter the campus by car (“Schranken”) and one pedestrian entrance
3) Smartphone: During the journey, the smartphone may only be used to a limited extent in accordance with the applicable traffic regulations

Challenge 20: ITC 2.0 - Development of an innovative wayfinding system for the Innovations Technologie Campus Deggendorf

YOUR POTENTIAL CHALLENGES

ROUND 3– Sports Tech

Fewer and fewer children are learning to swim. The fatal consequences of this are self-explanatory. In addition to the fact that children/young people without swimming skills can drown, it also has consequences for swimming lessons. Visiting a swimming pool to improve swimming skills is often not possible because there are too few swimming instructors. Non-swimmers have no separate supervision etc. It is also restrictive for later career choices. The police, rescue services, fire brigade, armed forces, sports studies, teacher training, etc. all require swimming certificates. How can we ensure that as many pre-school children as possible learn to swim? A concept that motivates parents to teach or allow their children to learn to swim. Possibly get local authorities/ ministries to support this financially.

Challenge 21: All children learn to swim

YOUR POTENTIAL CHALLENGES

ROUND 3– Healthy Nutrition

Nutrition trail linked to a fitness trail

Exercise and healthy eating should run in parallel. You exercise when you eat healthily. You eat healthily when you exercise. Unfortunately, the population's knowledge of healthy eating is relatively low. Sugary drinks and fatty foods are often the order of the day. The media is also increasingly spreading the idea that carbohydrates are bad. There are already many different ways to keep fit. What would it be like to establish a nutrition path in parallel?

Challenge 22: Healthy Nutrition

YOUR POTENTIAL CHALLENGES

ROUND 3– Occupational health and safety

Occupational safety is a key issue for companies of all sizes, but small and medium-sized enterprises (SMEs) in particular face specific challenges. They often lack the resources to implement comprehensive safety programmes and keep them up to date. This can lead to increased accident risks and work-related illnesses. A young occupational safety company wants to focus on this target group and is looking for innovative solutions to improve occupational safety in SMEs effectively and cost-effectively.

Task:

Develop a concept for a service or product that significantly improves occupational safety in small and medium-sized enterprises (SMEs). Your concept should be both practical and innovative and take into account the specific needs and constraints of SMEs.

Challenge 23: Arbeitsschutz Santl - Development of an innovative solution to improve occupational safety in small and medium-sized enterprises (SMEs)

YOUR POTENTIAL CHALLENGES

ROUND 3– Sportstech

In ski resorts, it is already possible for visitors to call up information about which lifts are open or closed. However, one crucial piece of information is missing: how full are the lifts actually? Long waiting times at ski lifts and traffic jams on the journey to the resort have a significant impact on the skiing experience and lead to frustration among guests. Both the traffic density on arrival and the capacity utilisation of lifts and ski slopes are difficult to predict, which makes it difficult to plan the ski day effectively.

Task:Develop a concept for a real-time system that helps skiers both on arrival and on the ski slope to plan their time optimally by providing up-to-date information on the utilisation of ski lifts and traffic volumes.

Extension: On the ski slope itself?

Challenge 24: Ski school 1.0 - Development of a real-time system for displaying the capacity utilisation of ski lifts

YOUR POTENTIAL CHALLENGES

ROUND 3– Sportstech

In ski resorts, many skiers easily lose their bearings as they can often only rely on static maps at the lifts or at certain points (top, middle or bottom of the ski slope). These maps are helpful, but once on the piste, many skiers lack a clear idea of which route will take them to their destination, e.g. to the next hut, lift or specific ski slope. Orientation becomes particularly difficult in poor visibility, unclear conditions or in unfamiliar areas.

Task: Develop a digital navigation system for skiers that can be used in real time on the ski slope and helps them find the right route. The aim is to offer skiers a user-friendly orientation aid in order to avoid unnecessary detours and arrive safely at the desired destination.

