

austria wirtschaftsservice

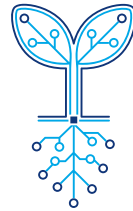
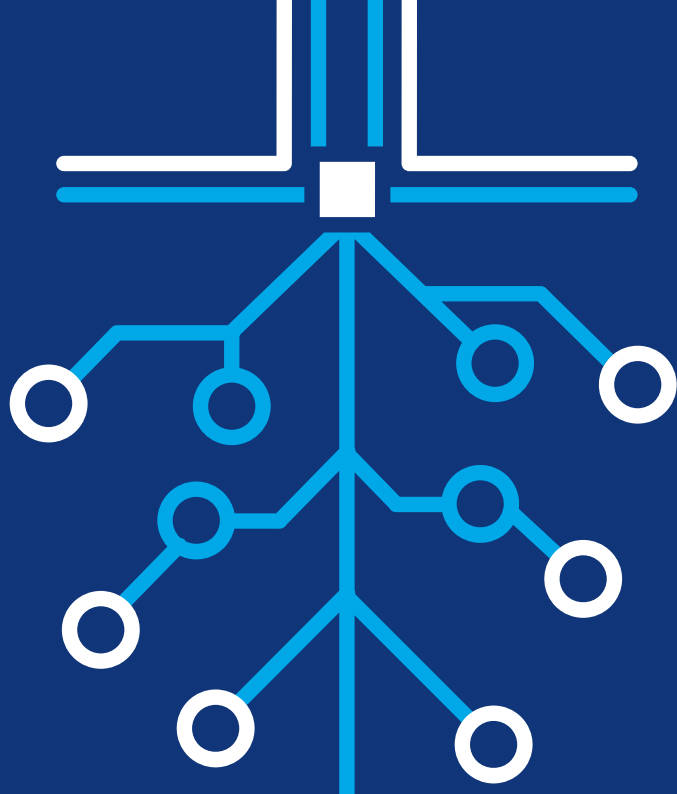
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aws Preseed &
aws Seedfinancing

Projects supported in 2022





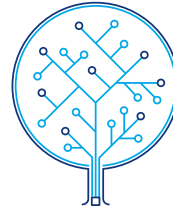
aws Preseed

aws accompanies high-tech enterprises during their pre-founding stage.

In order to make an innovative idea marketable, an enterprise needs a viable, ambitious business concept as a sound basis on which to set up a company. aws Preseed helps to fund costs arising during the early phases of foundation. Our special focus is on ICT, physical sciences, quantum technology, life sciences and green technology.

aws Preseed finances costs incurred by doing scientific work for and preparing the commercial utilisation of an innovative project. Such costs include expenses for studies and concepts, consumables and human resources. The **maximum grant is € 200,000**. It is paid out in performance-related tranches based on a milestone concept. The terms normally range from 18 to 24 months.

www.preseed.at



aws Seedfinancing

aws accompanies high-tech enterprises throughout their founding and company building phases. It supports all kinds of high-tech businesses, spinoffs of universities and non-university research institutions. Our focus is on ICT, physical sciences, life sciences and green technology.

Building up an internationally competitive enterprise takes knowhow, courage and capital. aws Seedfinancing aims to bridge the funding gap between the conception of an idea for a product and its marketability. The programme supports investments for founding and market development, external consulting services and resources. In addition, startups are given one-on-one assistance. The **maximum grant is € 800,000**, repayable subject to conditions. Repayment, at terms of up to twelve years, is made from profits earned or upon the sale or IPO of the company.

www.seedfinancing.at



Information and
Communication Technology

Captic

captic.io

Captic is developing a platform that enables companies to manage and scale individual metaverse presences on the web. The platform facilitates the provision of virtual spaces for multiple users and devices.

Metaverse is a portmanteau of the prefix “meta” (meaning “beyond”)

and “universe”. It makes the world the way users want it to be. The metaverse comprises digital, three-dimensional, virtual worlds where people come together to play, shop, meet colleagues or attend concerts. The characters in the metaverse may still look like cartoon figures, but the applications show that the metaverse has the potential to transform commerce, investment, real estate, work and leisure far beyond the world of gaming. Captic’s technology aims to give a further boost to these



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developments: the browser-based metaverse platform created by founders Ricard Gras and Arnold Putz enables multiplayer and multidevice content that is far superior to existing commercial software tools on the internet. What has been animated graphics until now will become (almost) reality.

Thousand virtual worlds

The software of the Viennese startup is designed for ease of use. It requires no downloads or updates and currently



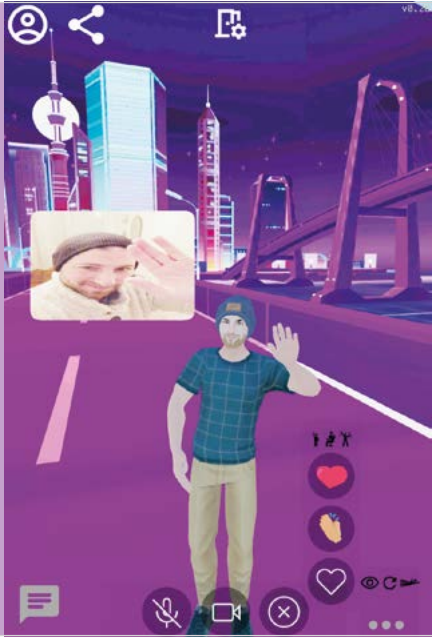
© Captic



Captic GmbH
Himmelmutterweg 5/6/8, A-1170 Vienna

Founded in 2023
Founders: Ricard Gras (CEO), Arnold Putz (CTO)

captic.io



hosts more than a thousand virtual worlds. Captic’s technology aims to create a new generation of virtual experiences that are as user-friendly as possible. Enterprises and individuals alike can realise their vision of the future metaverse. Unlike agencies that rely on game engines or third-party services, Captic has in the past five years been investing in developing the necessary technical layers to create a “web-native” platform that covers all requirements – from exclusive server setups to unlimited presences. This gives clients

complete flexibility in the realisation of their ideas.

Trial and error

Ricard Gras and Arnold Putz had previously worked on a similar idea. However, it was based on technologies used in conventional video game engines, none of which proved to be seminal. They then joined forces to develop the technical basis of the Captic platform. The startup’s declared goal is to become the industry leader in the gaming segment. The potential

is huge: Bloomberg Intelligence estimates the total value of the metaverse business at US\$ 800 billion by 2030.

consola.finance

www.consola.finance

The Viennese startup automates and simplifies accounting processes for crypto transactions, making blockchain technology secure, legally compliant and efficient for companies to use.

Corporate interest in working with cryptocurrencies is growing rapidly. However, there is still a lack of solutions that provide the appropriate infrastructure

and framework to exploit the potential of blockchains in a legally compliant and secure manner. This is why consola.finance is developing a novel data infrastructure that makes complex data sets available to finance departments in better quality and at lower cost. With its integrated solution, consola.finance closes the gap between traditional and digital financial systems.

Compliance for crypto businesses

Companies currently have to rely on a variety of solutions if they want to use cryptocurrencies in their business. The



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required standalone applications range from the wallet, to a blockchain explorer from which data are extracted and the spreadsheet for subsequent data analysis, to tax and accounting software. In addition, transactions on the blockchain can be accessed by anyone, but are practically unreadable.

A blockchain explorer

Currently available solutions can only insufficiently unravel the data. consola.finance is launching the first human-readable blockchain explorer that brings clarity and



© Katharina Schiffl



consolafi GmbH
Opernring 1/R745-748, A-1010 Vienna

Founded in 2022
Founders: Miroslav Byrtus (CTO), Jacob Kobler (CEO)

www.consola.finance



control to the crypto finances of companies with special tools for finance, accounting and reporting, while complying with all

accounting rules and laws.

Comprehensive SaaS offer for

clients

While working with companies in the cryptocurrency industry, founders Jacob Kobler and Miroslav Byrtus became aware of the issues that accountants face when handling digital financial transactions. This experience gave rise to their idea of an integrated solution that can manage several tasks and significantly outperforms existing approaches. The founders met privately and have been pursuing common plans ever since. By 2025, the startup team aims to have implemented a full product

roadmap, which will cover payments, decentralised finance (DeFi) and improved automated transaction recognition. There are also plans to expand into other countries and pursue continued growth in terms of customers and turnover.

DEWINE Labs

www.dewinelabs.com

The Graz-based company is developing a secure firmware for wireless communication chips in applications where speed and security are essential. The chips enable wireless communication in intensive care units and areas of sensitive logistics.

Wireless communication chips are known to be unreliable: key data packets often arrive

late or, worse, are lost. Because of these problems, the use of wireless communication is usually precluded in certain applications. Yet, wireless technology could be useful in monitoring vital data in intensive care units or coordinating agile logistics vehicles in warehouses, provided the technology is reliable.

Optimised energy input and secure data exchange

The Styrian startup DEWINE Labs plans to drastically increase the stability and reliability of wireless communication systems. The



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firmware developed in-house significantly improves the performance of commercially available wireless communication chips and reduces their energy consumption. The founders' concept is based on intelligent optimisation algorithms that continually gauge the environmental conditions of the devices used, thereby optimising the communication parameters and runtimes of the semiconductors. Moreover, the patented X-Burst technology allows devices to exchange data across technologies. Thanks to the DEWINE Labs technology, a Bluetooth device can communicate directly with a Wi-Fi



© Elisabeth Salomon



DEWINE Labs GmbH
Stremayrgasse 16/IV, A-8010 Graz

Founded in 2022
Founding team: Adrian Muzler (CFO), Michael Spörk (CEO),
Rainer Hofmann (CTO), Bernhard Vacarescu (R&D)

www.dewinelabs.com



device. This allows both devices to perform better and use less power. The system made in Graz ensures that commercially available Bluetooth, Thread and ZigBee devices achieve a reliability rate of more than 99.9% while consuming the same amount of energy.

Doctoral thesis as the catalyst

The idea of DEWINE Labs germinated when founders Rainer Hofmann and Michael Spörk did their doctoral studies at the Graz University of Technology. They found that the wireless technologies they were

investigating were unsuitable for use in security-sensitive areas. In order to better meet the requirements of a startup company, the founders brought experts Bernhard Vacarescu and Adrian Muzle on board. The startup has set itself clear goals: by 2025, its firmware is to be available on the European and international markets. There are also plans to adapt it to other wireless technologies such as Wi-Fi, which will greatly expand its spectrum of applications.

feld.ai

feld.ai

The feld.ai platform uses AI to extract and process data from diverse documents for faster, more data-driven decision-making.

We all know the problem: it is high time to make a decision, but which way to turn? The flood of information from a multitude of documents makes it difficult to get a clear picture of the data. And there is no time to

carefully analyse the documents. Vorarlberg entrepreneur Martin Nigsch's startup feld.ai offers a solution for companies facing this challenge – a platform that uses artificial intelligence to extract and process data from any type of document: data can be retrieved from Word, Excel and PowerPoint documents or from databases, providing users with a structured and consistent basis for making data-driven decisions.

Humans remain in charge

The platform can also handle complex challenges. Working with data from a mix



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of emails, spreadsheets and continuous text, spread across numerous documents with all their inconsistencies, inherent contradictions and duplications is no problem. The key technology of feld.ai is based on deep learning models for images, language and their combinations – so-called multimodal models. The AI models learn by observation and imitation. Users initially correct their suggestions until they are reliable and consistent. Generally, feld.ai founder Martin Nigsch supports application scenarios in which full automation is neither possible nor desirable. His approach is that



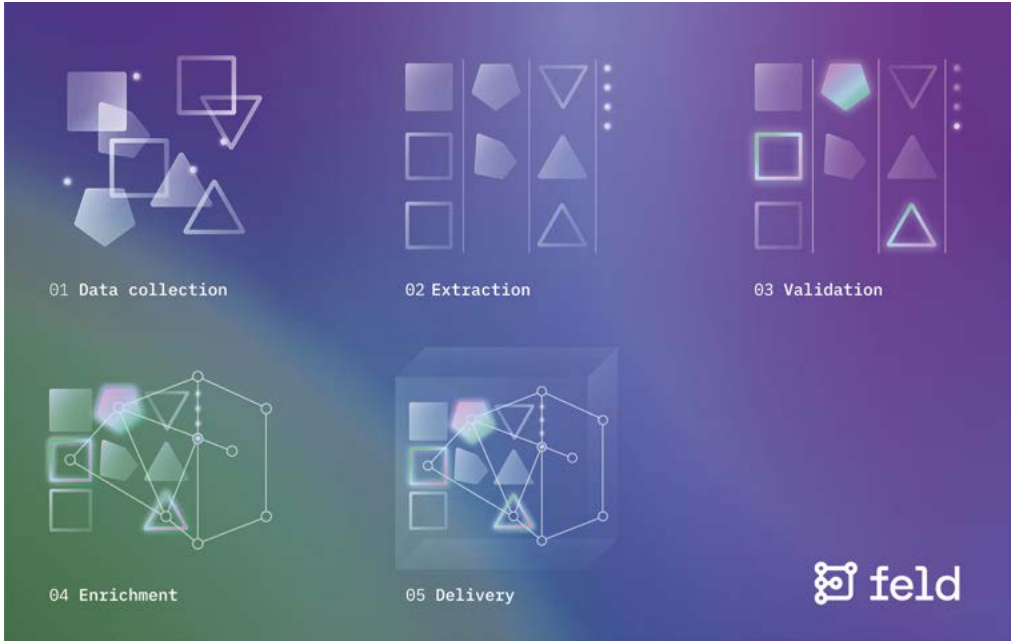
© feld.ai



feld.ai GmbH
Kirchweg 7b, A-6800 Feldkirch

Founded in 2022
Founder: Martin Nigsch (CEO)

feld.ai



humans remain in charge and that artificial intelligence provides support.

he wants feld.ai to become a major player in the international market for “intelligent document processing”.

Target: major market player

Martin Nigsch, who spent many years in the insurance industry, came up with the idea for feld.ai while working in corporate insurance: he developed a solution for the structured identification of business risks for virtually all industries, countries and languages. He realised that this solution could also be used in many other areas. He is convinced of the success of his idea and has ambitious goals: in the medium term,

Lightning Company

lightningcompany.com

The Viennese startup simplifies paying in bitcoin for both customers and merchants: payments can be made in real time instead of waiting 20 minutes for the transaction to be confirmed.

The frustration was great. So much so that Fabian Hemmerich and Daniel Tesch Martins decided to do something

about it. Fed up with existing bitcoin solutions and traditional payment service providers, they founded Lightning Company (LC) with the support of aws to develop a new kind of service: LC Pay – a solution that makes paying in bitcoin easy for customers and merchants alike. The startup uses the public, free Lightning network, which enables high-speed bitcoin transactions. Normally, bitcoin payments require a complex registration process, payment of a fee via the blockchain, and a 20-minute wait for confirmation of the transaction.

