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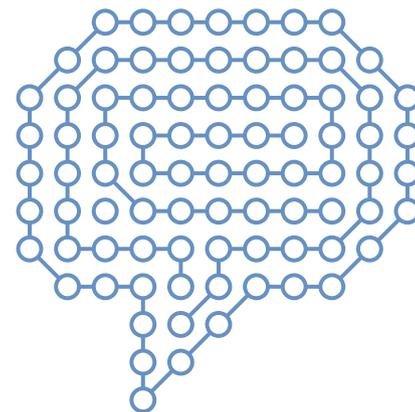
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Preface



Our province is thinking about tomorrow

Rapidly advancing technological developments bring unimaginable opportunities. We have been actively shaping the digital transformation through our digitalization strategy for many years. Our new Lower Austria 2030 strategy also places a significant focus on digitalization. Lower Austria needs to exploit digitalization for the benefit of its country and people, and so we must continue to drive our efforts to digitalize. An important step for Lower Austria's digital future was achieved with the opening of the physical House of Digitalization in Tulln, establishing a platform where business, science, research and education can come together. A house which is open not just for our enterprises, but also the entire population of Lower Austria, and which we can use to make the advantages of digitalization not only tangible, but above all beneficial.

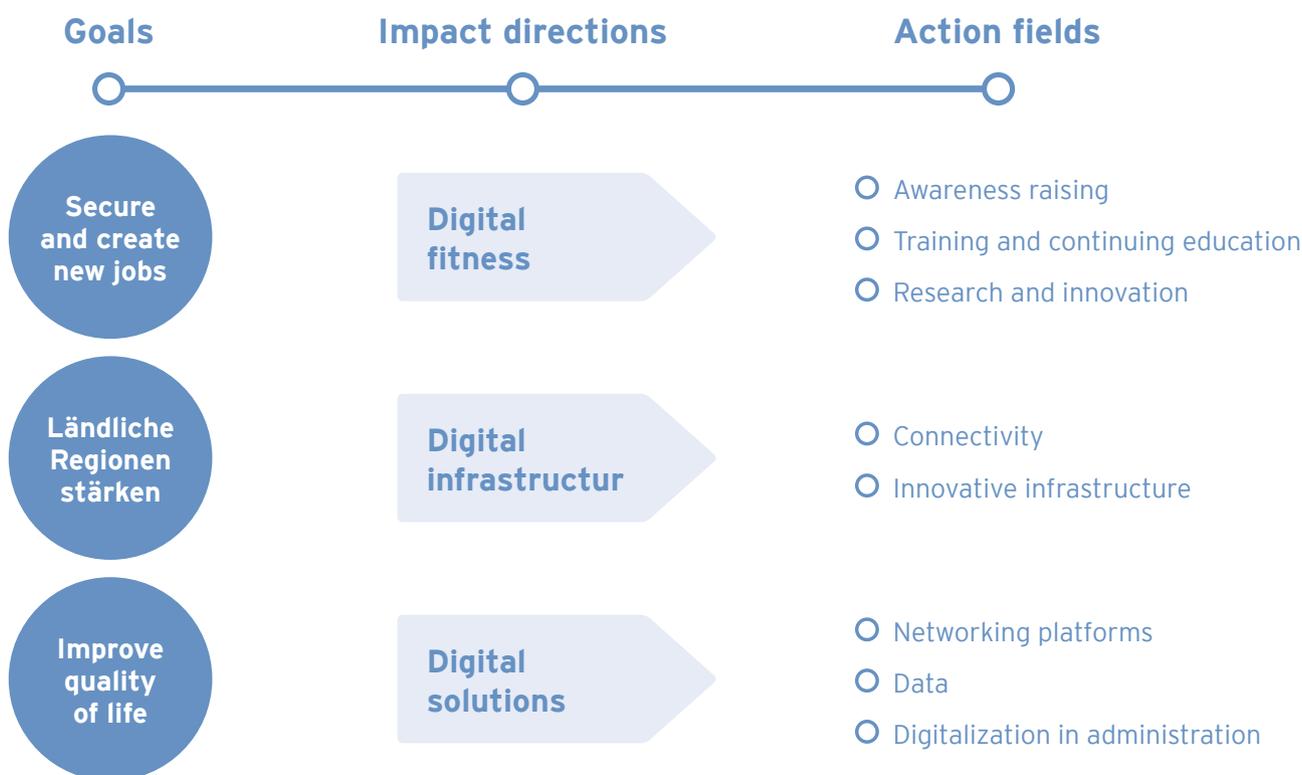
Johanna Mikl-Leitner
Governor of Lower Austria

1. The Digitalization Strategy for Lower Austria

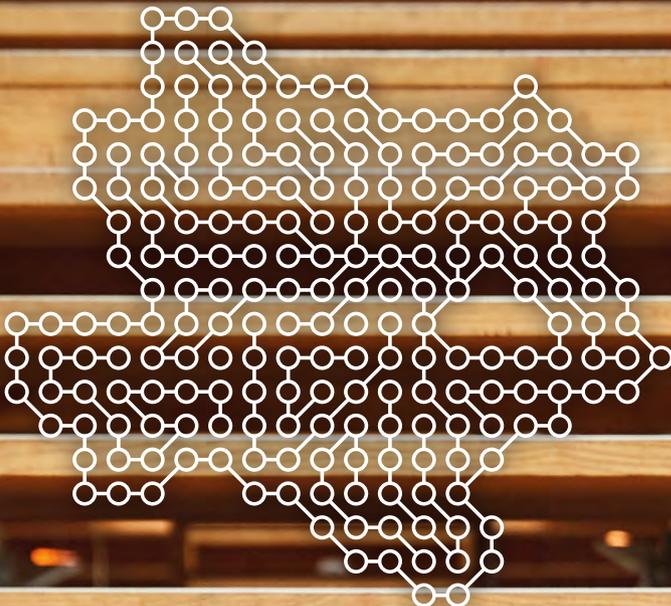
“Use the digital transformation. For country and people.”

Lower Austria’s diverse economic, structural, and geographic characteristics have all been taken into consideration in drawing up the Digitalization Strategy for Lower Austria. The basic goals of the digitalization strategy are to secure and create new jobs, to strengthen rural areas, and to improve the quality of life for everyone in the region. The digitalization strategy is designed to generate digital opportunities for both individuals and businesses.

To achieve these digitalization goals, it is important to ensure the local population, businesses, and the public sector are all fit for the future, and to develop the infrastructure needed to exploit and promote digital innovations and solutions throughout Lower Austria. Consequently, eight different fields of action have been developed within the three impact directions “Digital fitness”, “Digital infrastructure”, and “Digital solutions”.



In the eight action fields digitalization projects are developed and implemented, events organised, lectures held, and prizes awarded to achieve the defined goals.



The *digi report* documents the implementation of the Digitalization Strategy for Lower Austria based on performance indicators and best practice examples.



The Technology and Digitalization Unit, part of the Department of Economy, Tourism and Technology, was established in 2017.

The Unit's key tasks include:

- Supporting the implementation of the Digitalization Strategy for Lower Austria
- Regular internal administrative coordination with the Office of the Lower Austrian Federal Government, the Division Heads, and the representatives of the political district authorities
- Networking and coordinating diverse digitalization initiatives in Lower Austria
- Mobilising colleagues and various stakeholders with respect to specialist issues of future significance
- Initiating work groups on various digitalization issues across organisations and internally

Go to
land-noe.at/team-digitalisierung
for more information about
the Technology and
Digitalization Unit.