Challenge 25: Ski school 2.0 - Development of a real-time navigation system for skiers for better orientation on the ski slope

YOUR POTENTIAL CHALLENGES

ROUND 3– Sportstech

In rural areas, especially in smaller villages and communities, there are often unused opportunities for direct communication between different groups. People in these areas often set up WhatsApp groups, which is practical but also has disadvantages. Our project, which is supported by the Federal Ministry of Food and Agriculture, is investigating an alternative to these communication channels: "digital group radio via mobile phone networks", which is possible with modern 5G networks. This allows almost any smartphone to be turned into a digital radio, similar to the walkie-talkies from childhood - but much more powerful. We are currently testing this technology in private Bavarian rescue dog teams for operations. We are now asking ourselves: are there also opportunities to use this technology outside of operations? For example, in village communities, schools, building yards, service providers or even across borders? Who could benefit from this new form of communication? To find all these new, as yet undiscovered applications, we need to think about them openly and creatively. So the aim is to find out where "digital group radio" could improve life in smaller communities.

Challenge 26: Rescue dog squadron - Who benefits from "digital group radio"?

YOUR POTENTIAL CHALLENGES

ROUND 3– Healthcare

Up to 20,000 patients a year die from nosocomial infections, resulting in an average financial cost of € 1 million per hospital and damage to society as a whole of € 4 to 8 billion (US $ 30 billion). WHO: 80% of contamination occurs via our hands. A small study in a hospital showed that up to 30% less antibiotics are used if contamination from the sanitary area is significantly reduced. However, hygiene management in the healthcare sector only has very limited access to reliable data on personal hygiene. The smart combination of IoT, AI & HI offers the opportunity to optimise and control personal hygiene in wet areas and thus reduce suffering and costs. What opportunities are opening up for us> Magic Mirror> Video cam> Sensor technology> NFC, facial recognition, etc, and how can these be used and combined to optimise and control personal hygiene? What data does hygiene management need and what data can we provide? How can we process this data to sustainably improve hygiene and reduce costs? How do employees react to these changes?

Challenge 27: HySeDi GmbH - Optimising personnel hygiene in the healthcare sector

YOUR POTENTIAL CHALLENGES

ROUND 3– Fintech

Topic: Development of strategies to monetise the aipama portal for private customers

Background: The company aipama offers a modern and user-friendly portal for the optimisation and automation of payroll accounting. Private customers can currently view and download their monthly payslip free of charge. To further utilise the potential of the portal, a strategy should be developed to convince private customers to pay a small amount for additional services and functions.

Objective: Develop a comprehensive strategy to convince private customers of the benefits of a paid subscription to the aipama portal. Identify possible added value and formulate concrete measures to increase customers' willingness to pay.

Challenge 28: LDZW (Hagen)

YOUR POTENTIAL CHALLENGES

ROUND 3– Digital Optics

A patent application has been filed for an invention at the Teisnach Optics Technology Campus. With this invention, special optical components can be measured very easily and quickly with great precision, specifically aspherical lenses. The material costs for a device range between €10,000 and €100,000. The device is about one to two metres high and weighs between 50 and 200 kg.

What options does the inventor have to earn money with his invention? If the inventor decides to found a start-up: What are the most important activities that the founder should do before founding? What options are there to finance the start-up? What will be the biggest challenges for the inventor? What and how many employees does the start-up need? What could the next five to ten years of the start-up look like?

Challenge 29: TC Teisnach

YOUR POTENTIAL CHALLENGES

ROUND 3– can be any category

Special challenge: Your own challenge. You have an idea and are searching for a team? Feel free to join!

APPLICATION:

Application form in German language:

https://survey.th-deg.de/index.php/315858?lang=de

Application form in English language:

https://survey.th-deg.de/index.php/315858?lang=en

Please apply by the morning of October the 4th, 2024.

FOR FURTHER INFORMATION:
PLEASEHAVE A LOOKAT OUR HOMEPAGE

German language:

https://www.th-deg.de/digitalisierungskolleg

English language:

https://www.th-deg.de/digitalisationcollege

IN CASEOF ANY QUESTIONS,WE ARE HAPPY TO HELP!

pdp@th-deg.de

Kathrin Auer

Alexander Pflieger

Dr. Jane Käser