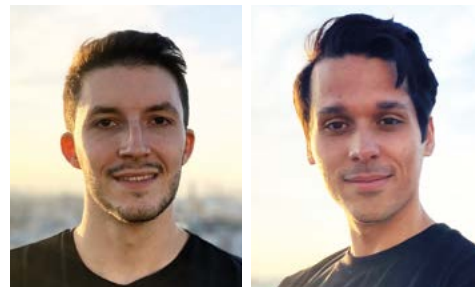


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Fast and free

With LC Pay, bitcoin owners can pay in real time and free of charge – either as a guest (extremely fast) or after registration (hassle-free). The company also promises a significant simplification for merchants: they can let their customers pay in bitcoins but receive euros. LC Pay takes care of the conversion at a guaranteed price: there are no exchange rate fluctuations and there is no need for tedious accounting changes.

The young deep-tech company has developed several algorithms to provide



© Lightning Company



Lightning Company – LTNG GmbH
Zelda-Kaplan-Weg 6/108, A-1100 Vienna

Founded in 2022
Founders: Fabian Hemmerich, Daniel Tesch Martins

lightningcompany.com



these features. An on-chain algorithm based on statistical analysis and forensic monitoring of the blockchain ensures that instant payments are accepted. Thanks to comprehensive anti-money laundering solutions, customers can pay securely in a matter of seconds without exposing LC Pay to an increased risk of money laundering.

Around 37 million bitcoin owners

The LC team is convinced that their solution will be a success. In any case, the market potential is significant. Around

37 million people in Europe currently own bitcoin. The startup wants to reach them as soon as possible: merchants can already integrate LC Pay. Customers will be able to use it as soon as Lightning Company has been granted the requisite licence as a financial services provider by the Financial Market Authority. By 2025, the company wants to cover most of the German-speaking countries and expand throughout the EU.

nuvo

nuvo3d.com

The nuvo platform uses artificial intelligence to transform smartphone photos taken by the user into high-quality 3D visualisations. The advantage for users is that nuvo is cheaper and faster than photo agencies.

Viennese startup nuvo has a healthy sense of self-confidence: according

to the young company, the nuvo platform will allow users to increase their click rates by up to 93%, increase conversion by 3.5 times and reduce returns by up to 40%. The platform targets companies that run web shops and market their products online. These e-commerce providers face the challenge of giving their customers the most realistic product and brand experience possible, even though they cannot physically see the product. This requires high-quality photos and videos, traditionally produced in elaborate



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shoots and edited by professional photographers or graphic designers. In many cases, it is also necessary to create a 3D model of the product.

Faster and cheaper

All this costs time and money. A photo shoot costs on average € 1,000 to € 10,000, a video project € 2,000 to € 50,000, a simple 3D model € 500 to € 5,000. On top of that, it takes a week or more for the finished product to arrive. The nuvo platform will make things much faster and cheaper.



nuvo GmbH
Lindengasse 56, A-1070 Vienna

Founded in 2023
Founders: Cristian Duguët (CEO), Peter Meades (CTO)

nuvo3d.com

1. capture

Use photos you have on hand, or use our included 3D scanner app for even better results.



2. review

Review the results of the scan, and experience what your customers will see.



3. publish!

Your users can now experience your products in 3D or Augmented Reality. We support all major selling platforms.



Based on plain smartphone photos or videos that can be taken by non-professionals, the platform uses various AI algorithms to create high-quality,

brand-appropriate visualisations. The nuvo team, led by founders Cristian Duguet and Peter Meades, is also developing software for a 3D scanner

that can scan any type of material or object – from jewellery to toys to cars. aws is supporting the team in this project.

A virtual Don Draper

nuvo plans to start operating in summer 2023. Initially, the main target markets will be Germany and the United States. Over the next few years, the team will focus on developing the platform to create a virtual Don Draper (Draper is known to fans of the “Mad Men” TV series as a brilliant creative

director) – a self-optimising creative AI that generates texts and visuals, and autonomously tests and selects the best versions for performance marketing.

BehaviorQuant

behaviorquant.com

BehaviorQuant develops software for the systematic analysis of investors' individual behavioural and decision-making characteristics. The software helps financial and investment companies to improve their advisory services.

Performance is not necessarily everything. The brisk growth of

sustainable environmental, social and governance (ESG) investments shows that investors have different expectations of their investments. They want their holdings to reflect their subjective values, decision-making patterns and behavioural biases, including individual risks. However, the investment industry lacks systematic knowledge about the people and teams behind investment decisions. This leads to inefficient financial advice, poor performance, and suboptimal selection of professional investors and fund managers.



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Predictable decisions

BehaviorQuant is the solution to this problem. Supported by aws and based on years of research at renowned institutions such as Harvard and MIT, as well as collaborations with leading global financial service providers such as J.P. Morgan and Merrill Lynch, the founding team has developed a turnkey technology. The solution enables financial and investment firms to fully understand the behavioural characteristics and decision-making patterns of individuals and entire teams



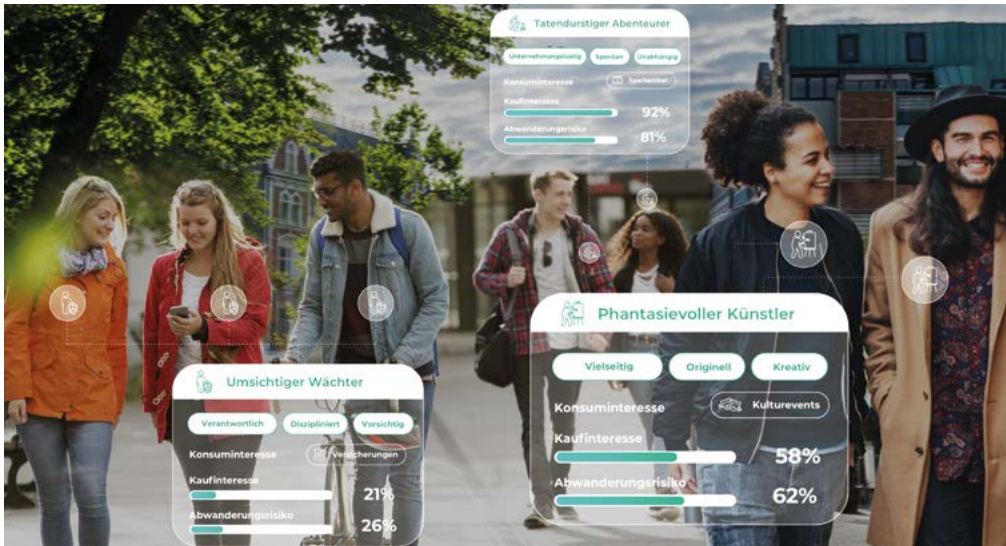
© BehaviorQuant



BehaviorQuant Behavioral Finance Technologies GmbH
Kolingasse 6/XI, A-1090 Vienna

Founded in 2018
Founders: Thomas Oberlechner (CEO), Gerlinde Berghofer (COO)

behaviorquant.com



in the financial world. At the touch of a button, users get objective knowledge

about all decision-makers involved in an investment process – from clients

of bank advisors and investment consultants to professional investors and entire investment teams. Client service is efficiently personalised.

Motivation research and AI

BehaviorQuant provides behavioural financial technology based on the combination of scientific results from personality and decision research and machine learning. The solutions are available in German and English and can be used instantly. Asset managers use the clearly arranged online

dashboards to improve their investment performance, and institutional investors rely on the software to select their investment professionals and fund managers. Bank advisors and investment consultants use the AI-supported tool to prepare efficient and tailored investment advice in German and English. The two market-ready solutions, BQ Advisory and BQ Performance, are currently being positioned in the German-speaking, EU and UK target markets to commercialise the technology's enormous potential.

Innotonix

The Austrian photonics company is developing digital laser safety eyewear for industrial and medical applications. It is the first product to combine mixed reality vision with eye protection, thus preventing damage caused by hazardous laser radiation and increasing productivity.

In physics, lasers are simply electromagnetic waves. They are

increasingly used in many areas of industry and medicine. However, for lasers to be used safely in Healthcare 4.0 and Industry 4.0, it is necessary to provide a safe working environment for users. The high energy intensity and sharply focused laser beams are dangerous for humans. Current smart data glasses integrate workers into the digital workflow but do not offer protection from laser radiation. In contrast, traditional laser safety eyewear provides eye protection but is completely analogue and therefore not suitable for digital applications in healthcare and industry.



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Laser protection with mixed-reality functions

HoloLase combines laser protection through filter glasses with state-of-the-art display modules to bring a novel type of digital laser safety eyewear to the market. Both the filter and the frame protect the eyes from hazardous laser beams by means of a transparent screen placed between the laser filter and the eye. The screens display virtual data superimposed on the real image. Camera sensors allow users to even see invisible laser radiation. HoloLase provides full colour perception



© Innotonix

▲ INNOTONIX

Innotonix GmbH
Salztorgasse 5/17, A-1010 Vienna

Founded in 2020
Founding team: Ugur Sezer (CEO), Wolfgang Mandl (CFO),
Markus Aspelmeier (Scientific Advisor)



and visualisation of the laser beams. In addition, the novel data glasses make infrared light visible to the wearer, while AI technology reflects process-relevant data into the glasses. All in all, HoloLase promises a time saving of 25% and an increase in productivity of 3%.

Experienced founding team

Founders Ugur Sezer and Markus Aspelmeyer have worked together on highly innovative quantum technologies for many years. Jointly with Wolfgang Mandl they patented the basic concept

of HoloLase. In the Seedfinancing phase, Innotonix aims to advance the technological and commercial development of HoloLase. The goal is to have a commercially viable product with the necessary technical specifications and legally binding certifications by 2025.

sendance

www.sendance.at

The Linz-based company is developing stretchable sensor grids for wearables that are used to measure pressure distribution on orthoses, prostheses and shoe insoles.

Sensors are usually hard, sharp-edged parts. They rub against the soft human skin and cause pain without providing the desired readings. Intolerance to sensor

often makes the fitting of orthoses, prostheses and orthopaedic insoles a gamble. sendance sought a solution to this problem: it developed the stretchable sendance-grid, which can be seamlessly and permanently integrated into wearables and adapts to the wearer. The pliant sensor grid makes pressure sores a thing of the past while providing high measurement accuracy. The USP of the sensor technology, i.e. personalisation and permanent integration, demonstrates its strength in orthopaedic products such as insoles. The sensors collect information



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on pressures at critical points in real time. Integrated into the insole, the sendance sensor system accompanies the wearer in everyday life, detecting problems in good time and preventing wounds. Other applications range from sports to the prevention and early detection of diseases.

Experienced founding team

Founders Robert Koeppel, Daniela Wirthl, Yana Vereshchaga and Thomas Stockinger met at Johannes Kepler University Linz. While studying at the LIT Soft Materials Lab, they came up with the idea of developing

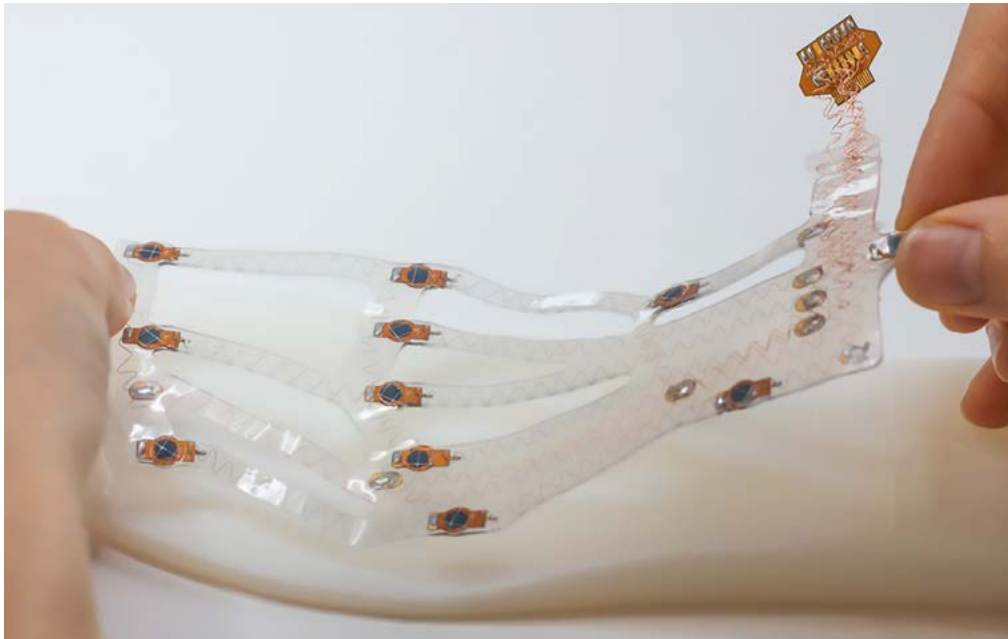


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sendance GmbH
Pulvermühlstraße 3, A-4040 Linz

Founded in 2021
Founding team: Robert Koeppel (CEO), Daniela Wirthl (CCO),
Thomas Stockinger (CFO), Yana Vereshchaga (CTO)

www.sendance.at



adaptable sensors for orthopaedics. After founding the company in March 2021, they built the first sendance-grid and patented it. In parallel, the startup developed the sendance-cloud for data management, analysis and visualisation.

Further targets

A move in June 2022 from the company's first premises to its current location has allowed sendance to grow. The 25-person company has expanded its production laboratory. Thanks to a completed funding round with new investors and

aws Seedfinancing, sendance will be able to automate production by the end of the year. Future series production of the sendance-grid will significantly accelerate the company's expansion into new markets.

Sodex Innovations

www.sodex-innovations.com

The startup's novel surveying technology aims to digitalise construction site performance using laser scanners and cameras. The data collected accurately reflect the progress of the project.

The startup from Vorarlberg is giving new impetus to the vision of a "construction site 4.0". Following research into an autonomously operating excavator, the

team of Ralf Pfefferkorn, Bernhard Gantner and Raphael Ott has turned its attention to the development of a retrofitted kit for construction equipment that creates three-dimensional models of the site in real time. Excavators and other equipment are fitted with a surveying system that uses cameras, laser scanners, computers and GPS receivers to record and document the works on the site. A system known as SDX-Compact transmits the data to the cloud so that they can be accessed from anywhere. Sensors collect the data on earthworks and turn them into three-dimensional models.



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This eliminates the need for manual site surveying, which is an essential but time-consuming and inaccurate method.

The digital twin

The new system registers the soil class to be stored as the excavation progresses, giving users accurate figures on the volumes being moved. Three-dimensional visualisation in the cloud shows how much material has already been excavated and how much is set aside for future use. This simplifies material flow management on site. Continuous data collection and



© Sodex Innovations



Sodex Innovations GmbH
Zelfenstraße 30, A-6774 Tschagguns

Founded in 2021
Founding team: Raphael Ott (Customer Success),
Bernhard Gantner (Sales), Ralf Pfefferkorn (CEO)

www.sodex-innovations.com



storage provides full documentation of work progress and accurate data for the invoicing

of earthworks. The resulting transparency of site documentation prevents disputes

between contractors and clients and minimises delays in project completion and invoicing.