A green autonomous mobile robot (AMR) is positioned in the center of a warehouse aisle. The robot is cylindrical with a black top section and a green body. It has a blue light on top and two white sensors on the sides. The aisle is lined with blue metal shelving units filled with various goods, including boxes and pallets. The floor is polished and reflects the overhead lights.

Enriching, transnational exchange in Tallinn

At the Interreg Europe Peer Reviews held in Tallinn, the Technology and Digitalization Unit presented several examples of good practice from Lower Austria which offered inspiration for the Estonian capital Tallinn's own digitalization strategy.

Cooperation agreement signed in Estonia

During an August 2022 visit to Tallinn's Ülemiste City technology campus and the E-Estonia-Briefing-Center by a delegation of the Lower Austrian Provincial Government and Ecoplus, and accompanied by the Minister for Digitalization Jochen Danninger, a cooperation agreement was signed between the House of Digitalization and the Estonian association for information technology and telecommunications.



The Department of Economy in the Office of the Lower Austrian Federal Government is involved in several EU projects to drive **networking and exchange at EU level**. These findings are also used to support the digitalization process.

The digitalization process is supervised by an **expert advisory board** which considers the results of the work groups, providing recommendations and suggesting measures in line with the strategy.

2.

Annual focus for strategy implementation in 2022: Digital fitness

Every year, implementation of the Digitalization Strategy for Lower Austria has involved choosing a particularly topical and relevant thematic focus for the province.

In 2022, the Technology and Digitalization Unit focused on the topic of “Digital fitness”:

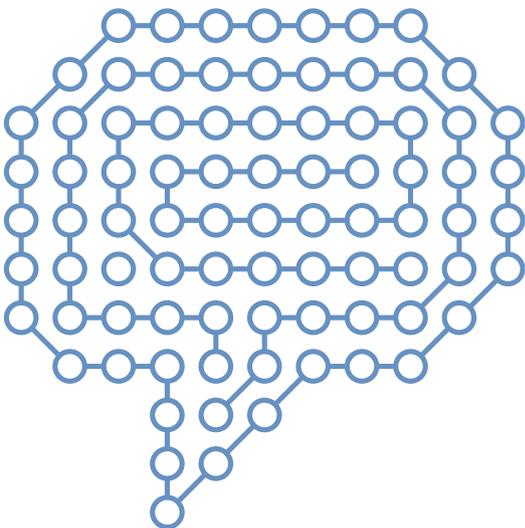
Digitalization is a megatrend which has already fundamentally changed the nature of our society, economy, and culture, and will continue to do so in the future. Irrespective of society or group, and of national borders, an increasing number of areas of our lives will become digital, whether we are aware of it or not. The decisive factor here is people, and the way we manage new

developments as well as the constant expansion of skills and know-how.

The unit divides “Digital fitness” into three action fields:

- Awareness raising: digital participation
- Training and continuing education: society with digital skills
- Research and innovation: digital technologies and trends

On the following pages you can read about the activities that the unit has initiated and implemented to rapidly drive forward this annual focus.



Condensed know-how in technology workshops

The technology workshops are an open format for the exchange of know-how within the provincial administration. They address topical issues related to digitalization which are relevant for the future. Structured in a condensed format, experts explore the potential offered by new technologies and applications and discuss possible future applications at provincial level.

In 2022 technology workshops were held on the following topics:

- NFTs (Non-Fungible Tokens) – what’s behind the digital hype in the art world?
- Digital Euro & blockchain – how does it impact the provincial administration?



Glimpse into the trend management workshops

Heidi Maurer from the University for Continuing Education Krems guides the trend management workshops. The photos show employees in the finance division developing future scenarios for their own departments.

© WST3 Trendmanagement-Workshops



Trend management workshops in all departments of the Provincial Government Administration

The aim of the workshop series, with its 11 groups and 20 political district authorities is to become familiar with trend management, to jointly consider current digitalization trends, and to formulate a vision of the future which can be used to derive specific actions. The project runs through to 2023 under the leadership of the Office of the Lower Austrian Federal Government, together with the Technology and Digitalization Unit, the IT Department of the provincial administration, and the University for Continuing Education Krems.





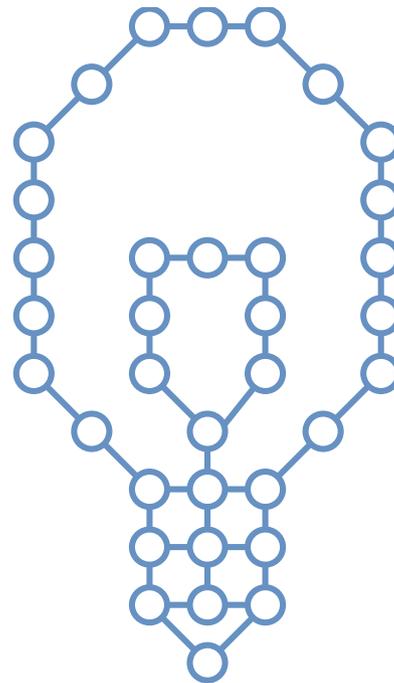
State Office Director Werner Trock, Governor Johanna Mikl-Leitner, Kerstin Koren, Head of the Department of Economy, Tourism and Technology, and Hans Zöhling, Head of LPV, look forward to the many submissions.

Start of the Lower Austrian digi contest 2.0 ideas competition

The digi contest 2.0 ideas competition searches for the best ideas for digitalizing the Provincial Government Administration. They include digital solutions to simplify administrative processes and workflows and improved digital services for our citizens and employees. All provincial government employees are invited to take part. In 2023, a jury will select the best ideas, award the winners, and then prioritise the ideas for implementation.

Thematic work groups with focal topics

Since 2017, thematic work groups with internal and external stakeholders have considered the topics of economics, agriculture, tourism, sport and culture, the labour market, training and continuing education, energy, and sustainability. Working in the groups, participants discuss experiences, project topics and plans in the field of digitalization, and develop specific focal topics. Taking the annual focus of "Digital fitness" as their basis, several kick-off talks were given on subjects such as e-sports, digital farming, and basic digital education.



Showroom in the foyer of House 1A with six stations:

- Digital communication in the Lower Austrian Federal Administration
- The digital work environment and health
- House of Digitalization
- Technology station
- Expanding fibre optic availability – Lower Austria Model
- LPV mobile

Image below, from left to right: Deputy State Office Director Gerhard Dafert, Verena Krammer (Head of the Department of Personnel Matters A), Keynote Speaker Michael Bartz, Kerstin Koren (Head of the Department of Economy, Tourism and Technology), Christian Winter (Technology and Digitalization Unit), and State Office Director Werner Trock at the Digitalization Forum

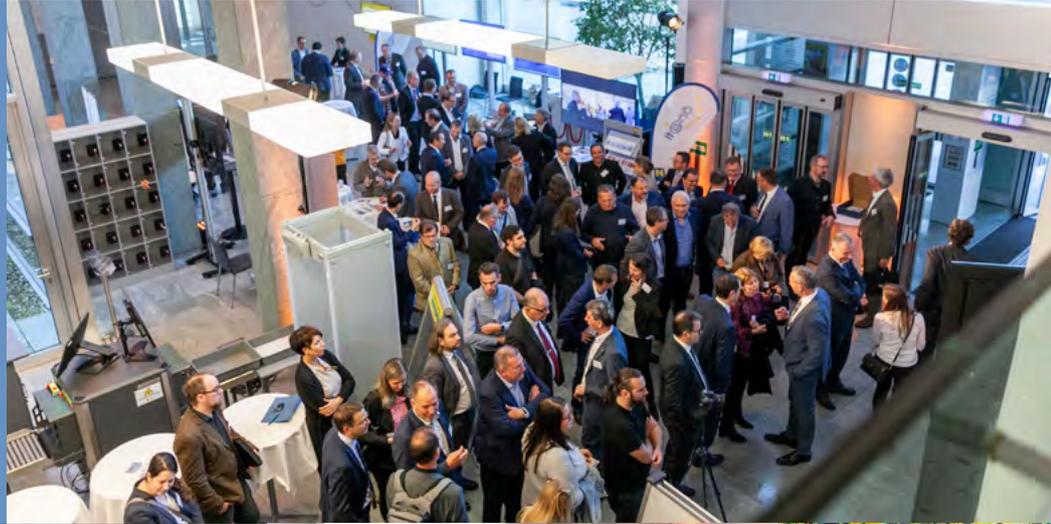


Image above: Actively contributing in the Ostarrichi Hall

Image left: Keynote Speaker Michael Bartz, IMC FH Krems, on the topic of:
Generation change - expectations of digitalization and new working methods