Building sector needs more data

The three founders – who attended the same school – are intent on the idea of a “world with rapid-progress building sites”. Sodex assistance systems use innovative sensor technology that delivers new results through software developed in-house. This will enable the development of high-tech solutions to the challenges of robotics, machine learning and sensor

fusion in construction, an industry that has not yet been extensively digitalised. Sodex Innovations already has numerous customers in the German-speaking countries and works on establishing a European distribution network.

TMIA

www.tmia.at

The startup domiciled in Linz is developing a technology for blockchain applications that combines the advantages of offline wallets with those of online wallets.

Digital assets are increasingly held in decentralised databases: blockchains are the digital habitat of cryptocurrencies. The main components of a blockchain are

the so-called wallets, which store digital access keys and thus regulate access to blockchains. For many individuals and businesses, however, this type of safekeeping is too complex. Moreover, wallets need to be protected against hack attacks. In NodeVenture, the two friends and co-founders Cagdas Tasdemir and David Schnetzer offer a solution to such problems. aws Seedfinancing has helped them take a decisive step towards growth.

Safe and convenient

With NodeVenture, TMIA has developed



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Seedfinancing

a technology that combines the security of offline wallets with the ease of use of online wallets. It stores digital assets in a kind of digital safe. The patented air-wall technology provides for a practicable data exchange between online and offline systems. This information transfer is fully automated and contactless. With NodeVenture, Bitcoin, Litecoin, Ethereum and ERC20 tokens can be conveniently secured. NodeVenture offers 100% offline custody, which can be accessed round the clock, through a web application. As a regulated custodian, TMIA is responsible



© TMIA

 nodeventure

TMIA GmbH
Peter-Behrens-Platz 4, A-4020 Linz

Founded in 2019
Founders: Cagdas Tasdemir (COO), David Schnetzer (CEO)

www.tmia.at



for protecting the user data and their recovery in the event of loss of access.

Financial service providers as target group

The wallet infrastructure aims, among others, at banks that want to offer their clients a highly secure digital depositary. In addition, NodeVenture meets the requirements of crypto funds and exchanges, ETPs, private banks, family offices, VCs and other wallet providers. Established in 2019, the company has been one of the first enterprises in Austria

to be registered with the Financial Market Authority for the management, custody and transfer of virtual currencies. After several years of development work, NodeVenture went into operation with the first Austrian bank in 2023. In a next step, TMA will prepare for expansion into other European countries.

Turbulence Solutions

www.turbulence-solutions.aero

The Viennese startup's control technology for aircraft is designed to make atmospheric turbulence measurable and controllable. Anticipated turbulence impacts are counteracted during flight.

Inflight turbulence is unpleasant and scary for many people. While turbulence is usually not dangerous, it reduces passengers' comfort and perception

of safety. András Gálffy, a graduate of Vienna's University of Technology, and his co-founders have developed a process to the point of series production that makes flying smoother. The "Turbulence Cancelling" method steadies the motion of the plane in turbulent air. Sensors mounted on the aircraft ensure a smooth flight with no bumps by measuring pressure and detecting turbulence before it hits the wings. When the aircraft reaches the turbulent region, the sensor-based control technology counterbalances the disturbances at the right moment. The



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technology ensures that the flaps in the wings are put in the right position in good time and the lift is increased or decreased. This removes 80% of the turbulence.

Light aircraft become more comfortable

The advantage of Turbulence Cancelling is not just more comfort. The lighter the aircraft, the more economical the flight – halving the weight of the aircraft halves its energy consumption. However, it is also a well-established principle that the lighter the aircraft, the greater the impact



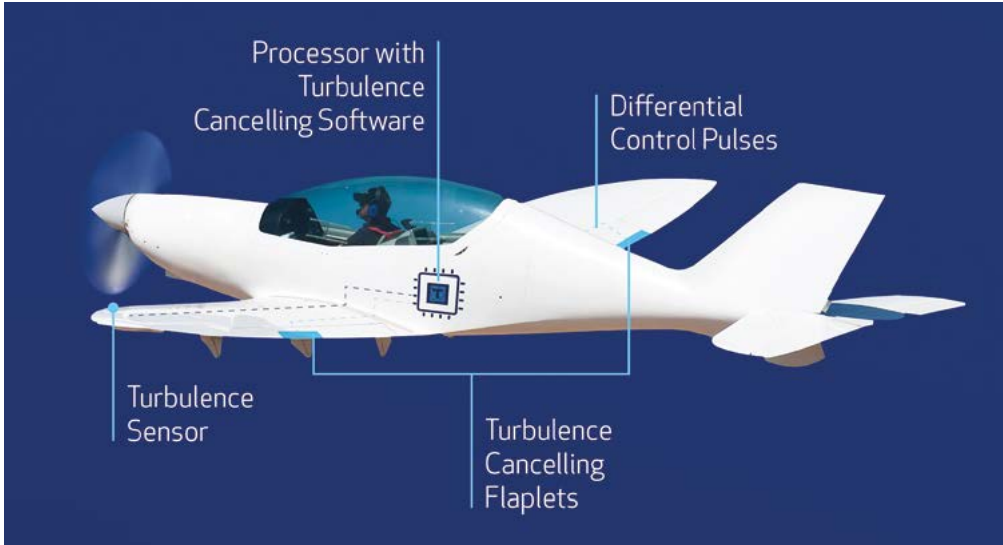
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Turbulence Solutions GmbH
Wollzeile 1–3/3.2, A-1010 Vienna

Founded in 2018
Founding team: Robert Mühlbacher, Oliver Breiteneder,
András Gálffy (CEO)

www.turbulence-solutions.aero



of turbulence on passengers. As a result, microlight and short-haul aircraft with up to

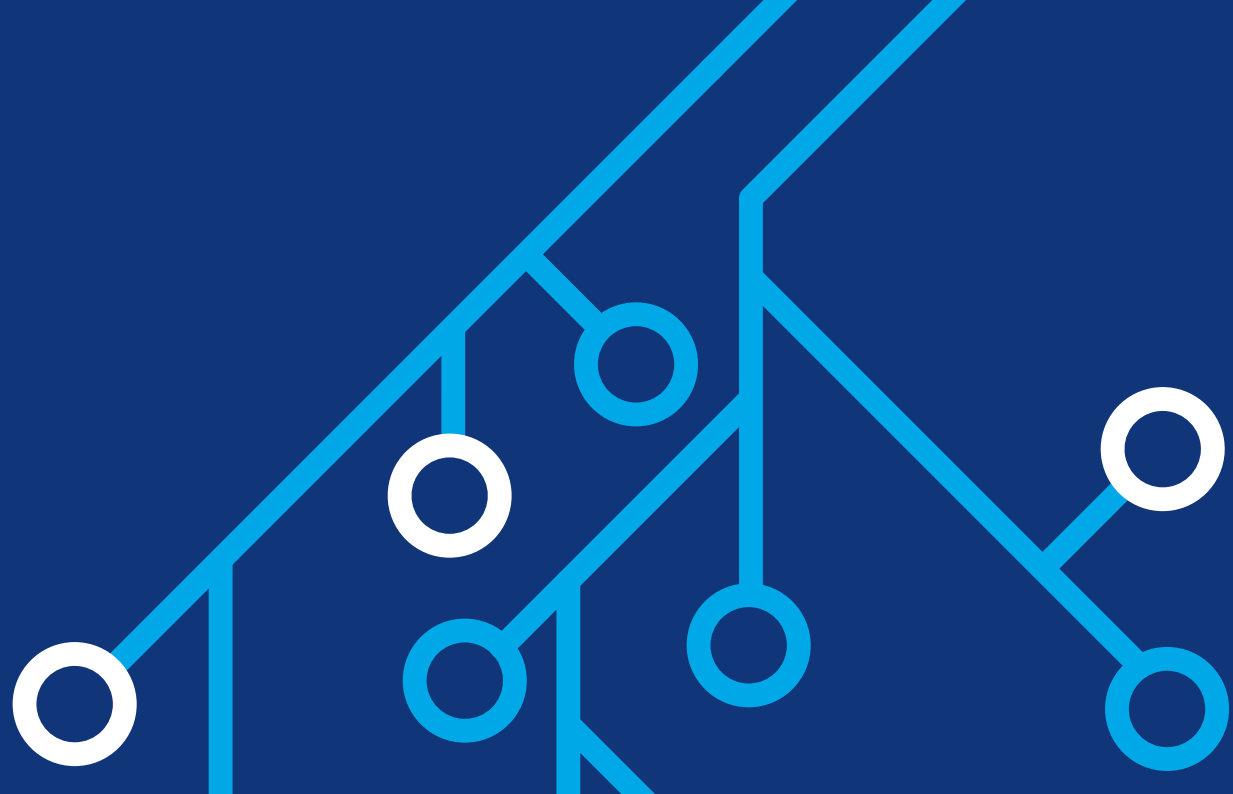
19 seats offer only a low level of comfort and a significantly limited range of use.

Turbulence Cancelling is the remedy: the technology enables easy and comfortable travel even in lightweight classes. This significantly expands the range of use for light aircraft, but the technology developed in Vienna can also reduce emissions by up to 10% for large planes (scheduled and charter flights).

Researcher and licensed pilot

András Gálffy is the founder and driving force behind Turbulence Solutions. An electrical and control engineer, he holds several pilot's licences and is also

project manager for the Space Team at Vienna's University of Technology. One of the project's goals is flying a hydrogen-powered aircraft autonomously across Austria. The long-term vision of the startup is to position the company as an international platform for turbulence. New ideas are being developed. "Morphing wings", for example, automatically change their shape to minimise drag, making flying smoother, more energy-efficient and more climate-friendly.



Physical Sciences

PluriBot

pluribot.com

The company is developing easy-to-operate 3D printers of metal parts. The printers use wire as starting material and achieve the precision of conventional powder-bed printers.

Arc welding is a reliable and well-tested method to join metals by electric melting. Using wire to weld workpieces for CNC milling machines is a well-established

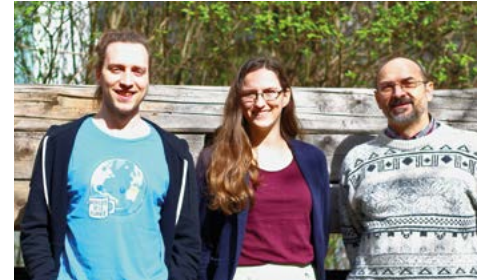
technique in process engineering. Welding, on the other hand, is less well known as a method of additive manufacturing, i.e. 3D printing. The PluriBot process is designed for 3D printing, where digital objects are welded directly into metal with utmost precision. The manufacturing accuracy of the PluriBot technology surpasses all methods currently available on the market. The process does not require subsequent CNC milling or sintering, so that it removes a step in the process for the user.



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Simple access to modern manufacturing techniques

The process stands out for its simplicity. Users can transfer their experience from other welding processes and wiring material is readily available. The small size of the printer and its moderate electricity consumption ensure logistical flexibility. Added to these advantages are user safety and easy-to-use controls of the PluriBot 3D printer. One-person operations as much as major enterprises can use the printer to integrate complex manufacturing steps into their own production process.



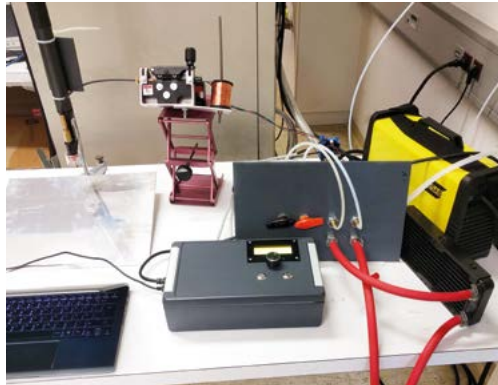
© PluriBot



PluriBot GmbH
Heinrich-Lefler-Gasse 6, A-1220 Vienna

Founded in 2022
Founding team: Paul Hayden (CEO), Katharina Roth (CFO),
Armin Faltl (CTO)

pluribot.com



Simplified metal chemistry

The greatest challenge for founders Paul Hayden, Armin Faltl and Katharina Roth is reliable control of the process. Compared to conventional plastic 3D printers, devices processing metals need to have numerous parameters fused into a single

process. To ensure that the printer can correctly apply all specifications, it is necessary to analyse and evaluate the process behaviour in each specific case.

Cost-effective due to ease of use

Using wire instead of powder has financial as well as health advantages. A wire reel can be changed without special equipment and much quicker than a powder cartridge. The 3D technology from Vienna can be applied without any expert knowledge because the process is extremely user-friendly. No

special knowhow is required to integrate 3D metal printing into the production process. The devices should be ready for serial production by 2025. The company plans to propagate the system's advantages by organising regular metal printing workshops and promoting it at trade fairs and conferences.

silana

wearesilana.com

silana – automated fashion production is developing a fully digitised production process for the garment industry which will completely redefine the value chain from cutting to the finished garment.

Over the past decade, the fashion industry has undergone massive change. Ever shorter fashion cycles and fast fashion have accelerated fashion trends. But there is one

thing that has not changed: excessively long ordering times. The industry's lead time is nine to twelve months on average, which means that trend forecasting has become a key issue for textile companies in recent years. Many have failed to cope with the pressure, with the result that half of the German fashion retailers have gone out of business since 2002. Those who missed the trend see their goods left on the shelves.

This is where silana comes in. In-house research, and the support of technology



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experts with decades of experience, has led to the development of a fully automated cutting and sewing robot. Previously required expensive manual labour is reduced to mere checking and monitoring. Fashion production is returned to the point of sale, thanks to the silana technology, which is bringing the value of production back to the European markets. It is no longer necessary to ship goods more than 20,000 kilometres, which often takes months. Ordering trendy fashion becomes more flexible and faster. Trend and quantity forecasts are cut down to a



© silana

silana
automated fashion production

silana GmbH
Neustiftgasse 78/23, A-1070 Vienna

Founded in 2022
Founding team: Anton Wohlgemuth (CTO), Michael Hofmannrichter (CEO), Michael Mayr (COO)

wearesilana.com



© siliana

minimum, greatly reducing the attendant risk. Retailers benefit from more flexible planning, improved liquidity and more sustainable production.

Comeback of the European garment industry

Founders Michael Mayr, Anton Wohlgemuth and Michael Hofmannrichter have Austria's

largest fashion store, Fussl Modestraße, as their pilot customer, development partner and feedback source. With its highly automated production process, the technology generated by the Viennese startup has the potential to bring the garment industry back to Europe – and to restore Austria to its former strength as a major textile producer.

Ready for serial production in 2025

The founding team has been perfecting its business idea for more than five years. Through its funding for deep-tech

companies, aws Preseed provides not only financial support but also key knowhow for prototype and enterprise development. The technology will be ready for serial production by the end of 2025. In addition to simple undershirts (current status), it should then be possible to produce T-shirts, knitwear, jeans and other garments, regionally and on automated production lines. At this point in time it is not possible to predict the impact this will have on the European garment industry and on Austria as a business location.