Images: © Lechner



Kick-off meeting in Krems in May 2022 with the mayors and coordinators of the five pilot communities together with the project partners
© WST3



© Andreas_Hofer

LENIE - pilot platform for digital village and community living

LENIE is an acronym for “living in Lower Austria” and is a free app offering digital support for village and community life. The idea was developed by citizens during a sandpit process on “digital solutions for successful village and community living”. Its aim is to link the local population more closely and involve as many groups of people as possible in village and community activities. The “making & helping” module, for example, allows users to organise events, initiate and realise projects, and form special interest groups. The LENIE prototype will be tested and actively developed in five pilot communities through to May 2023. The five pilot communities are spread across Lower Austria and were selected by a jury following an application process.¹

Digitalization survey in 140 Lower Austrian companies

The results of the survey highlight the growing importance of future technologies. 2020 and 2021 were marked by the corona pandemic and a huge boost in digitalization. Eighty-one percent of the companies enjoyed efficiency and productivity gains because of digitalization while over half those surveyed recognised how digitalization offered advantages over their competition. Investments in data evaluation allowed 58 percent to improve their business processes; 86 percent would use cloud computing; and 91 percent of the companies surveyed see a significant need for more training in data security and data protection. The demand for employees with STEM qualifications continues to grow.²

According to a company survey: digitalization brings competitive advantages, increases efficiency and productivity, and acts as a long-term stimulus.

¹ The Technology and Digitalization Unit is coordinating implementation of the LENIE pilot platform which will be realised together with the NÖ.Regional, DiH-OST and the FOTEC Forschungs- und Technologietransfer GmbH – the Wiener Neustadt University of Applied Science’s research company.

² The survey was conducted by the Lower Austrian Provincial Government, the Federation of Austrian Industry for Lower Austria, and the Lower Austrian Chamber of Commerce, in June and July 2022. A total of 140 companies based in Lower Austria with more than 30 employees were questioned about their current digitalization status.

Hackathon with the Master programme in Data Intelligence at the FH St. Pölten

The “AI for Social Goods” course is held during the third semester of the Master degree programme in Data Intelligence at the St. Pölten University of Applied Sciences (FH), and is condensed into the form of a hackathon. The Lower Austrian Provincial Government provided the hackathon on “Artificial Intelligence 4 Social Good” with traffic data, data from the Lower Austrian air quality monitoring network, and Lower Austrian water level data. Artificial intelligence was then applied to come up with potential solutions to current problems:

- The “Time series pollutant predictions” project predicted pollutant levels for Wiener Neustadt and analysed whether there was a correlation between pollutant and traffic data.
- The “Hydrology dashboard” applied other parameters to show trends, station comparisons, mathematically supported operations, and perform water level modelling.
- The third group considered traffic and accident data, and examined the impact of the public transport networks on private transport and the relationship between transport type and number of accidents.

The students’ results were presented and jointly discussed with the IT Department of the Provincial Government of Lower Austria, the Department for Water Management, Department for Systems Engineering, the Roads Division, and the Technology and Digitalization Unit, creating a win-win situation for all involved.



The students are in the last year of their degree programmes and so are well versed in their specialist areas.
© FH St. Pölten



3. Current projects in the eight action areas

Impact direction

Digital fitness

Action fields

- Awareness raising
- Training and continuing education
- Research and innovation

This impact direction is aimed at stimulating **citizen** interest in new technologies, their application and responsible use. **Companies** should incorporate the technologies in their business models, solutions, processes, and products, and develop new technologies. The **public authorities** use new technologies to manage workflows, and to ease access to skills and services for citizens and companies.

Digitalization in Lower Austria's schools

Over the past two years, digitalization has achieved a momentum which would previously have been regarded as unconceivable. A range of fascinating projects are currently underway for pupils of all ages in Lower Austria's schools.

The rollout of the Federal Ministry of Education, Science and Research (BMBWF) **device initiative, part of its 8-Point-Plan for Digital Learning**, at lower secondary level in 2022 was something which just a few years ago would have seemed impossible. More than 90 percent of all impacted schools in Lower Austria are currently taking part in this initiative to equip pupils with digital terminals. The initiative includes investments in basic IT infrastructure made by education providers (e.g., federally funded academic secondary schools (AHS), and municipally funded compulsory education (APS)) for digitally-supported instruction in the classroom.

September 2022 saw the national launch of **basic digital education as a compulsory** subject at lower secondary school level, with one weekly lesson in the subject for pupils in each year of lower secondary school. The new basic digital education syllabus examines the functions of digital technologies, the social impact of their use, and the interactions and potential courses of action this opens up for pupils. The areas of digital competence covered include orientation,

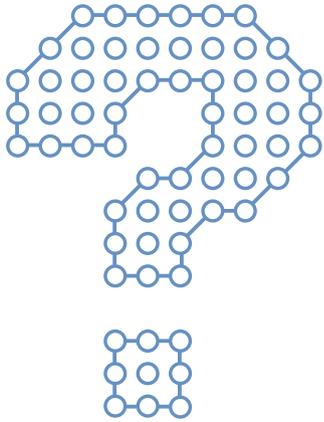
information, communication, production, and management. Digital skills are currently also being included in primary school curricula so that pupils can take a considered approach to the Internet and a playful approach to technology and problem solving.

Together with the initiatives described here, the increased acceptance of the use of digital media in the classroom setting following the recent pandemic has had a positive impact on the scale of **training and continuing professional development undertaken by teachers in Lower Austria**. For example, compared to the period prior to and during the pandemic, in 2022 the University College of Teacher Education Lower Austria ran more training events with digital content or related to digitalization, and recorded an increase in the number of participants. With respect to continuing education in the 2022/2023 academic year, the figure of 115 teachers attending the four-semester university course on teaching basic digital education at the University College of Teacher Education Lower Austria alone was more than twice the number in the previous year.

These developments are not only improving teacher training, but at some schools they are also setting a development process in motion which ranges far beyond aspects of digitalization. Teachers are asking themselves how pupils should learn at school under these changing circumstances, and the competences that pupils should have acquired before leaving school. These are (digital) school development processes which are either supervised externally or coordinated by steering groups in the schools themselves. It is extremely encouraging to note that this is taking place not only in secondary schools, but also in primary schools, to expand tried-and-tested classroom-based teaching methods with the addition of new digital options. Find out more on page 20.³

As a supplement to **basic digital education** as a new compulsory subject, a total of over 50,000 digital terminals will be handed out to pupils in Lower Austria's 369 participating secondary schools, special needs schools, and lower cycles of academic secondary schools.

³ Text: Peter Groißböck, University College of Teacher Education Lower Austria



Action field: "Awareness raising"

The "Awareness raising" action field covers analysis of current topics and trends, the potentials and opportunities offered by the digital transformation, and the involvement of all age groups.

Key indicators and results in 2022



237,000

euros for the Call
"Art and culture in
the digital realm"

120

companies at the
DiH-OST/HdD
workshops

32

Lower Austrian
applications to the Call
"Art and culture in the
digital realm"

Call "Art and culture in the digital realm"

The 2021 Call "Art and culture in the digital realm" organised by the Federal Ministry for Arts, Culture, Civil Service and Sport (BMKÖS) together with all the provinces was successfully implemented in Lower Austria. The aim was to stimulate and incentivise digital projects and new and innovative formats for artistic productions, for the dissemination of knowledge and cultural education, and communication with audiences. Lower Austria was allocated EUR 474,000 in funding for the Call, made up equally from Federal and Provincial funds. Consequently, the Lower Austrian Provincial Government invested EUR 237,000 in realising innovative digital art and cultural projects. Ten exciting projects chosen from the 32 submissions were realised in 2022. The submissions ranged in size from small initiatives by individual artists, projects submitted by associations, to major museum projects. When selecting the projects, attention was paid to ensuring that all forms of artistic and cultural endeavour were represented.



© dih-ost.at

Extension of the Digital innovation hub - East (DiH-OST)

The project, organised by ecoplus digital GmbH, offers low threshold formats for immediately effective projects which can be quickly implemented by SMEs. DiH-Ost is an active partner in the Austrian and European Digital Innovation Hubs network. Its primary aim is to encourage joint project and the sharing of best practices.



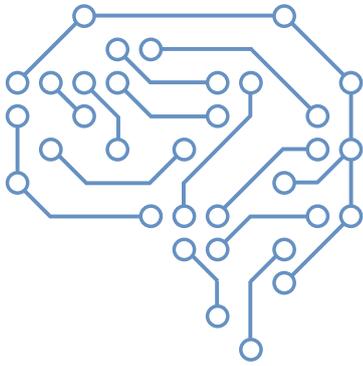
The Digital Museum at the Haus der Wildnis wins Lower Austria tourism prize

In 2022, the redesigned Lower Austria tourism prize allowed entries in the digitalization category for the first time. This recognises projects offering guests a digital approach which is innovative, focuses on services, and may also be personalised. The nominees were the Archäo Basis digital voyage of discovery at the MAMUZ Schloss Asparn, the streaming suite in the At the Park Hotel in Baden, as well as the Haus der Wildnis world heritage centre with its digital applications which was the eventual winner in this category. The Dürrenstein-Lassingtal wilderness reserve is subject to extremely strict protective measures, with little or no public access to its primary forest. Its wide range of augmented reality, virtual reality and other modern technology applications offers visitors insights into this unique habitat, serving to raise public awareness and appreciation of this treasure.



Experience new technologies at the Landhaus celebrations and at the network meeting for apprentices

The first network meeting for the Provincial government's apprentices was held at the Auditorium Grafenegg and took as its motto "Apprenticeships meet digitalization". Governor Johanna Mikl-Leitner, Verena Krammer, Head of HR, and futurologist Tristan Horx spoke about apprenticeships, digitalization, and the future. In one showroom, demonstrations were given of how modern technologies are used by various administrative Office of the Lower Austrian Federal Government. The Technology and Digitalization Unit (supported by the HTL Krems) was also represented, with three interactive stations focusing on robotics, artificial intelligence, and augmented reality, to increase awareness of these topics. One hands-on station featuring Pepper the robot, virtual animals and a sketching station based on artificial intelligence encouraged visitors to immediately test the new technologies. The three stations were also set up at the Landhaus celebrations in St. Pölten.



Action field: "Training and continuing education"

The "Training and continuing education" action field teaches digital skills. It starts at kindergarten age and includes all sectors of the population.

Key indicators and results in 2022

15

webinars as part of the provincial administration's training programme



60

training courses on the provincial administration's training programme were conducted online.

927

applications for Lower Austria "Work Environment 4.0" education funding were approved.

1,768,048.73

in funding were approved for the Lower Austria education support programme "Work Environment 4.0".

>100

certificates of completion issued at the Security Boostcamp

Digital pilot projects at Lower Austrian schools

Pilots for an electronic development portfolio are currently underway at the cross-over between kindergarten and primary schools. In addition, digitalization plans are being developed in selected primary schools. There is also intensive cooperation at this level between the Lower Austrian Provincial Government and the relevant departments, and with the House of Digitalization in Tulln.

A task force ("Task Force Sek. II") is being established for the secondary school upper cycle which will draw on experiences from the secondary school lower cycle to develop ideas for schools for intermediate and higher vocational education (BMHS). This will ensure that the schools are well prepared to receive the pupils in the 8-Point-Plan with their digital terminals arriving in the 2024/2025 school year.

Training on the subject of digitalization at www.virtuelleshaus.at





© Andreas Hofer

New training plan for new Provincial employees

The IT Department of the provincial administration has worked together with IT coordinators to create a customised training programme designed to enhance the digital fitness of our new employees when it comes to working with the specific systems used by the administrative Office of the Lower Austrian Federal Government. Basic training is given at the employee's own administrative office while add-on courses are provided by central trainers. Courses are offered via classroom training, e-learning, and with tests on learning objectives held independent of time or location.



EUR 1.1 million for the Lower Austria education support programme "Work Environment 4.0 – Fit for Digitalization"

As part of the Lower Austria education programme "Work Environment 4.0 – Fit for Digitalization", the Lower Austrian Provincial Government is supporting digital education for its working population, promoting the development and enhancement of digital skills amongst employees. Eighty-eight percent of the applications were submitted by women. Amina Suljicic, for example, who works in the retail and sales industry, applied for funding to train as a Social Media Performance Expert at the AMC Wirtschaftsakademie GmbH to expand her digital skills. After completing the 10-month digital course, Ms Suljicic is now well versed in the latest information and communications technologies and is equipped to develop social media and online marketing campaigns as well as web strategies.

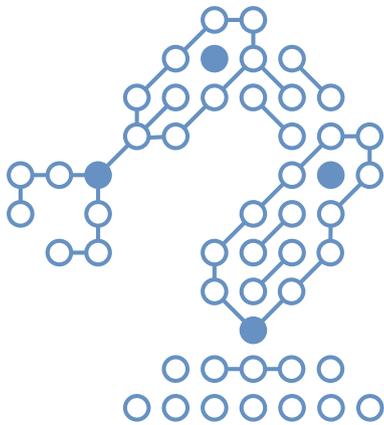


Security Boostcamps for greater data security

As our economy becomes increasingly digital, it also becomes more vulnerable to cyber threats. For this reason, in 2022 the House of Digitalization focused on "Preventative IT Security for SME". The Lower Austria Security Boostcamp was launched in response to the growing demand for specialists in this field, to increase awareness of the need for IT security, and to support participants on their path to achieving "Microsoft Certified" status. Cooperation between the House of Digitalization, Microsoft, the Enterprise Training Center (ETC), the Lower Austrian Chamber of Commerce and the Federation of Austrian Industry for Lower Austria allowed places on the course costing €1,500 to be offered for €99. In total, 70 certificates of completion were issued after the first two Security Boostcamps.

World class in robotics

At the Botball robotics contest in the USA, a team of pupils from the HTL Wiener Neustadt walked off with both a world championship and vice-world championship title, as well as a "Second Place Overall".



Action field: "Research and innovation"

New digital opportunities for technological product, process and organisational innovations are being developed within the "Research and innovation" action field. The Digital fitness measures will help to secure and create new jobs.