VENOX Systems

www.venox.systems

The company based in Vorarlberg is developing a 3D printing technology for producing high-strength, lightweight components from multiple materials in a single production process.

Three-dimensional printing is on the cusp of opening an entirely new dimension in manufacturing. Additive manufacturing technology now ranges

from making cars and producing all kinds of goods to printing skull bones, skin grafts and, in the medium term, entire organs. The use of 3D printing in production is a certain growth market. VENOX Systems is developing a 3D printer which can process multiple multi-layered materials in a single production step. The industrial 3D printer, known as V-REX (VENOX Revolutionary EXTRusion System), can print a component from plastics, composites, sensors and electronics as well as combinations thereof.



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The new world of 3D printing

Processing several materials into a three-dimensional object is a new skill in the rapidly changing world of additive production. The five-axle setup of the V-REX combines a tool-changing system with a new printhead technology. It processes special materials such as carbon, glass fibres and plastic-coated metal wires in the same way as synthetics (at up to 500°C).

Rapid and simple production of high-strength, lightweight components from a multiplicity of materials for industrial



© VENOX Systems

venox SYSTEMS

VENOX Systems GmbH
Zeihenbühl 396, A-6951 Lingenau

Founded in 2022
Founding team: Philipp Ropele (CEO), Nicolai Wampl (CEO),
Werner Zudrell, Simon Köldorfer, Andreas Wampl, Gregor Fleisch,
Bernd Büchele

www.venox.systems



use has so far been possible only at considerable cost. With the new technology, drones can be built almost in a single step: a skin made of stabilising plastic, bracings made of high-strength carbon fibres and printed circuits for the electronic systems, all of it combined in a single product delivered by the V-REX made by VENOX Systems.

Contract manufacturing for market penetration

The new technology will be brought to the market by way of contract

manufacturing. Customers commission jobs from VENOX Systems and the young company does the rest. In this way, news of the opportunities and benefits of the technology will spread among its target groups. By 2025, more than 50 V-REX systems are expected to be produced each year. The founders plan to establish themselves as suppliers of high-end additive manufacturing products. From 2025 onwards, the company plans to collaborate with industrial partners to develop and manufacture 3D printed products on a mass production scale.

voidsy

www.voidsy.com

The startup from Wels is developing a system that detects hidden defects in materials and components. The system is up to 80% faster than previous methods.

The name says it all: voidsy's 3D V-ROX aims to rock the market. It is a novel system that checks components for structural irregularities and defects without damaging them, a method known as non-destructive

testing (NDT). Compared to the current standard of ultrasonic testing, the 3D V-ROX offers a decisive advantage: in many applications, it makes quality control up to 80% faster and cheaper.

Efficient and radiation-free

The 3D V-ROX uses a novel, multi-dimensional reconstruction technique that involves inline-capable thermographic tomography: a worldwide first that produces 3D images of hidden defects in materials and components. The 3D V-ROX does not emit ionising radiation or contaminate materials,



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and the system's very compact design makes it highly energy-efficient. It is easy to use so that QA costs can be substantially reduced and production processes made smarter.

New Industry 4.0 requirements

voidsy CEO Holger Plasser and his three co-founders Gernot Mayr, Günther Mayr and Gregor Thummerer are convinced that their new non-destructive testing system has an enormous market potential. In the age of Industry 4.0, non-destructive testing is faced with completely new



© B. Plank – imBILDE.at



voidsy GmbH
Stelzhamerstraße 16, A-4600 Wels

Founded in 2022
Founding team: Günther Mayr (CTO), Gregor Thummerer (Hardware Development), Holger Plasser (CEO), Gernot Mayr (Software Development)

www.voidsy.com



challenges: the introduction of digitally networked devices – from manufacturing to the final products for consumers, the use of smart data providers and advances in the processing of big data by artificial intelligence (AI): they all combine to raise expectations which need to be met by non-destructive testing. With the support of aws, the voidsy team developed the proof of concept and the basis for a scalable business model. Given the high cost of development and intellectual property protection rights, further funding rounds are planned, starting with a basic programme

run by the Austrian Research Promotion Agency FFG (2023 to 2024) and final funding from aws Seedfinancing, which should take the 3D V-ROX to the start of production.

Inmox

www.inmox.com

Inmox has developed a monitoring system for wind turbines which provides early detection of gearbox damage and thus allows optimising maintenance cycles. The result is reduced costs and a longer service life for wind turbines.

Constant changes in the direction and strength of oncoming winds expose

the gears of wind turbines to high mechanical stress. Wear and fatigue damage are the obvious results of such challenges – and they come at a high cost. Founders Michael Aufreiter and Daniel Kagerbauer identified the large potential for improvement in the maintenance of the burgeoning number of wind turbines: the object is to deliver better engine monitoring in order to prevent downtimes, and optimal maintenance to ensure resource-saving and sustainable operation while obtaining maximum supply security.



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Real-time monitoring

Inmox offers its condition-monitoring system as a real-time monitor of wind turbines. The Inmox sensor technology allows tracking abrasions from gearbox components during operation and categorising the hazard potential of wear particles based on parameters such as material, size and hardness. Combined with other operating indicators such as load and temperature, the system then predicts component life expectancy and identifies necessary maintenance



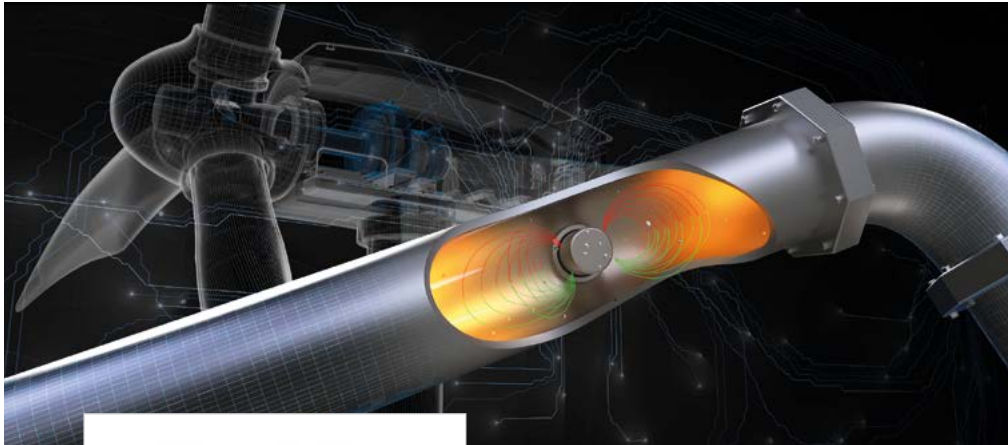
Inmox GmbH
Mariahilfer Straße 123, 3rd floor, A-1060 Vienna

Founded in 2021
Founders: Daniel Kagerbauer (CTO), Michael Aufreiter (CEO)

www.inmox.com



© Inmox



© Innox



procedures. Use of the data is a key part of the solution. The information provided by the Innox sensors is analysed by a special data platform and applied to ensure safe operation.

Gears have states

Michael Aufreiter first encountered the problems of inadequate real-time monitoring of gearbox states while studying mechanical engineering. The founders specialised in this field after completing their studies at the Vienna University of Technology, drawing on new approaches and ideas for reliable and predictive condition-monitoring of gearboxes. Initially they focused on the requirements and needs of the aviation industry, but they soon realised that the problems were similar in other sectors.

The wind turbine industry was identified as the most closely related target market. Already supported by the aws Preseed programme, Innox was able to grow to a team of six within the first two months of receiving seedfinancing. The funds were used to set up initial pilot projects and prepare for entering the European market by 2024. The company currently plans to further enlarge the team and expand into overseas markets by 2025.

Kraken Innovations

www.kraken-innovations.at

The spinoff of Graz University of Technology has developed a novel gearbox that does away with conventional gearwheels. It is smaller, more effective and more intelligent than standard solutions.

The idea came to them while they were working on their diploma theses. Three students of Graz University of

Technology discovered a market niche between lightweight, high-transmission gearboxes and heavy, high-precision gearboxes. What they came up with was a completely new concept that does without conventional gearwheels, combining the two worlds, and is significantly more powerful and precise than existing gears of comparable size.

At the point of market entry

Meanwhile, four years have passed. Former fellow students Philipp Eisele, Daniel Fürhapter and Michael Michelitsch



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founded Kraken Innovations in 2021 and are now about to launch their innovative product Kraken Gear. Applications for their product abound. The gearbox, available in four sizes, is suitable for industrial and service robots, wind turbines, cranes and winches. The trio may not have reinvented the gearwheel, but they have found a substitute for it: while most traditional gearboxes transmit the engine's power by rotating gearwheels, the Kraken Gear does without them – rather, the external elements are connected directly to teeth imprinted into the engine's piston.



© Kraken Innovations



Kraken Innovations GmbH
Sandgasse 36, A-8010 Graz

Founded in 2021
Founding team: Daniel Fürhapter (COO), Philipp Eisele (CEO),
Michael Michelitsch (CTO)

www.kraken-innovations.at



Four times higher loads

While the theory is difficult to understand for lay persons, the actual practice has major advantages: the Kraken Gear can absorb four times the load of similarly sized existing gears. In this way, the rotor blades of a wind turbine can withstand even heavy squalls. Moreover, the maximum transmittable torques are 20-65% higher than in conventional solutions, and the design is very compact. As a result, it is possible to integrate sensors that continuously monitor relevant data such as temperature, vibrations and component wear.

With the support of aws, the Kraken Innovations team has set up its business: office and lab space, including test benches, a workshop and a quality assurance system are ready for market entry. In November 2022, the Kraken Gear was first presented to the public at a trade fair in Germany. The first gears will be delivered by the end of 2023. Series production is envisaged to start in 2025.

SpeedPox

www.speedpox.com

The company, based in Lower Austria, develops epoxy resin systems with almost unlimited pot life. Thanks to a special curing technology, companies can achieve energy and time savings of up to 99%.

Epoxy resin is a highly versatile material. Usually shipped in the form of two components, it seals, laminates or

bonds, depending on how materials need to be combined. Whether it is boatbuilders, the automotive and aviation industries or construction companies – there is virtually no industry which can do without this stabilising, bonding and curing plastic. Its global market volume is estimated at about € 20 billion. If the material is processed conventionally, the resin and hardener must be mixed in a precisely defined ratio, the processing time is limited, and final oven curing is required to achieve optimum mechanical properties. In



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addition, the material has an extremely limited pot life.

Curing at the touch of a button

This is where the founders come in with their business idea: SpeedPox® offers a ready-mixed epoxy resin that can be used immediately and has a nearly unlimited pot life. The resin is cured at the touch of a button: a local light or heat stimulus triggers a curing wave that propagates through the workpiece without adding any additional energy from outside. This eliminates the need for conventional curing



© SpeedPox

SPEEDPOX

SpeedPox GmbH
Holz-Steiner-Straße 6, Objekt 4a, A-2201 Gerasdorf bei Wien
(Seyring)

Founded in 2020
Founding team: Simon Wendelin (CFO), Alexander Ricke (CTO),
Raffael Baumfried (COO), Daniel Grunenberg (CEO)

www.speedpox.com



© SpeedPox

in industrial-sized ovens, which is energy-intensive, time-consuming and costly. The innovative self-hardening process is protected by several international patents. The SpeedPox® systems can also be used for composite materials and even underwater.



Saves energy and increases productivity

Initial test phases carried out with pilot customers have shown that the electronic industry is a promising entry market for SpeedPox®. The technology's high degree of automation and enormous

volumes involved make it feasible to raise production in this segment by up to a factor 1,000. Furthermore, the technology permits enormous savings of energy (as much as 99%), which noticeably boosted interest in the product in the wake of the 2022 energy crisis. Currently, the startup is completing its first product lines. By 2025, the company plans to sell SpeedPox® resins internationally and to offer products for the consumer and DIY sectors (B2C). In 2023, aws supported the company in locating and renting new premises

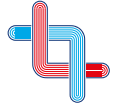
at Seyring in Lower Austria where the first serially produced goods will be manufactured and packaged on more than 500 square metres of space.



Life Sciences



aws LISA – Life Science Austria



Bringing life sciences from the lab to the market

Austria as a business location will benefit from the most innovative ideas only once they have made it from the lab to the market. Austria Wirtschaftsservice (aws) has established Life Science Austria (LISA) as a one-stop shop that spans the entire value-added chain of startups in the life sciences. LISA provides customised support at every stage of a startup's development.

www.lifescienceaustria.at

ABS Biotechnologies

www.absbiotechnologies.com

The startup uses next-generation stem cell technology to detect potential side effects already in the early stages of drug development.

The most effective drug is useless if its side effects are overlooked. So-called cardiac side effects are the main reason for the discontinuation of clinical trials and withdrawal of drugs from the market.

Plenty of promising drugs have had to be withdrawn from the market because they were the cause of heart attacks, strokes or dangerous cardiac arrhythmias.

Early detection of side effects

The Tulln-based startup ABS Biotechnologies wants to change this. The team around founders Chukwuma Agu, Johannes Bargehr and Sanjay Sinha is working on the world's first technological platform for the early detection of potential side effects, i.e. in the development phase of new drugs. The company, based in



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Lower Austria, has two goals. The first is to minimise the consequences of side effects that occur during clinical trials or after a drug has been approved. The aim is to prevent drug-induced heart attacks, strokes, high blood pressure and cardiac arrhythmias. The second goal is to use more accurate testing in order to reduce the risk of erroneously discarding promising drug candidates during development.

Next-generation stem cell technology

The new platform uses next-generation stem cell technology to provide drug



© ABS Biotechnologies



ABS Biotechnologies GmbH
Technopark 1, Gebäude C, A-3430 Tulln

Founded in 2022
Founding team: Sanjay Sinha (Chair of Scientific Advisory Board), Chukwuma Agu (CEO), Johannes Bargehr (Chief Scientific Officer)

www.absbiotechnologies.com



developers with solutions that current active substance screening technology cannot address. Among other things, the platform can generate blood vessel cells that correspond to different anatomical locations in the human body. This makes it possible, for the first time, to detect side effects that only occur in certain vascular beds in the human body, including heart attacks and strokes. In addition, the platform can generate heart tissue that closely resembles mature human heart tissue, allowing dangerous irregular heartbeats to be predicted with

much greater accuracy. The platform is currently under development. With support from the aws Preseed programme and the basic programme of the Austrian Research Promotion Agency (FFG), ABS Biotechnologies plans to develop it into a marketable product within the next three years.

aitiologic

aitiologic.com

The Viennese startup combines novel blood-based molecular tests with AI technology for the early detection of serious diseases and to achieve significant advances in targeted therapies.

aitiologic is developing a precision medicine platform to improve the early detection and treatment of serious

diseases. To this end, the startup uses artificial intelligence to analyse proprietary blood-based molecular tests (liquid biopsies). Unlike established liquid biopsy approaches, aitiologic's patented method can correlate therapy-relevant molecular biomarkers with a tissue of origin. aitiologic sees great market potential in cancer and prenatal diagnostics. Named after the Greek word for cause ("aitía"), aitiologic's mission is to non-invasively decode the molecular causes of diseases in the blood and make them treatable.



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Identification of biomarkers

The founders established the scientific basis for their development at Siemens Healthineers. The key innovation of aitiologic's technology is the combined analysis of epigenetic and genetic information of individual DNA molecules, which permits the tissue- and cell-type-specific identification of treatment-relevant biomarkers. Currently, the team of Andreas Posch, Stephan Beisken and Achim Plum has a technology licence agreement with Siemens Healthineers and an in silico prototype for the classification



© aitiologic

aitiologic
decoding health

aitiologic GmbH
Schumannngasse 82/1/13, A-1170 Vienna

Founded in 2023
Founding team: Andreas Posch (CEO), Stephan Beisken (CTO),
Achim Plum (CBO)

aitiologic.com



of the tissue of origin of DNA molecules on the basis of epigenetic markers. The founders were previously responsible for building up the successful startup Ares Genetics in the field of molecular antibiotic resistance diagnostics.

Next steps

Supported by the aws Preseed programme and based on the in silico prototype, the founders plan to demonstrate tissue-specific mutation analysis by single molecule sequencing also in vitro. They then intend to

commercialise the platform and method through licence partnerships and R&D services. In the field of prenatal diagnostics, aitiologic has already entered into a partnership with a German-American diagnostics company. In parallel, the company aims to accelerate the development of other smart diagnostic solutions. To speed up market entry and prove clinical utility, such solutions will initially be offered as a test service in the EU and the United States. Long-term plans include a scalable SaaS-focused business model and broad

commercial deployment as a clinical decision support platform following IVD approval.

Enzyan

www.enzyan.com

The Graz-based startup uses artificial intelligence to help chemical and pharmaceutical companies investigate the implementation of biocatalytic cascades. The companies benefit from a significantly accelerated development process and specialised expertise.

For many people, enzymes are just a faint memory from high school chemistry.

Enzymes are natural proteins that trigger specific metabolic reactions. Biocatalysts ensure that substances are converted precisely under mild reaction conditions. This property can be used, for example, to produce active ingredients for medicines. The process developed by Enzyan enables companies to significantly speed up the implementation of enzymes with suitable properties.

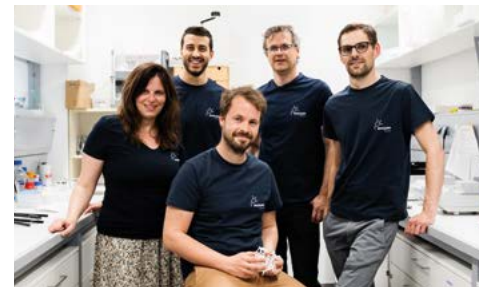
Cascades must be regulated

Enzyan exploits the compatibility of biocatalysts. In contrast to traditional



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methods of producing active ingredients, several substrate transformations can be carried out in a single step. As these so-called cascades are more efficient, they save time and money. The problem is that some of the processes interact and are difficult to regulate, making analysis time-consuming and expensive. The founding team assembled by Mattia Lazzarotto and Stefan Payer relies on artificial intelligence for pattern recognition in process development. The compatible biocatalysts (enzymes) work together under mild reaction conditions in a single reaction vessel with high substrate



© Enzyan



Enzyan Biocatalysis GmbH
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Founded in 2022
Founding team: Elisa Lanfranchi, Mattia Lazzarotto (CEO),
Mathias Pickl-Farnberger, Wolfgang Kroutil (Scientific Advisor),
Stefan Payer (CEO)

www.enzyan.com



loading and selectivity. Thanks to the Enzyan method, an entire ensemble of biocatalysts can be analysed in a single process to efficiently deliver a desired value-added product from – preferably renewable – starting materials. According to Enzyan, pharmaceutical and fine chemicals companies will be the first sectors to benefit from the innovative production processes.

A University of Graz spin-off

The founding team emerged from the biocatalysis research group at the University of Graz. Until 2025, the

company will drive the implementation of the development platform through strategic contract research with industrial partners. Among other things, Enzyan will establish an independent laboratory infrastructure at the ZWT Accelerator and hire staff with complementary skills to automate and accelerate internal development processes. At a later stage, commercialisation will be expanded through a global licence model.

HD Immune

hdimmune.com

The biotech startup is developing an immunological therapy for Huntington's disease. The aim is to significantly slow down the progression of the disease by eliminating the pathologically altered huntingtin protein.

Huntington's disease is an inherited degenerative disorder of the central nervous system and peripheral organ

systems characterised by cognitive and motor impairment. There is currently no effective treatment or cure. The cause of this rare disease is a genetic mutation in the huntingtin gene (HTT), which leads to pathological developments in cells of the central nervous system and the periphery and to an inexorable progression of neurological degeneration in the patient.

High medical need

An effective treatment for this insidious neurological disease is urgently needed. Stefan Bartl and Lionel Wightman are



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molecular biologists with considerable research experience gathered in several startups and biotech companies. They founded HD Immune to develop a novel immunological therapy for patients suffering from Huntington's disease.

Their aim is to develop an immunological approach to degrade and eliminate the pathogenic huntingtin protein. They intend to use their therapeutic method to intervene in the course of the disease, delaying the breakdown of nerve cells and decelerating the progression of the disease. A similar



© HD Immune

HD Immune

HD Immune
INITs, Maria-Jacobi-Gasse 1, A-1030 Vienna

Founded in 2023
Founders: Stefan Bartl (CEO), Lionel Wightman

hdimmune.com



immunological approach currently being developed for Alzheimer's disease has already demonstrated clinical benefits in patients.

Novel immunological approach

The founders use their work in the fields of Huntington's disease and antibody development to leverage the novel immunological therapeutic approach. The concept of an antibody therapy for Huntington's disease has been successfully tested both scientifically (in vitro) and in preclinical proof-of-concept studies (in vivo).

The resulting intellectual property has been legally transferred to the company through patent acquisitions. Over the next few years, HD Immune intends to develop a therapeutic human antibody to the point where it can be used to treat patients with Huntington's disease in clinical trials.

Holloid

www.holloid.com

Holloid develops hardware and software solutions for 3D microscopy. Microscopic analysis allows hundreds of thousands of bacteria, algae, yeasts and microplastic particles in a sample to be analysed in 3D and characterised using artificial intelligence.

It is their very smallness that enables microorganisms, i.e. microscopically

tiny creatures, to hide. Scientists in the field estimate that only 0.001% of all microorganisms have so far been studied, which is an extremely small proportion. Traditional analyses of particles and samples in the micro range are time-consuming and expensive. Holloid aims to shed light on this problem. The young company uses the power of microscopy to analyse and classify micrometre-sized objects such as bacteria, cells and microparticles in 3D (holography).

Significant reduction of waste

Holloid develops hardware and software



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solutions that use artificial intelligence (AI recognition) to analyse and characterise microorganisms such as pathogens and particulate contaminants, enabling real-time monitoring of production processes and near-instant analysis. This approach optimises productivity and facilitates seamless quality control in sensitive sectors such as food production and the pharmaceutical and chemical industries. Early monitoring of products is expected to reduce waste to a fraction of what it would be with conventional monitoring methods.



© Holloid



Holloid GmbH
Muthgasse 11/2/1, A-1190 Vienna

Founded in 2022
Founding team: Peter van Oostrum (CTO), Pinar Frank (CPO), Erik Reimhult, Marcus Lebesmühlbacher (CEO)

www.holloid.com



“Big data on small things”

A spinoff of the University of Natural Resources and Life Sciences (BOKU) in Vienna, Holloid is based on an idea by Peter van Oostrum and Erik Reimhult. The startup is marketing three patents for a novel method of microscopic holographic analysis. Marcus Lebesmühlbacher and Pinar Frank joined the founding team in 2020.

Hundreds of thousands of times

The vision of the founding team is to bring the benefits of high-speed 3D imaging

and optical characterisation to mass production. Holloid provides information on hundreds of thousands of cells and particles in a single sample – in real time, in 3D, at a high throughput and label-free. The first target groups for the image-based monitoring of production lines are food and pharma producers as well as energy utilities. Users buy the equipment and Holloid provides the analysis as SaaS. Green chemistry, alternative proteins, efficient enzymes, etc. will improve many everyday goods and make their production and consumption more

sustainable. Holloid wants to provide the key technology for this development.

VERDI Solutions

verdisolution.com

VERDI Solutions develops personalised vaccines to fight cancer. The treatment is based on genomic analyses of biopsy samples and triggers a targeted immune response that kills the cancer cells.

Cancer therapies are typically industrial products designed for the average patient. Although more than 313

industrial cancer drugs are available, more than ten million people die prematurely from cancer every year. Vienna-based startup VERDI Solutions (“VERDI” is an acronym for “vaccine epitopes ranked by digital intelligence”) is investigating how to significantly increase the success rate of cancer therapies through personalised vaccines tailored to each patient. The approach of founders Julianna Lisziewicz, an experienced entrepreneur with successful startups in the United States, and Robert Lisziewicz, a computer science student in Berlin,



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Preseed

is based on the understanding that both cancer cells and patients have unique genetic characteristics. They use genomic analyses of biopsy samples to develop personalised vaccines that are tailored to individual patients and their disease.

The future of cancer therapies

The model mimics the natural process of T-cell response and uses real-world evidence data to make predictive diagnoses of immune responses against cancer cells. The effectiveness

© privat



© VERDI Solutions



VERDI Solutions GmbH
Sandrockgasse 48, A-1210 Vienna

Founded in 2022
Founders: Julianna Lisziewicz (CEO), Robert Lisziewicz (CTO)

verdisolution.com



of the vaccine can be determined prior to administration by sequencing the patient's DNA (HLA – human leukocyte antigen) to elicit an effective immune response. In addition, information is obtained from the cancer cells themselves, which are removed by taking a biopsy (transcriptome analysis) to analyse the epitope patterns on their surface. Deep learning algorithms feed all the collected data into a peptide pool to search for T-cells that can mount an effective immune response against the cancer cells.

Natural peptides for stimulating immune response

VERDI Solutions' vaccines consist of natural peptides that are already present in the patient's tumour. Unlike industrially produced drugs, these vaccines do not confer resistance. VERDI Solutions' individualised vaccines are adapted to recurring tumours, thus offering patients a treatment option at all times. VERDI Solutions has started to implement quality controls in production and plans to have a comprehensive production logistics system in place by 2025. The

aim is to establish the company as a leading service provider for personalised cancer immunotherapy.

Ascense Medical

www.ascense-medical.com

Ascense Medical is developing elastic aortic stent graphs with special physiological properties that effectively prevent long-term complications. The medical device is easier to implant and significantly cheaper to manufacture than current solutions.

The aorta is the main blood vessel in the body. Three out of 100,000 individuals

per year suffer from thoracic type B aortic dissection, where one or more of the three layers of the aorta tear. Ascense Medical is investigating an aortic graft specifically designed for this condition. The elastic knitted polymer material with a polyurethane coating preserves the physiologically important Windkessel function of the aorta, reducing pressure peaks and ensuring a more continuous rather than biphasic blood flow. Other advantages of Ascense Medical's vascular graft are that there is no need to use an occlusive (closing) introducer



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set or fenestrate the subclavian artery, an important consideration in vascular surgery. An additional strong point is the manufacturing cost of the vascular prosthesis, which is significantly lower than the prices charged to date.

New areas of application

Roman Gottardi, a vascular surgeon, and Michael Moore, a medical device specialist, founded Ascense Medical in Vienna in 2021 to develop and market products for the treatment of aortic diseases. They cooperate with Martin Czerny and Bartosz Rylski,



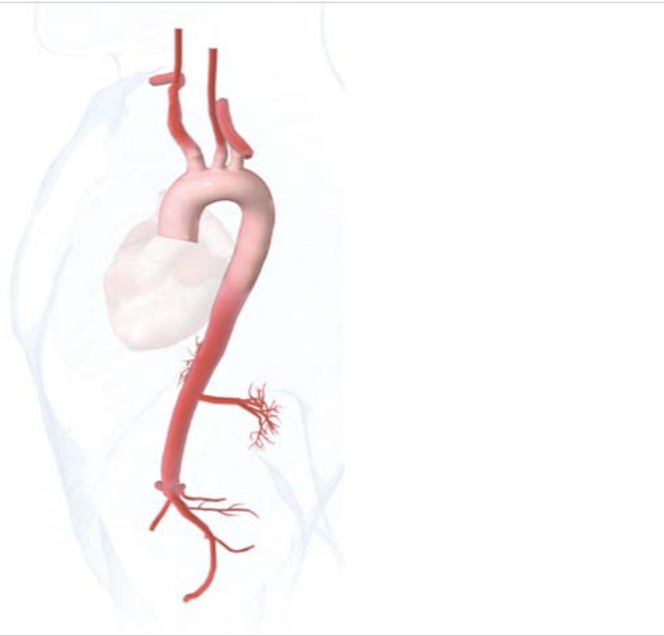
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Founded in 2021
Founding team: Roman Gottardi, Martin Czerny,
Michael Moore (CEO), Bartosz Rylski MBA

www.ascense-medical.com



who have been international leaders in the clinical application of vascular prostheses and in medical science for more than 20 years. The innovative method can be used not only for aortic dissection but also for other endovascular and vascular prostheses, including the treatment of aortic aneurysms and prostheses for both surgical and endovascular (minimally invasive) interventions.

Next level

With the support of the aws Seedfinancing programme, Ascense Medical is in the

process of clearing the hurdles that all manufacturers of medical devices must overcome to obtain regulatory approval. This includes initiating a clinical trial and establishing an appropriate trial design. With the evidence-based proof of efficacy in hand, the company can begin the process of obtaining regulatory approval under the new Medical Device Regulation (MDR). The founders expect to launch their innovation on the European market in 2026/27.

Brightmind.AI

brightmind.ai

The Viennese startup is developing an AI-based brain stimulation technology for portable devices that can be used at home. The high-intensity magnetic pulses help treat neurological conditions such as migraines.

Despite medical advances, many neurological disorders are still difficult

or impossible to cure. Brightmind.AI is researching an innovative neuromodulation method that uses brief, high-intensity magnetic pulses to non-invasively stimulate specific areas of the brain. Magnetic pulses are a powerful tool for investigating brain function and treating neurological disorders. They are safe and have minimal side effects, making them a promising technology for the future of brain stimulation. The patient simply wears a type of headset through which the painless and gentle therapy modulates neural activity and connectivity in the brain. The pulses induce electric



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currents that either activate or inhibit parts of the brain's estimated 86 billion neurons, depending on the frequency, timing and intensity of the pulses.