Key indicators and results in 2022



New Cyber Defense Center at the St. Pölten University of Applied Sciences

The Cyber Defense Center has been established at the St. Pölten UAS to effectively prepare students to master the challenges they will face in business. The Center comprises the Cyber Defense Lab and the Cyber Defense Command Center and allows students to undertake practical tasks which familiarise them with monitoring, advising and managing cyber security, thereby acquiring and developing skills they can use in their future professional careers. Students are confronted with a combination of actual production data and simulated attacks as a means of optimising the learning experience. The Center is also valuable for science as it allows new know-how to be created, and new applications and technologies to be developed. The Cyber Defense Center for teaching was established with funding from the Lower Austrian Provincial Government.

⁴ Research, development & innovation – infrastructure projects and technology centres

⁵ The programmes were administered by the Department of Economy, Tourism and Technology at the Office of the Lower Austrian Federal Government.

⁶ digi4Wirtschaft is administered by the Department of Economy, Tourism and Technology at the Office of the Lower Austrian Federal Government and the Lower Austrian Chamber of Commerce.

⁷ at the Provincial Government of Lower Austria



© R. Herbst

WIBA

At the transdisciplinary WIBA workshop, people from business, education, science, and work come together to discuss current topics. One of the three workshops held at the event focused on the targeted expansion of digitalization skills in companies. It explored the need for digitalization skills, developed ideas for enhancing digitalization skills as part of the services offered by the House of Digitalization, and put together a range of possible measures.⁸



Digital tourist taxes: co-creation in the inGOV research project

Currently, data for tourist taxes are manually submitted by hotel owners to local municipalities, and then to the Lower Austrian Provincial Government, using Excel sheets. The EU H2020 “inGOV” research project is analysing and improving the manual processes involved in administering the tourist tax (§ 12 Lower Austria Tourism Services Act 2010). This involves a wide variety of stakeholders taking part in interviews and workshops run by the Lower Austrian Provincial Government (Department of Economy, Tourism and Technology) together with the provincial administration’s IT Department and the University for Continuing Education Krems. They are searching for ways in which digitalization can minimise the manual steps involved in submitting data, simplify the processes, and reduce errors. In total, 13 European partners in four pilot regions (Croatia, Greece, Malta, and Lower Austria) are evaluating, developing and testing a variety of digital services for use in public administration.



Findings available more quickly to all clinics

Pathological expertise plays a key role in the diagnosis and treatment process, e.g., on the interdisciplinary tumour board for cancer treatment. In Lower Austria’s provincial health agency (LGA), this highly specialist pathological know-how is spread across seven clinical locations. Introducing a unified pathology information system with an electronic system of standards covering each clinical area will significantly enhance cooperation between the clinics, while the end-to-end electronic processes will ensure patient safety. As a result, the findings used in diagnosis will be available to all the clinics more quickly. This digitalization process will also provide the basis for telepathological diagnosis independent of location.

⁸ WIBA: WIBA is an annual event organised and run by the Departments of Economy, Tourism and Technology, Science and Research, and Schools in the provincial administration.



○ Impact direction

Digital infrastructure

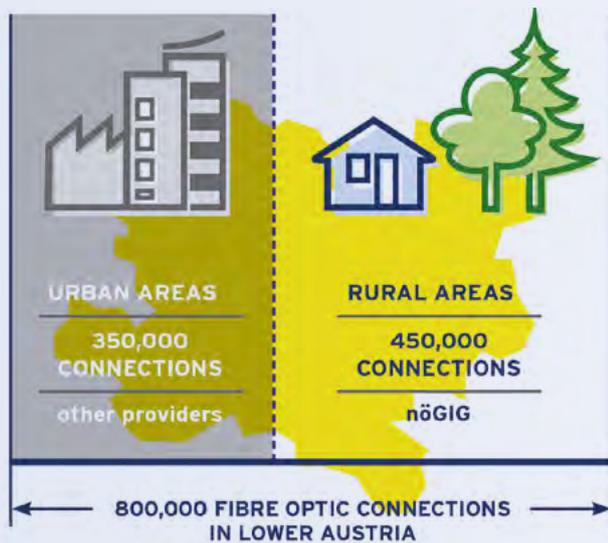
○ Action fields

- Connectivity
- Innovative infrastructure

The aim of this impact direction is to ensure that the largest possible number of households and businesses across Lower Austria have access to Gigabit-capable broadband access by 2030. The broad-ranging infrastructure is an essential prerequisite for using new technologies, for economic growth, innovation, and territorial integrity. For this reason, all households, companies, and public institutions in Lower Austria should have access to stable data networks.

Fibre optic infrastructure: “Lower Austria model”

Lower Austria is the country’s only province with a master plan for creating a powerful broadband infrastructure throughout the region, laying fibre optic cables which run directly to individual households. This will give a total of up to 800,000 households and companies in Lower Austria (350,000 users in urban and 450,000 in rural regions) access to high-speed broadband infrastructure.



What does this mean for the different regions?

1. Rural municipalities

Coverage in rural areas is being largely provided by Lower Austria’s fibre optic company (nögig) according to Lower Austria’s broadband model, on behalf of the Lower Austrian Provincial Government, and in close cooperation with the municipalities. By implementing the Lower Austria model, nögig ensures that local communities with fewer than 5,000 inhabitants will also have high-speed internet access. Consequently, the project plays a significant role in strengthening rural regions.

2. Urban areas

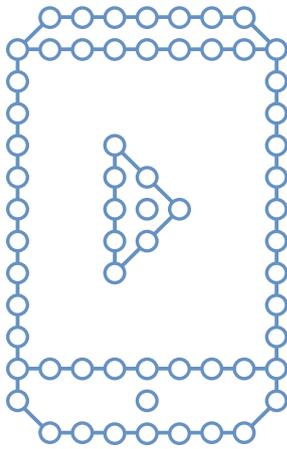
In densely populated urban areas it can be assumed that traditional telecoms companies will provide sufficient broadband infrastructure and gradually expand availability of fibre optic cables.

3. Peripheral regions

Provision of fibre optics cables to peripheral regions is very costly. Therefore, the Lower Austrian Provincial Government is providing EUR 100 million in top-up funding for the Austrian government’s broadband strategy, BBA 2030. This will provide up to 115,000 households and businesses with access to fibre optic cables.

More
information
www.noegig.at





Action field: "Connectivity"

Connectivity means giving society, businesses, and the public authorities the chance to focus on digitalization and assume responsibility for digital matters. Digital controls which incorporate data security and data sovereignty turn existing infrastructures into intelligent infrastructure.

Key indicators and results in 2022

>100

rural municipalities in which nÖGIG is actively expanding fibre optic availability

103,681,785

route calculations on AnachB.at (website and app)

EUR
275,5 million

in additional funding assigned for fibre optic networks for Lower Austria⁹



Process control system for six Lower Austria landfill sites

The Lower Austrian Provincial Government is responsible for managing eleven municipal waste disposal sites which are now closed. Regenerative thermal oxidisers (RTO) have been installed at six of these landfill sites to reduce gas emissions from the waste. To date, the data for monitoring operation of the RTOs have been serviced by an external company and its servers. Now that a process control system has been installed, the data are transferred to the servers belonging to the IT Department at the provincial administration where they can be viewed directly. The sensors in the RTO measure values such as CH₄ and O₂ and temperature. Properly presented, the data can be evaluated, and the RTOs remotely serviced. As a result, it is possible to respond according to the situation, and uphold the public authorities' duty of documentation.