Significant pain relief

This is where Brightmind.AI comes into play. Founders Tamara Gerbert and Florian Lerchbammer-Kreith have developed a self-learning TMS/neuromodulation (brain stimulation) device for home use. Until now, transcranial magnetic stimulation (TMS) has been available only in hospitals. The Brightmind.AI technology is used to treat



© Brightmind.AI



Brightmind.AI GmbH
Maria-Theresien-Straße 32/29, A-1010 Vienna

Founded in 2022
Founders: Tamara Gerbert (CTO),
Florian Lerchbammer-Kreith (CEO)

brightmind.ai



persistent migraine attacks, which can be reduced by more than 50% with short daily treatments. Brightmind.AI increases the effectiveness of the treatment by using a novel closed-loop approach that harnesses the full feedback of brain activity.

AI-based personalised therapy

Co-founder Tamara Gerbert has studied non-invasive brain stimulation at leading laboratories in the United States and the United Kingdom. She has pioneered the approach of combining TMS therapy with AI-enhanced

information processing and developed it further for personalised use. Co-founder Florian Lerchbammer-Kreith has worked at BCG, a management consultant, most recently in New York, specialising in the commercialisation of medical technology innovations. In May 2022, the neuroscientist and the market expert decided to set up a company to bring personalised TMS therapy to the market. They also plan to conduct two validation studies with an “investigational device” during the funding period. The next phase of

the startup is structured around the regulatory approval process under the new Medical Device Regulation and is expected to be completed by 2026.

CellEctric

www.cellectric.com

CellEctric is establishing an automated platform technology for the electrodynamic manipulation of cells. In its first application, the technology will be used to isolate pathogens in blood samples for sepsis diagnosis.

An old adage maintains that blood is thicker than water. Diagnosticians looking for pathogens, i.e. disease-causing

microorganisms, always have to contend with the large proportion of human material as compared to the germs they are looking for. This ratio of one part in a billion requires either long cultivation times in which the pathogens are grown to high levels, or the untreated testing of the sample. If the blood sample is not properly prepared, accuracy will be compromised. According to Vienna-based CellEctric, this does not have to be the case, because the company's platform takes a novel approach. With its innovative technology, in vitro diagnostics



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laboratories can isolate the pathogens they are looking for from a 10 ml blood sample in just 30 minutes. Conventional methods take three to five days.

Faster diagnosis

The smart technology is based on a novel strategy of bringing electromagnetic fields into contact with biological samples to selectively destroy cells. Sample throughput can be tailored to the application. The process is fully automated, purely physical and requires minimal electrical power. The cell-type-specific effects observed with



© CellEctric



CellEctric Biosciences GmbH
Giefinggasse 6/2.2, A-1210 Vienna

Founded in 2021
Founders: Terje Wimberger (CEO), Klemens Wassermann (CEO)

www.cellectric.com



the CellEctric system are unique in the world and prove to be extremely robust in repeated applications.

samples for many other blood analyses. Target business areas include diagnostics, cell therapy and biotechnology.

Sepsis diagnosis as primary market

The two founders, Terje Wimberger and Klemens Wassermann, have come a long way together. Meanwhile, 13 young international talents have joined the team. The prototype works. The lab-on-a-chip makes sepsis diagnosis ten times faster, an important point since more than 6,500 people in Austria die of sepsis every year. The platform can also be used to prepare

Hypericum

www.hypericum-ls.com

The startup is developing a treatment for human glioblastoma. The tissue is stained with a fluorescent dye to make it easier to locate and remove the tumour. The remaining tissue is then exposed to visible light.

Extracts of St John's wort (Hypericum perforatum) have been used for

centuries as a remedy for somatic and mental ailments. Moreover, St John's wort also has a light-sensitising effect, which is why the plant is the namesake of a startup company based in Vienna. Hypericum's mission is to treat cancer based on fluorescence-guided tumour resection and photodynamic tumour therapy. The starting point of its research approach is a derivative of hypericin, which occurs naturally in St John's wort. Hypericin is a highly selective photosensitiser that accumulates in tumour cells but is not



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taken up by the surrounding healthy brain tissue. This mechanism is being exploited to develop novel therapeutic strategies in an area of oncology with high unmet medical need.

A remedy for aggressive tumours

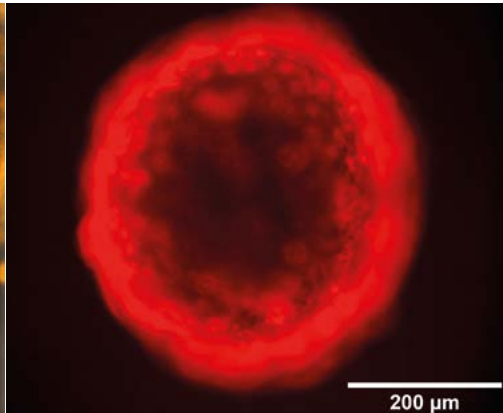
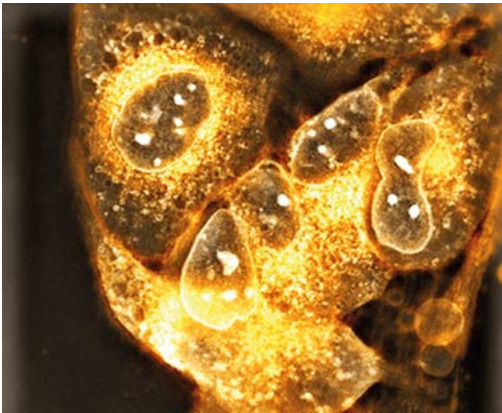
The focus is on glioblastoma, an extremely aggressive brain and central nervous system tumour that usually develops rapidly in middle-aged patients. Even with intensive treatment, the average survival rate is just over a year after diagnosis. Surgical removal of the entire



Hypericum LifeScience GmbH
Hetmanekgasse 1b/2a, A-1230 Vienna

Founded in 2020
Founders: Lionel Wightman (COO), Andreas Kubin (CEO)

www.hypericum-ls.com



tumour is rarely possible, as malignant residual tissue leads to recurrence.

Hypericum's treatment strategy targets these remnants of the tumour. Hypericin is administered intravenously before surgery

and is absorbed by the tumour in the brain. The surgeon can use its properties as a fluorescent marker to pinpoint the exact location of the tumour and remove it more effectively. The tumour is then exposed to visible light, which causes the

sensitiser to react with oxygen. This leads to the formation of oxygen radicals that damage the exposed cancer cells and cause them to die.

Few side effects, higher accuracy

Tumour selectivity has already been successfully demonstrated in animal models. In addition, side effects are negligible at the dose used. In most cases, brain tumour resection is associated with a massive change in personality, which can be avoided by more precise removal

of the tumour using fluorescence-guided resection while preserving the surrounding tissue.

Neurolentech

neurolentech.com

Neurolentech is developing patient-derived cellular disease models to gain insights into the mechanisms of neurological disorders such as autism or epilepsy. The results form the basis for new therapies.

Neurological disorders such as autism and epilepsy affect more than 100 million people worldwide. These heterogeneous

genetic diseases have a profound impact on the lives of those suffering from them. For most of these patients no medications exist to treat their disease. To realise the potential of personalised medicine for neurodevelopmental disorders, in vitro human disease models are needed to support the development of new therapies and the molecular matching of patients to therapies. The startup Neurolentech, a spinoff of IST Austria at Klosterneuburg, generates data and tools to discover new active substance candidates for these diseases and to design individualised therapies.



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Screening platform for active substances

Neurolentech has created a platform to generate, analyse and use stem cell models from genetically and clinically well-documented patients with neurodevelopmental disorders. Several steps are needed to reprogramme the patients' skin or blood cells into cells that are genetically and functionally identical with those in their brains. These brain cells can then be analysed in the laboratory and/or screened for their response to active substances. The members of



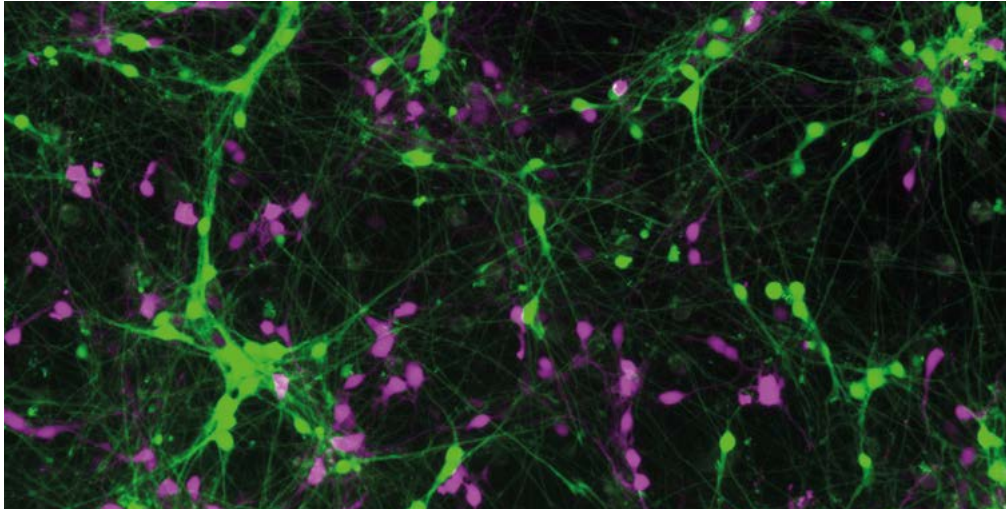
© Neurolentech



Neurolentech GmbH
Xista Science Park, Plöcking 1, A-3400 Klosterneuburg

Founded in 2020
Founding team: Carsten Pfeffer (CSO/CTO), Christoph Bock (Scientific Advisor), Gaia Novarino (Scientific Advisor)

neurolentech.com



© NeuroLentech

the founding team, Carsten Pfeffer, Gaia Novarino (Professor at IST Austria) and Christoph Bock (Professor at the

Medical University of Vienna and Principal Investigator at the CeMM of the Austrian Academy of Sciences), are recognised

experts in autism and disease models, as well as their genetic and functional analysis. They can draw on a strong network of clinical collaborators and patient representatives to support and accelerate the development of drugs for neurological disorders.

Establishing a biobank

NeuroLentech plans to establish a comprehensive biobank of patient-specific disease models and associated clinical, genetic and cellular data within three years. To this end, the company

will develop a portfolio of tools to facilitate the study of processes critical to gene and active substance screening. NeuroLentech will collaborate with biotech/pharma companies as well as patient organisations and academic consortia to use its platform for drug discovery.

RIANA Therapeutics

www.rianatx.com

The spinoff of the Vienna University of Veterinary Medicine is developing a screening system for the discovery of active substances that can detect and inhibit carcinogenic protein-protein interactions.

Proteins are basic building blocks of our bodies. They tend to interact with each other, which is usually, but not always,

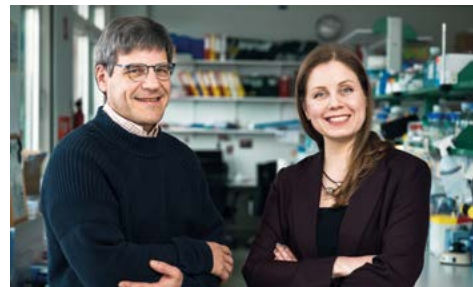
beneficial for the body. Researchers refer to this as the “Dr. Jekyll and Mr. Hyde” nature of many protein-protein interactions (PPIs). A large class of PPIs involves proteins that cause cancer in one form (“Mr. Hyde”) but in other forms are vital for the body (“Dr. Jekyll”). Anna Orlova and Richard Moriggl are developing a screening platform that reliably searches for inhibitors that interfere with cancer-promoting PPIs. Active substances rapidly identified by the RIANA platform search for and selectively target malignant “Mr. Hyde” PPIs.



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The good ones go into the pot

Finding drugs that specifically block oncogenic protein-protein interactions has, so far, been an unsolved technical challenge. In 2018, Anna Orlova from the University of Veterinary Medicine in Vienna succeeded in developing a test system that identifies inhibitors (small molecules) which detect solely the cancer-promoting forms of a protein. This high-throughput screening was tested on samples containing 90,000 different molecules. The screening system found two chemical lead structures that were subsequently characterised and



© Thomas Suchanek

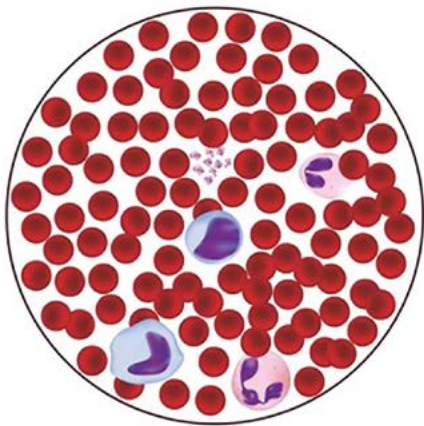


RIANA Therapeutics GmbH
Veterinärplatz 1, Gebäude NA, 2. Stock, A-1210 Vienna

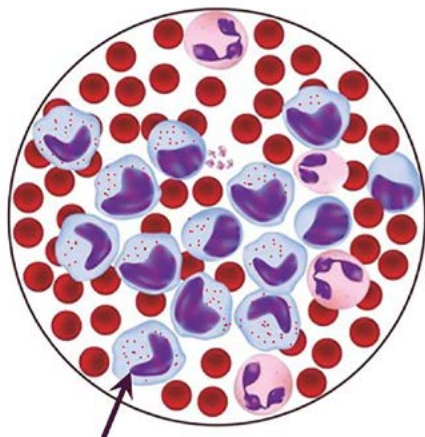
Founded in 2023
Founding team: Richard Moriggl, Anna Orlova (CEO),
Oliver Szolar

www.rianatx.com

Normal blood



Blood cancer



tested in more detail. Together with the test platform, the two active substance candidates constituted the scientific basis for the creation of RIANA Therapeutics.

A team of experienced founders

The idea to establish RIANA Therapeutics was born in 2018, when Anna Orlova and Richard Moriggl presented their screening system as a potential spinoff project at the “VetIdeas Challenge” of the University of Veterinary Medicine in Vienna. Since then, Oliver Szolar, a biotechnologist and multiple biotech entrepreneur, has joined

the team as co-founder and advisor. With aws Seedfinancing granted to the founding team in November 2022, RIANA Therapeutics could be set up in February 2023 with Anna Orlova as its CEO.

Tridem

tridem.at

Tridem is developing a highly immunogenic vaccine platform based on its novel WISIT technology. The first application envisaged is a vaccine against Parkinson's disease.

As a surface that is in contact with the environment, the skin is constantly exposed to hazards. UV rays, heat, cold, bacteria and viruses are continuously attacking human

health. As always, the body's protective response is ingenious. It has made the skin a central part of the immune system: the skin is specialised in responding effectively to invading germs. The company's proprietary WISIT technology learns from this blueprint: it relies on specific sugar residues to deliver the vaccine directly into the skin's dendritic cells, triggering a highly effective immune response. The second key aspect of the special immunotherapeutics is their safety.