⁹ from the "2nd broadband billion" (BBA 2030)

¹⁰ The RU7 (project lead), WST3 (finance), LAD1-IT, Office of the Lower Austrian Federal Government, Technical Motor Vehicle Matters, Facilities Management as well as the DPV-Landhaus are involved in implementing the project.



© NLK Pfeffer

Carpooling with Mila (“Mobil im Land”)

The Mila carpooling platform launched in May 2022 with a pilot for provincial government employees at the Landhaus St. Pölten. A free and user-friendly app designed for employees automatically locates car sharing opportunities, offering the option to reserve seats, determine pick up and drop off points, and provide a replacement car to ensure the journey can be made.¹⁰



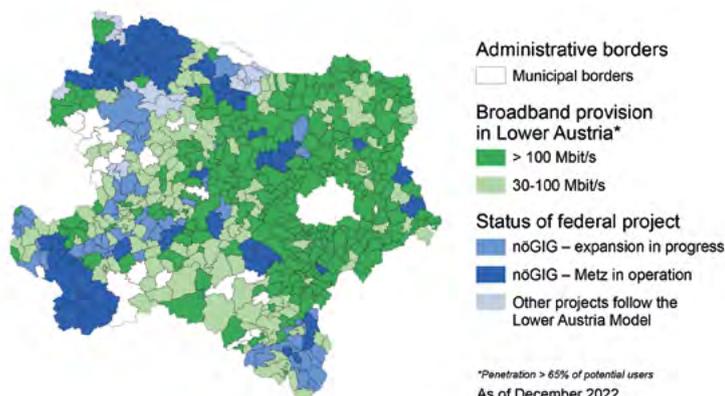
The Lower Austria broadband model

Open, public, future-proof

Lower Austria’s showcase project, already the recipient of several European prizes, is bringing high quality fibre optic infrastructure installed by nōGIG to local communities with fewer than 5,000 inhabitants. This infrastructure will remain permanently under majority public control. nōGIG installs only open fibre optic networks, i.e., they are available to a variety of service providers under the same conditions. This brings Gigabit-capable internet access to rural areas and ensures fair competition amongst service providers. As a result, customers can choose from a series of products at attractive prices.

nōGIG active in more than 100 municipalities

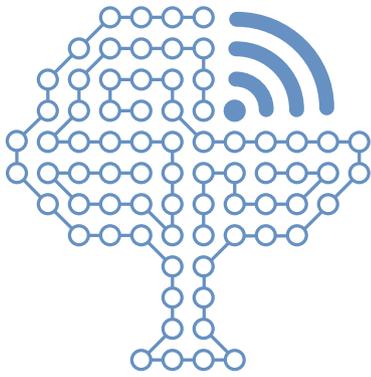
Broadband expansion well underway in Lower Austria. nōGIG is already actively expanding fibre optic availability and its networks in around 100 rural municipalities.



By the end of 2022, 60,000 households were already enjoying state-of-the-art fibre optic connections. Up to 35,000 extra households in Lower Austria should be connected each year, enjoying all the associated added value and employment effects this brings. The project is guaranteed by the current agreement on Federal funding from the second “broadband billion”.

Equal opportunities in rural regions

A total of EUR 275.5 million has been allocated to Lower Austrian projects as part of federally funded BBA 2030 OpenNet and Access Calls. This ensures that broadband coverage will accelerate significantly, and the market will be newly divided up. The promised funding is an important step towards achieving equal opportunities in the regions, because only fibre optics ensure that all residents of Lower Austria enjoy reliable and powerful internet access, irrespective of where they live. A powerful fibre optic infrastructure is also a key location factor for business. It is already very clear that more companies move to regions which already have fibre optic infrastructure. This creates new jobs for skilled employees and raises the value of local housing stock. As a result, the more remote areas can continue to be attractive for younger generations.



Action field: "Innovative infrastructure"

The digital infrastructure measures will strengthen rural regions, and further improve the quality of life in Lower Austria.

Key indicators and results in 2022

8,636

new e-vehicles
registered

374

fast charging points
(charging capacity
over 50 kW) in
Lower Austria

3,421

normal charging points
in Lower Austria



Digitalization of siren controls

Lower Austria's warning and alarm system quickly alerts the local population and emergency services in the event of disasters, civil emergencies, fire and danger. In essence, it consists of the communication and control centre, the radio transmission network, the radio alarm controls, and the network of sirens. The warning sirens are activated by the fire service control centre and the regional alarm centre. The siren controls based on analogue technology are outdated and no longer produced and must therefore be replaced by digital systems. Digitalizing the roughly 2,450 siren controls creates secure transmission networks which allow all sirens across Lower Austria to be set off within a matter of seconds. The project is being implemented in close cooperation with Lower Austria's fire brigade. The project is currently under tender and will be rolled out across Lower Austria between 2023 and 2025.



© Andreas Hofer

Inspection app for the water authorities

The mobile app for Lower Austria is designed to document all on-site water inspections (online/offline), and directly synchronise them with Lower Austria's water information system (WIS NÖ) where the information can be digitally processed. The first expansion phase for the digital documentation of water inspections (water status) was designed and launched by the Provincial Government Administration's IT Department. The launch of the next expansion phase for digitally documenting water inspections (facility inspections) is scheduled for the end of 2023.



3D printing in Lower Austria's Road Services

In 3D printing, material is applied layer by layer in a computer-controlled process and shaped by a hardening or melting process. There are many advantages to this technology with its rapid, resource saving and economical production of accurate scale models. It opens new opportunities and allows production to be easily customised. Lower Austria's Road Services department has already used 3D printing to visualise construction projects, creating two models: of a bridge over the River Perschling in Kapelln, and a section of the Großglobnitz-Kleinpoppen bypass project. 3D printing, or additive manufacturing, can be used to construct not only models but also larger scale objects. Other applications are currently being evaluated and include the standardised manufacture of prefabricated components both for new construction and maintenance.



LISA.Tulln

The LISA.Tulln project is establishing a spectrum of services for Tulln an der Donau incorporating public transport, bicycles, and innovative mobility concepts. One aim is to reduce reliance on private cars, and to quickly connect prioritised locations such as the House of Digitalization to local railway stations. One highlight is the first-ever use of an e-shuttle to provide an on-demand system with blanket coverage. The e-shuttle can be booked at the standard VOR tariff, either by telephone or using the new VOR-Flex app, and is integrated into the public transport services network. The three-year pilot phase commenced on 1 January 2023.

LISA.Tulln is a joint project of the Lower Austrian Provincial Government, the municipality of Tulln an der Donau, and the House of Digitalization.



Impact direction

Digital solutions

Action fields

- Networking platforms
- Data
- Digitalization in administration

Digital solutions play an important role in improving and simplifying processes and communication. This impact direction supports companies, particularly SME and start-ups, in developing new customer-oriented products and services. Lower Austria's **public administration** continues to work hard to achieve the digital transformation, acting as a role model in terms of generating added value for society.

Agile SCRUM method

Together with the responsible administrative offices, requirements are analysed on a step-by-step basis in so-called sprints, each lasting between two and four weeks, during sprint planning meetings, and then programmed. The sprint is followed by testing, and finally acceptance by the future users.

The software creators for the Provincial Government Administration

Agile software development paired with continuous integration and delivery brings rapid results

The Provincial Government Administration has been processing its documents electronically for around 65 years. Although the underlying technologies have naturally changed over time, the goal is still to quickly and efficiently develop modern software to meet the needs of the Provincial Government's administrative offices.

The provincial administration is faced with increasingly varied and complex demands. This is reflected in the 150 specialist applications whose technologies and functions need to be constantly updated. Since 2006, the IT Department of Lower Austria's Provincial Government Administration has relied on the agile **SCRUM method** in its software development, to ensure rapid implementation cycles and high-quality software. This also allows any necessary adaptations to be promptly recognised, while finished parts of the software can be progressively implemented. The actual process of creating software has been accelerated since 2017, through automatism including the **continuous integration (CI) and continuous delivery (CD)** of programme parts.

Continuous Integration (CI) and Continuous Delivery (CD)

Sections of code should be promptly (at least daily) tested for compatibility with sections developed by other developers to ensure the software quality. Continuously delivering new and partial functions of an application in test systems allows the responsible office to decide to accept the software in the production system at any time. Automating these processes reduces the chance of error and accelerates workflows.

Funding school starting benefits in Lower Austria

121,300 submitted applications were approved. 21,000 applications were approved and paid out within the first four days.

Funding blue-yellow electricity price discount

Almost 65,000 applications were processed directly by the Lower Austrian Provincial Government; 345,000 applications were approved by the EVU.

The following examples demonstrate the agile method in operation in the provincial administration's IT Department:

In just two months, the IT Department of the Lower Austrian Provincial Government developed comprehensive software solutions for the two funding schemes **school starting benefits** and **blue-yellow electricity price discount**, covering everything from submitting funding requests to payouts.

Automatically processing the funding requests submitted online and using the central residential register to automatically validate the data creates a win-win situation: a significant reduction in manual administration for the departments involved, and citizens receiving their payouts within just a few days. The software solution also allows administrators to check the process.

For the **blue-yellow electricity price discount**, central web services allowed the three largest energy suppliers in Lower Austria to call up the central residential register and check multiple applications when processing the discount for their customers. The informative responses provided by web services allowed energy providers to process invalid applications appropriately and in a targeted manner.

For both funds, **up to 90 percent of processing was automated.**

dig4Wirtschaft programme helps local companies to digitalize

By continuing the dig4Wirtschaft programme, the Department of Economy, Tourism and Technology at the Lower Austrian Provincial Government and the Lower Austrian Chamber of Commerce are driving the digitalization of processes in Lower Austria's production industry and SME.

Key indicators and results in 2022

5

dig4 Kickstart proposals were approved.

65

dig4 Assistants were issued.

352

dig4 Investment project applications were approved.

34

companies took part in the dig4 Kickstart workshops.

The dig4Wirtschaft programme is divided into three separate offerings:

dig4 Kickstart

The latest round of the dig4Wirtschaft programme sees the addition of the dig4 Kickstart pillar. The workshop programme is a simple and effective starter programme to strengthen digitalization and the competitiveness of companies in Lower Austria. In each round, run over a period of three days, up to ten companies receive specialist input from experts and can learn from and inspire one another.

dig4 Assistent

The Lower Austrian Chamber of Commerce provides companies with consulting input from certified experts to explore the opportunities that digitalization offers. Specific implementation plans were drawn up and subsequently submitted to dig4Wirtschaft. Cooperation with the Lower Austrian Chamber of Commerce's technology and innovation partner (TIP) simplified the submissions process. The dig4 Assistent can be used for innovative digitalization projects at any time.

dig4 Investition

dig4 Investment supports investment for implementing and improving digitalization processes which are realised according to a detailed plan. They are supported by a grant and/or a NÖBEG guarantee to secure financing.

The following companies have successfully participated in a digi Kickstart workshop:



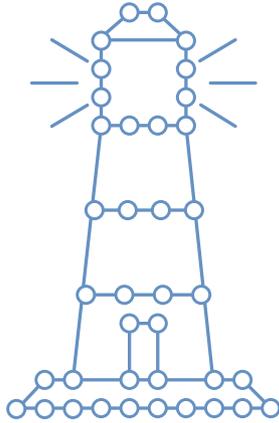
NaKu e.U. produces biodegradable bags and bottles made from renewable materials and is a competent partner in a variety of biodegradable projects. The company is introducing a new CRM solution to make its service even more customer focused. After involving a variety of stakeholders to successfully define the requirements, the next stage is implementation. The digi Kickstart workshop was the trigger and enriched the project by facilitating productive exchanges with other companies.



dormakaba Österreich is a global leading supplier of intelligent systems and sustainable solutions for the entire building lifecycles. Despite their already high degree of digitalization, taking part in digi Kickstart gave dormakaba new input for further digitalization steps. Three projects were initiated or further advanced:

1. Sustainability through digitalization:
Employees from various departments explored how digitalization could be used to promote sustainability within the company. Specific examples of integration into standard workflows were agreed for implementation.
2. Potentials and prioritising new topics:
Trendscouting can also be digitalized! Promising projects can be more easily identified using a digital process map. Presenting expenditure and benefits, plus the required personnel resources and timeframes, helps when deciding which future topics the company should pursue.
3. Automating the evaluation of internal data:
After digitalization, diagrams and evaluations are updated electronically, and automatically dispatched. This not only frees up employees, but also allows the data to be updated daily and called up as required.





Action field: "Networking platforms"

Networking platforms encourage new socio-technical developments such as improving communications between government and the public, or economic and social involvement.

Key indicators and results in 2022

6.12.2022:

Opening of the physical House of Digitalization

> 500

companies attended the House of Digitalization roadshow

around

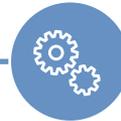
800

companies in the network

around

30

events held in the HdD network



The House of Digitalization project

The Lower Austrian Provincial Government is implementing a bundle of measures to accelerate the digital transformation of the local economy, and to make the population aware of the opportunities created by digitalization. The flagship project is the House of Digitalization (HdD), bringing together business, science, research and education.

It is being implemented by ecoplus Digital in a three-stage development process. The individual steps are all linked, like the pieces in a puzzle.



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House of digitalization
The **network.**

Network – the project motor

In 2018, an intelligent digital network was established. This network is the project motor. It uses **available know-how** and focuses on **networking and international cooperation**. Its primary aim is to generate benefits for Lower Austria's SME, providing them with the best possible support on their path to a digital future.

Prior to the open of the physical House of Digitalization, the individual network nodes were visited during a **roadshow** in which current examples and the strengths of each location was presented: for example, Wiener Neustadt boasts specialists in 3D printing, Krems experts in virtual reality, St. Pölten for cyber security, and Wieselburg for smart farming. The Institute of Science and Technology Austria in Klosterneuburg is recognised globally for its pure research.



House of digitalization
The **virtual house.**

www.virtuelleshaus.at – online information hub

In a second step, in 2019 a virtual House of Digitalization was established (www.virtuelleshaus.at), functioning as an **information hub** for the project. Its primary task is to network companies with the services offered by the Lower Austrian digitalization network. The virtual House of Digitalization bundles services offered by partners including the Lower Austrian Provincial Government and the Lower Austrian Chamber of Commerce. It also highlights innovative digitalization projects being conducted by companies in Lower Austria.

Since the start of the "People + Machines" exhibition on 17 January, www.virtuelleshaus.at has been serving as the booking platform, for the exhibition, the parking area, and hire of the Showroom and Innovation Lounge at the House of Digitalization.



Physical House of Digitalization – at the heart of the entire project

The physical House of Digitalization is the final puzzle piece in this process and constitutes the heart of the entire project. It is intended as the **key contact point for digitalization in Lower Austria.**

The House of Digitalization is a 4,200 m² architectural highlight at Campus Tulln. The building incorporates an entrance area with information point, a space reserved for the Wiener Neustadt University of Applied Science, a gastronomy area with outdoor dining, office units, and incubator spaces. A showroom equipped with a 330 m², almost 360-degree LED screen offers a new and innovative exhibition and event experience. In addition to the Wiener Neustadt University of Applied Science, the primary occupants are service institutions which can support and advise SME in their digital transformation.