Parkinson's disease as first indication

Founded by Sabine Schmidhuber and



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Markus Mandler, the biotech startup is leveraging WISIT's strengths for a novel immunotherapy platform that will primarily explore new avenues for the discovery of active substances to treat Parkinson's disease. Parkinson's is a neurodegenerative condition that is common in the elderly and affects about 20,000 people in Austria. Tridem is looking for vaccine candidates that prevent deposition of the α -synuclein (α Syn) protein, which is responsible for Parkinson's disease, in the brain. Previous studies in animal models have shown that the immunological efficacy of WISIT immunotherapeutics is significantly



© Tridem



Tridem Bioscience GmbH & Co KG
Rudolf-Waisenhorn-Gasse 33a/2/3, A-1230 Vienna

Founded in 2020
Founders: Markus Mandler (CEO),
Sabine Schmidhuber (Principal Scientist)

tridem.at



superior to that of conventional peptide-based vaccines.

WISIT vaccines consist of three functional components. Two of them determine the

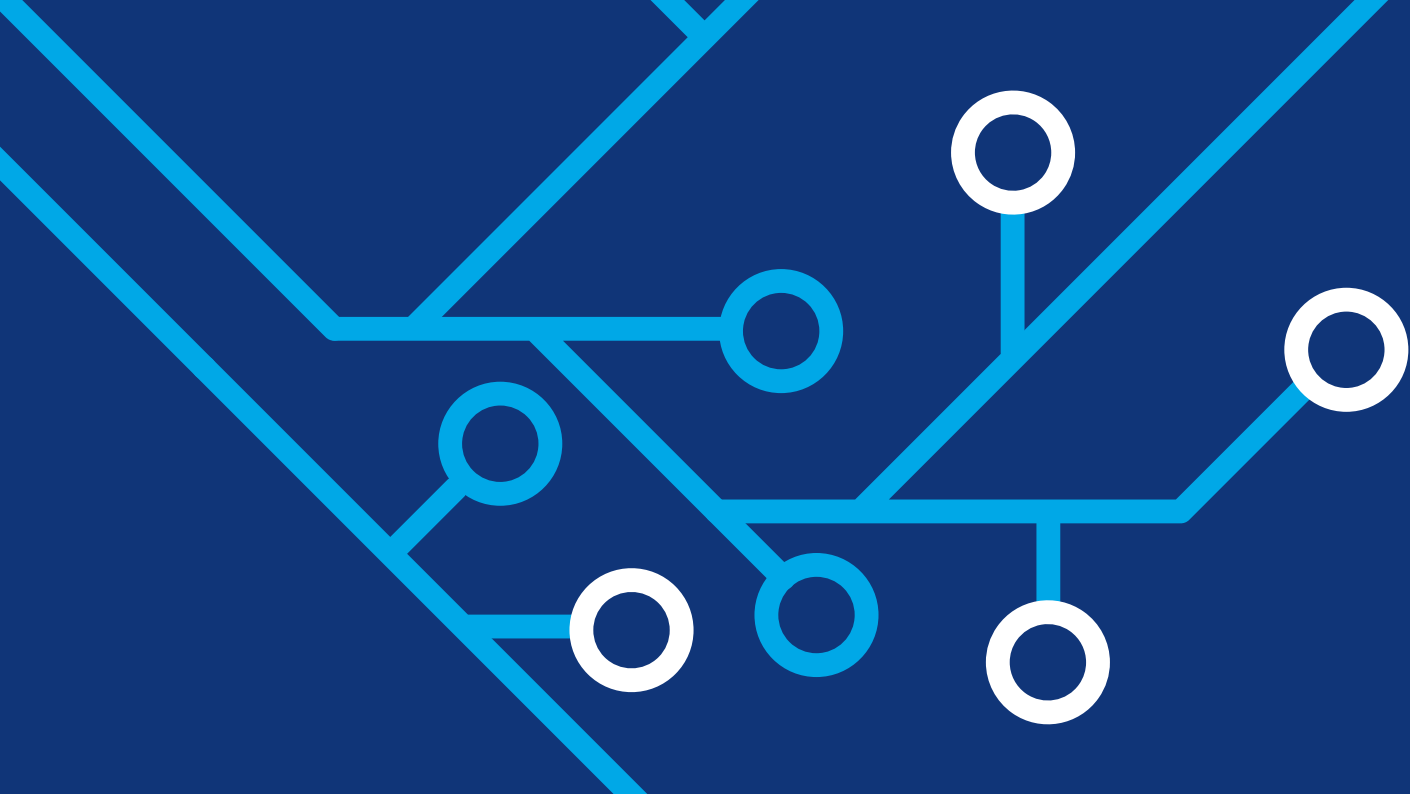
strength, while the third determines the specificity of the antibody response elicited. By altering this third component (the B-cell epitope), the target structure and thus the indication can be varied. This has been

demonstrated in in vivo studies for a wide range of targets, confirming the potential of the platform.

Faster and safer

When designing the individual immunotherapeutics, the platform takes into account requirements for final product safety, GMP format and scalability of the manufacturing process, making vaccine production significantly faster and cheaper. These results are the basis of several international patent applications. Preparations are underway

for further clinical trials as a prerequisite for subsequent regulatory approval.



GreenTech

ParaStruct

www.parastruct.org

The Tyrolean startup is setting up a platform of materials to process biogenic and mineral residues and waste from the construction industry and recycle them by way of digital manufacturing (3D printing).

For builders, recycling is the exception rather than routine. When a building is demolished, its constituent parts are

typically dumped on landfills. The space thus wasted is extremely detrimental to biodiversity, and large quantities of recyclable raw materials are lost. The founders of ParaStruct are developing technologies to change all this. Their aim is to lay the technical groundwork for a viable and economically attractive circular economy in the construction industry.

Building with 3D printers

The ParaStruct process turns most fine-grained dump materials, whether organic (sawdust, wood shavings, etc.) or inorganic



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Preseed

(construction waste, production residues), into raw materials for the production of functional components. Such materials may also be recycled in conventional construction, but the team is focusing on their use in digital manufacturing. Additive manufacturing (known as 3D printing) is gaining ground in the construction industry. Producing components with a 3D printer reduces materials consumption by up to 60% compared to conventional components. Furthermore, the ParaStruct process uses low-carbon binders that can be recycled, which cuts CO₂ emission by up to 60%



© ParaStruct

ParaStruct

ParaStruct F & E GmbH
Speckbacherstraße 39, A-6020 Innsbruck

Founded in 2021
Founding team: Georg Breitenberger (CEO), Freia Ruegenberg (CSO),
Kilian Rießbeck (Chief Circular Engineer)

www.parastruct.org



compared to Portland cement. Components made with ParaStruct technology are themselves fully recyclable.

To Mars and back

The combined team has many years of experience in developing industrial 3D printing technology for the building industry, in materials sciences, chemistry and the circular economy. By 2025, the ParaStruct team aims to have demonstrated the usefulness of its technology in sectors other than the construction industry. Initial interest has already been signalled from

the steel and timber industries. Moreover, ParaStruct wants to use its special 3D printing process to contribute to humans settling on extraterrestrial territories such as the Moon and Mars. The company has already won prizes in various space programmes.

Arteria Technologies

www.arteria-tech.com

The startup is developing a web platform that uses deep-tech algorithms to enable utilities to visualise the data of their grids. Based on this virtual twin, clients will be able to digitally plan network extensions and simulate scenarios.

Energy grids are difficult to control. Energy producers and consumers need to be

synchronised so as to satisfy the physical and economic laws governing a grid system. In thermal grids in particular, this entails considerable heat losses. Forecasts of expected consumption have traditionally been made on the basis of inaccurate data, resulting in excessive production, especially during peak periods when more heat is generated than consumed. The Graz-based startup Arteria Technologies is developing a software tool which enables public and municipal utilities and thermal grid operators to virtually map the entire energy grid based on historical consumption data. Drawing on



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self-learning algorithms, users can simulate a range of future consumption and utilisation scenarios to optimise operation.

Simulating consumption and planning

In his doctoral thesis, Stefano Coss made an in-depth study of decentralised heating systems. The Arteria platform developed by him and his team virtually maps the full extent of the heat supply system (heating plants/suppliers, storage, grids, consumers, transfer stations, etc.). Users in management, sales and production have



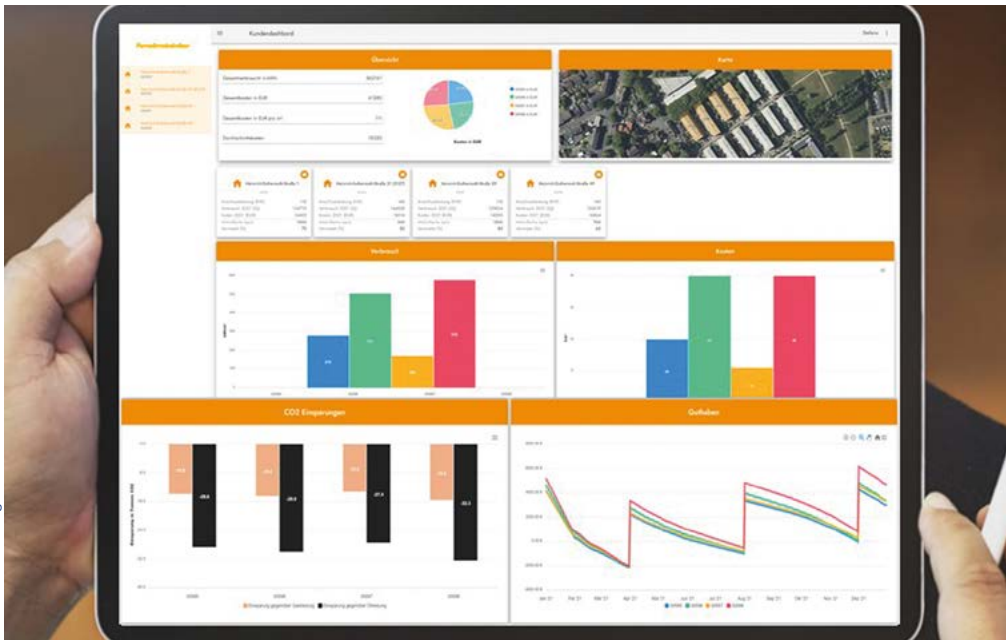
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Arteria Technologies GmbH
Schubertstraße 6a, A-8010 Graz

Founded in 2020
Founder: Stefano Coss (CEO)

www.arteria-tech.com



access to the same database and analysis tools which can then be applied directly to the practical situation. Examples include forecasting supply and consumption data for all grid users, considering cost parameters such as base rates and cost prices, or the complete redesign of a thermal grid based on decentralised supply. In a similar vein, a few clicks suffice to plan an extension of existing grids.

Grid control in real time

The platform is to become a key part of the energy strategy to fight climate

change. The “Operations” module will provide utilities and decentralised suppliers with direct feedback on the use of their thermal energy. Arteria expects this to improve grid efficiency by up to 15%. The aim is to enable the platform to visualise all elements of the thermal system in real time, to propose optimisations and to send them to the secondary control systems of the utility or decentralised units using control signals via IoT link.

Circly

www.circly.at

Circly has developed an AI software that allows enterprises to make precise sales and demand forecasts for their markets, which should help them avoid wasting resources and food.

It all began with a hackathon, an event where software and hardware developers are challenged to solve a problem within

a given period of time and where Circly founders Eric Weisz and Armin Kirchknopf had an idea: an IT platform that makes it easy for enterprises to accurately forecast sales and demand, thus making them more efficient and reducing the waste of resources and food in production and retailing.

European food retailers alone produce millions of tons of food waste every year. Experts think that a third of this waste could be avoided. The main reason for this waste is that customers want goods to be available

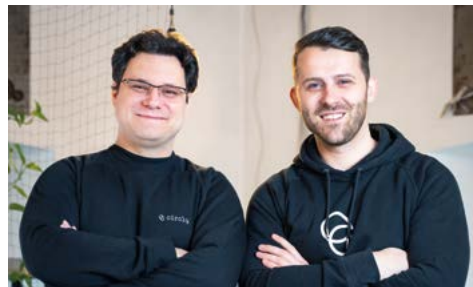


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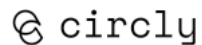
at all times, while the actual demand for them cannot be accurately predicted. Current demand forecasts typically use standardised data models and statistical methods, while external factors are largely ignored. Moreover, AI models are not yet sophisticated enough. Today's AI models, which accommodate a multiplicity of data, tend to be rigid, and their adaptation is time-consuming and costly.

AI for SMEs

This is where Circly comes in: with the help of aws, the startup from Lower Austria



© Carola Berger/Circly GmbH



Circly GmbH
Heinrich-Schneidmadl-Straße 15, A-3100 St. Pölten

Founded in 2021
Founders: Eric Weisz (CEO), Armin Kirchknopf (CTO)

www.circly.at



has developed a platform that allows small and medium-sized enterprises (SMEs) to use AI programs at low cost. The key innovation is that the platform offers models preconfigured for various sectors, incorporates external factors and is, moreover, easy to use. Users do not need in-depth IT knowhow to get the most out of big data, machine learning and data science. Thanks to the Circly platform, they can easily obtain accurate and dynamic forecasts on demand, sales and budget. Circly is already an active market player in Austria and plans to expand to

Germany and Switzerland in the years to come. By 2025, it aims to cover around 3% of the market in the German-speaking countries.

c-square

www.c-square.at

The c-square technology monitors the microbial load of bacteria, fungi and yeasts over the entire production process of pulp, paper, paints or cosmetics and minimises the required dosage of biocides based on a patented algorithm.

The paper, pulp and cooling lubricant industries are continually confronted

with microorganisms which, deriving from raw materials and process water, contaminate the production process. They multiply in the circulating fluids, causing slurries, polluting the product and clogging machines. Considering that the conventional method of microbiological monitoring takes three days to provide relevant results, the current approach is to use a mixture of various biocides which are typically overdosed. The excessive use of biocides is expensive and, above all, detrimental to the environment.



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Exact dosing, accelerated production

Founders Gerald Krätschmer, Markus Enzenhofer, Michael Kunz and Thomas Eichinger have developed a process that allows gauged dosing of biocides in an accelerated production process. The approach focuses on determining the dynamic effect of biocides by adequate measuring methods, automatically analysing the results through an algorithm and optimising the dosage. The result is an automated control loop which reduces the input of biocides. The patent application for the algorithm was



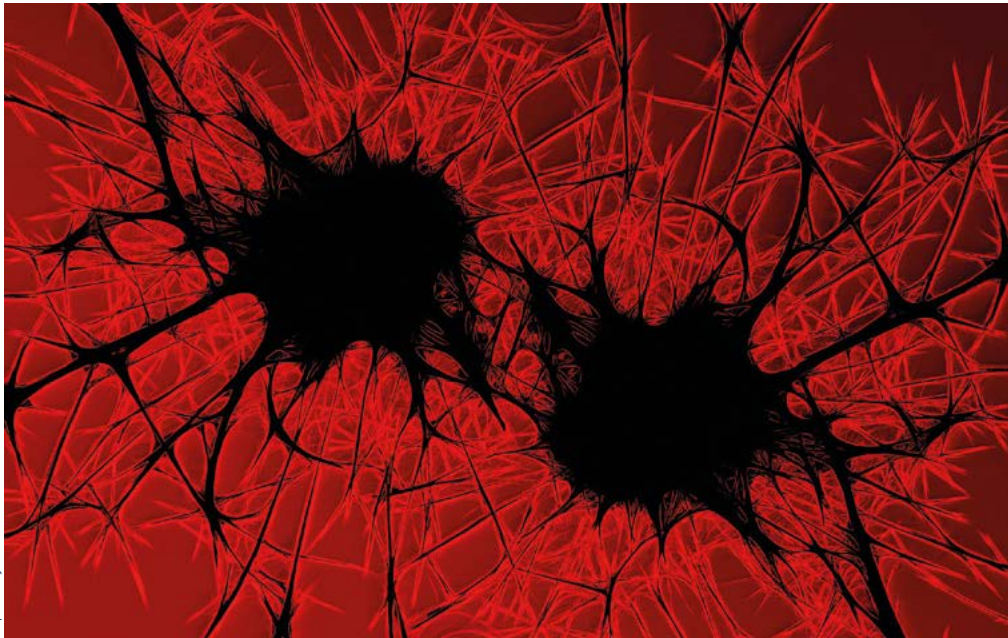
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c-square bioscience GmbH
Technopark 1, Building C, A-3430 Tulln

Founded in 2021
Founding team: Gerald Krätschmer (CMO), Markus Enzenhofer (CFO), Michael Kunz (founder, CBDO), Thomas Eichinger (CTO)

www.c-square.at



filed in February 2021. The measuring method used is flow cytometry, with an integrated automated sample-taking and -processing unit. Moreover, the c-square solution significantly improves process reliability. Combined with other data, the microbiological values serve as a basis for a multidimensional data system, which will help customers to improve their processes.

Team spirit

The founders combine industrial experience with in-depth knowledge

in chemistry, mechatronics, finances, distribution and marketing. Before establishing c-square, they were a highly successful lead team in a medium-sized chemical enterprise. Their insights from the first serial prototype have been used since the latter part of 2022 to make the product ready for the market. Its launch is planned for 2023.

Fermify

www.fermify.org

Fermify is setting up a digital production platform for casein proteins used in cheese making. The vegan cheese thus obtained has the same nutritional value as cheese made from cow's milk.

Cheese is a high-quality source of protein and a vital element of human nutrition. Nevertheless, cheese-making carries

a heavy ecological burden: the milk required for cheese production has a negative impact on the environment and biodiversity. Vegan alternatives have so far been less than impressive, due to the lack of non-animal proteins. While plant-based milk has already achieved a market share of about 20%, plant-based cheese is still at 2%. For this reason, Fermify is working towards developing what is known as "precision fermentation-derived casein protein". Caseins are the share of the milk protein which is processed into cheese. The Fermify process uses controlled



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fermentation to produce these casein proteins, which have the same properties as normal cow's milk proteins. Vegan cheese made from Fermify proteins really has the taste of cheese.

Client in-house production

The Fermify technology differs from other methods. Founders Eva Sommer and Christoph Herwig use a continuous production process that ranges from preparing the culture medium to the purified protein. The production of casein proteins is quality-controlled by



© Fermify

fermify

Fermify GmbH
Hollandstraße 18/22, A-1020 Vienna

Founded in 2021
Founders: Christoph Herwig, Eva Sommer (CEO)

www.fermify.org



© Fermify

hybrid models, and production problems are eliminated locally by the requisite software. Users such as cheesemakers and food producers, who are among the first clientele of Fermify, can therefore produce casein themselves. Bioengineer Eva Sommer has experience with startups (Peace of Meat, sold in 2020) and has followed a vegan diet for many years. She is convinced that the dairy-free cheeses currently on offer are in dire need of tastier alternatives. Christoph Herwig, a former professor at Vienna's University of Technology, has developed

methods for the bioprocessing sector for many years.

First plants to arrive at clients

Fermify intends to have ten clients by 2025. It plans to sell its first three Fermify-based plants by the end of 2023. Demand follows price: it is expected that the market price for a kilogram of casein will be € 21 by 2025.

HyDepot

www.hydepot.com

HyDepot is developing a methanol-based system to stock hydrogen for large-scale, local, site-independent energy storage at low cost.

Storing large amounts of energy is one of the most difficult technical challenges that must be met if we are to achieve the energy turnaround. One approach is to find an efficient way to store hydrogen

gas produced from photovoltaic and wind power in a cheap material compound. The storage method developed by HyDepot combines hydrogen with CO₂ to produce methanol. CO₂ is a robust and low-priced storage medium. Methanol is a liquid that can be stored easily and quite safely. The special feature of the HyDepot method is that the CO₂ is retained in the storage system when hydrogen gas is fed out and can thus be reused for further cycles of hydrogen storage – unlike alternative technologies that need to constantly draw nitrogen or



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carbon dioxide from the air in order to store hydrogen.

Safe storage system

Conventional pressurised storage of hydrogen is expensive and requires large plants at a safe distance from residential areas. The Tyrolean solution, on the other hand, is cheap, efficient and compact. The methanol generated in the storage process has a much greater energy density than pressurised hydrogen. Methanol is easy to handle in safety terms and environmentally highly compatible, so that energy storage



HyDepot GmbH
Weisstraße 9, A-6112 Wattens

Founded in 2021
Founder: Christian Mair

www.hydepot.com



systems can be scaled up much more (to several GWh) than would be feasible with alternative technologies. As an added bonus, HyDepot methanol storage is possible even in densely populated areas, so that green energy can be locally stored anywhere and as needed by industries, energy communities, energy utilities as well as solar and wind park operators.

Continuation of a successful EU project

The technological approach pursued by founder Christian Mair provided the

basis for an EU lighthouse project entitled “HyMethShip”, which ran from 2017 to 2021. The project developed a “green” energy storage system for international shipping, which was the first prototype implementation of the HyDepot process. HyDepot is currently working on its first demonstration plant for stationary energy storage, which is to be used in an industrial setting.

Lignovations

lignovations.com

The spinoff of the Vienna University of Technology has invented a novel process to extract particles from lignin, a biomass component. The biogenic polymer, which has so far been difficult to process, should replace harmful chemicals in cosmetics and other end products.

Sunburn is the painful result of too much exposure to the sun. But

excessive ultraviolet radiation not only damages human skin – plants, too, are sensitive to UV light. However, in millions of years of evolution, nature has equipped them with a natural screen: they contain lignin which protects them from sunlight, oxidation and other negative environmental influences. Lignin is a highly complex natural polymer with a wide range of properties. This makes it difficult to process industrially and has so far severely limited the widespread use of this valuable raw material.



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First application: sunscreens

A process developed by Lignovations, a startup based at Klosterneuburg, aims to exploit lignin's properties for consumer products. The patented technology of the founding team around Martin Miltner turns large quantities of lignin into a standardised form that can be industrially processed. Lignin is extracted from lignified biomass and converted into colloidal particles that can be used in a variety of ways, e.g. in paints, varnishes, wood preservatives, packaging materials or functional textiles.



© Lignovations



Lignovations GmbH
Inkustraße 1–7, A-3400 Klosterneuburg

Founded in 2021
Founding team: Victor Tibo (CFO), Angela Miltner (COO),
Martin Miltner (CEO/CTO), Stefan Beisl (Head of R&D)

lignovations.com



Nevertheless, the first application for Lignovations particles is in sunscreens. Conventional sunscreens contain UV blockers that may be harmful to both health and the environment. Cooperating with manufacturers of skin care products, Lignovations has demonstrated that the addition of lignin particles will substantially cut the quantity of blockers needed while ensuring the same screening effect.

Lignovations emerged from a research focus at Vienna's University of Technology. It is currently preparing its commercial market entry. To this end, the company is

building a pilot production plant in Lower Austria, which will accelerate product development and produce sufficient material for market entry. Another area where industrial lignin particles could be a sustainable alternative is packaging. By 2025, the company intends to add new functions and applications to its portfolio and plans to build a scaled-up plant for industrial production.

temprify

temprify.com

Using temprify's passive boxes for chilled and frozen goods, thermal transports can be carried out without dry ice or electricity at temperatures between -25°C and $+25^{\circ}\text{C}$, which reduces emissions by 90% and cuts costs by half compared to conventional methods.

Logistic chains have an inherent problem zone – the last mile. The transport of

temperature-sensitive goods to the final customer is associated with high costs and an even higher rate of emissions. Traditionally, chilled and frozen goods are kept cold with dry ice, i.e. solid carbon dioxide, which inevitably releases large volumes of the greenhouse gas. This has a negative impact on the climate and is also dangerous: dry ice has repeatedly caused fatal suffocation accidents.

Special cold plates with high energy density

Since 2018, CEO Moriz Lanzerstorfer and



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his co-founders Nikolas Loidolt, Christian Bachleitner-Hofmann and Johannes Höfler have been working on an environmentally friendly, safe and cost-effective alternative to dry ice: at the heart of this solution are special cold packs, so-called eutectic plates, that have an extremely high energy density rate and cooling power. Thanks to the special design of the transport boxes, it only takes a single plate per passive box to keep products chilled or frozen at temperatures ranging from -25°C to $+25^{\circ}\text{C}$ for up to 96 hours. Compared to dry ice as a coolant, the temprify cooling system is



© Severin Wurmig



temprify GmbH
Stutterheimstraße 16–18/1/14d, A-1150 Vienna

Founded in 2018
Founding team: Nikolas Loidolt (COO), Christian Bachleitner-Hofmann (Chief Engineer), Moriz Lanzerstorfer (CEO), Johannes Höfler (Chief Strategy Officer)

temprify.com



© temprify



expected to reduce emissions by 90% and costs by around 50%. Moreover, thanks to the compact design of the passive boxes they can be efficiently transported in

containers or vans, eliminating the need for expensive fleets of converted refrigerated vans and lorries.

Next step

As a next step, temprify plans to expand its product range to a complete system based on the experience gained from its passive boxes. Scaling (from five to several thousand cold packs) allows setting up a comprehensive infrastructure for pre-cooling. Van bodies mounted on electric transporters round off the climate-friendly cooling system. The user can save money:

although cold packs are more expensive to buy than dry ice, all intralogistics and delivery processes will benefit from a total cost of ownership that the founders say is the lowest of any cooling method. There is much less need for expensive cold storage facilities. In addition, built-in trackers ensure that the cold chain will remain unbroken and is monitored throughout: faulty vacuum insulation panels will be identified promptly. The first full-scale projects are already underway.

Terawind

www.terawind.energy

Terawind is developing wind power plants for strong wind terrains which can harvest energy from high winds and strong turbulences.

The Austrian government programme foresees electricity to be generated entirely from renewable energy sources by 2030 at the latest. Wind power is expected to supply 25% of the required energy. To

achieve this goal, it will be necessary to build 1,000 new wind turbines over the next years. Moreover, they must not just proliferate but also become more efficient. This is the business idea behind Terawind: Philip Krammer (who studied aeronautical engineering in Hamburg and energy economics in London) aims to tap a novel technology for wind power plants that increases their output to such an extent that production costs can be reduced to the level of the electricity exchange market. Potential areas of application for the technology include, in particular, mountain



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ridges and plateaus, regions exposed to fall winds (mistral, bora) and coastlines.

Competitive electricity costs

Terawind's proprietary technology is designed for use in difficult and mountainous terrain. Particularly in the mountains, the wind flow is characterised by turbulences and short gusts, which pose a major technological challenge. To this end, Terawind is designing a wind turbine that will not only withstand strong turbulences but can even harness squalls to generate electricity. Terawind's turbines



© Terawind

Terawind

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Founded in 2021
Founder: Philip Krammer

www.terawind.energy



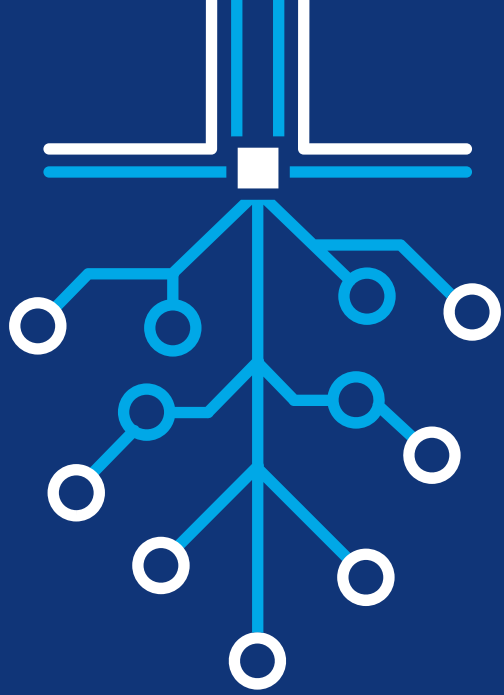
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are the first in the world to convert gusts of wind into energy, utilising the entire spectrum from light to strong winds, regardless of their stochastic nature. The turbines will be able to feed electricity directly into the grid and store energy in long-term storage systems. Due to their significantly higher yield, they will be able to achieve a comparatively low levelised cost of electricity.

Prototypes on the way

Terawind's radical technological approach opens up the innovative field of dual

wind rotors. The novel rotor blades are aerodynamically optimised, which further increases capacity. The first prototypes with larger rotor diameters are already being built and tested. The first Terawind turbines are expected to enter the market by 2027.



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Projects supported in 2022

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aitiologic	Preseed	Life Sciences	94
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Inmox	Seedfinancing	Physical Sciences	74
Innotonix	Seedfinancing	ICT	36
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nuvo	Preseed	ICT	28
ParaStruct	Preseed	GreenTech	144
PluriBot	Preseed	Physical Sciences	58
RIANA Therapeutics	Seedfinancing	Life Sciences	134
sendance	Seedfinancing	ICT	40
silana	Preseed	Physical Sciences	62
Sodex Innovations	Seedfinancing	ICT	44
SpeedPox	Seedfinancing	Physical Sciences	82

temprify	Seedfinancing	GreenTech	172
Terawind	Seedfinancing	GreenTech	176
TMIA	Seedfinancing	ICT	48
Tridem	Seedfinancing	Life Sciences	138
Turbulence Solutions	Seedfinancing	ICT	52
VENOX Systems	Preseed	Physical Sciences	66
VERDI Solutions	Preseed	Life Sciences	110
voidsy	Preseed	Physical Sciences	70

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Boosting key technologies

On behalf of the Austrian Federal Ministry of Labour and Economy and the Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology, Austria Wirtschaftsservice Gesellschaft mbH (aws) helps high-tech companies locate and set up business in Austria. A special focus is on supporting technological areas with high growth potential and innovative strength such as life sciences, information and communication technology, physical sciences and green technology.

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