An annual multimedia exhibition in the House of Digitalization makes the concept of digitalization more tangible to visitors. 17 January saw the launch of the topic “People + Machines”.



The physical House of Digitalization on the Campus Tulln was officially opened on 6 December 2022.

Around 300 representatives from the fields of science, health, business and administration were present at the opening.



Image above: Entry area with information point

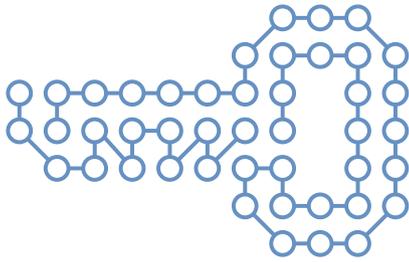
Image left: Showroom and event area with an almost 360 degree LED screen

Images: © Lechner



17. 01.
Start of the
interactive exhibition
People + Machines
Digitalization as an
interaction between
people and
technology.





Action field: "Data"

Measures taken within the "Data" action field are designed to develop new business models and raise quality in the service sector through improved options for using and evaluating data.

Key indicators and results in 2022

> 10,000

downloads of the Lower Austrian emergency services app

99.9 %

of provincial administration forms are available online.

931,755

of provincial administration forms are available online.



Using drone technology to map signs of beaver activity

Drones and high-resolution photography are supplementing tradition terrestrial mapping to record and evaluate signs of beaver activity along riverbanks. Using drones makes it possible to record many more kilometres of riverbank than a human conducting mapping on the ground, and to reach areas difficult to access from the riverbank. The use of drone technology for large scale mapping in Lower Austria is a first for Austria and demonstrates the potential of this technology for use in protecting species and the environment. Over the medium term, it is conceivable that the images captured by drones could be automatically evaluated (artificial intelligence: neural networks vs. machine learning). Mapping vegetation is another potential area of application. Any future projects will be able to draw on the experiences of using drones to map signs of beaver activity.¹¹



© Michael Liebert

Digital emergency services app:
<https://rettungsapp.com>



When the 144 alarm button is pressed on the Lower Austria emergency hotline app for smartphones, the coordinates of the accident site and other important information is directly transmitted to the emergency control centre. To date, this has helped save 268 lives, and over 21,800 telephone helpline chats have been recorded. The app also works in the Czech Republic and Slovakia and is currently being expanded to Hungary.



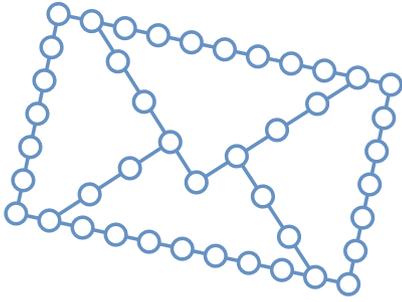
imap *NEW

The imap web app (<https://portal.noe.gv.at/at.gv.noe.imap>) offers Lower Austria's provincial administration access to a broad range of maps. The Lower Austria portal provides all provincial employees with secure access from their office, in the field, or when working from home. A major goal of the new version is to make imap available via PC, laptop, tablet, or smartphone. Wherever you are, or whichever device you are using: the local conditions are visible quickly and simply in map format. Anyone needing additional information can use the new 'quick search' option to quickly find what they are looking for. Finding addresses and plots of land is now much easier and achieved via a single entry field. Since October 2022, users have been given the option to familiarise themselves with the new version or continue with the older version. Migration will take place during Q1 2023 in cooperation with the specialist departments and the IT Department at the Provincial Government Administration.



Pioneering OP management

In 2022, the first clinic was equipped with optimised OP documentation software as the first step in implementing a general multi-clinic OP management system. Both organisational and technical aspects were examined during the preparatory phase and, together with experts from Lower Austria's clinics, were incorporated in a new Lower Austrian standard (OP baseline). Attention was paid to supporting cooperation between clinics, optimising patient and employee safety, and using resources efficiently. During the digitalization process, data entry forms were standardised, internationally valid checklists drawn up, and the material documentation optimised. Digitalizing resource and capacity management in the OP management system supports the work of clinic personnel, and benefits patients by minimising risk and ensuring adherence to schedules. This successful step will be repeated in four further clinics by the end of 2023.



Action field: "Digitalization in administration"

Digital applications allow the administration to simplify and create added value. They also function as a stimulus for the region by improving cooperation with the 573 municipalities.

Key indicators and results in 2022

COVID-19-

compensation form was most frequently requested



around

48.53

years saved for the Provincial Government Administration using online forms

around

200

forms published online by the Provincial Government Administration

+

322.68 %

more e-forms submitted to the Lower Austrian Provincial Government compared to 2021

32

SAP online training courses conducted

Smart Region Weinviertel Ost: digital assistants for municipalities

The LEADER region Weinviertel Ost is striving to become a Smart Region in the next few years. The Smart Assistant project is designed to drive the digital transformation in municipal administration. Municipalities will be issued with digital assistants to lighten daily workloads by automating simple workflows. The software required will be adapted to meet the specific needs of the municipalities. Existing information in publicly accessible databases will be called up via central interfaces, and a FAQ database established for each municipality's areas of responsibility. In a pilot phase, the software will be integrated into one municipality website, and subsequently rolled out to all 58 municipalities in the eastern Weinviertel region. The project will be implemented by the end of 2023.¹²

¹² The LEADER Region Weinviertel Ost selected the project for funding in accordance with its local Smart Region development strategy. The Lower Austrian Provincial Government agreed funding from the EU LEADER programme and ecoplus regional funding.



© Andreas Hofer

Digital application process for C95 and D95 testing

Registrations for C95 and D95 testing¹³ can be submitted electronically on the Lower Austrian Provincial Government website. Digitalization allows applications to be processed quickly, minimises application errors, and improves throughput times. The project was implemented in cooperation with the Department for Trade Law and the IT Department at the Provincial Government Administration.



Rollout of the noeKIGAnet kindergarten administration programme

The digital kindergarten administration programme noeKIGAnet was launched to simplify organisational workflows and create a central digital interface for kindergarten-relevant data. During the rollout, more than 1,000 laptops were issued to Lower Austria's kindergartens. Training materials and videos are available on the *noeKIGAnet.at* website. User training courses and regular online question sessions were held for the administrative offices and all kindergarten teachers in Lower Austria's 1,060 kindergartens. Around 65 support staff in the local districts are available to answer questions. User training started in the local districts in early 2022 for those municipalities with kindergartens. Once in operation in the municipalities, services such as lunch or charges for materials can be digitally administered and settled. There are also plans to add applications such as kindergarten registrations, include administering the master data of children and parents, as well as personnel requirements and attendance management.



Lower Austria SAP – Digital finance

The current accounting software, now more than 40 years old, will be replaced by a SAP system which will incorporate financial planning and budgeting, financial accounting, procurement, and central business partner management. Related issues and work steps can be mapped simply and minimised in an integrated system. The concept was developed by around 150 representatives from all the administrative offices in the period to early 2022. The SAP system was subsequently implemented and tested in several pilot offices. During pilot operations, transactions were registered in both the SAP system and the existing system. The aim of the pilot operation is to test and evaluate all the transactions. Training will be offered to all employees impacted by the new system from mid-2023. The system is scheduled to go into operation in central and decentral Lower Austrian Provincial Government administrative offices in early 2024. Afterwards, SAP will be incorporated in all the political district authorities.

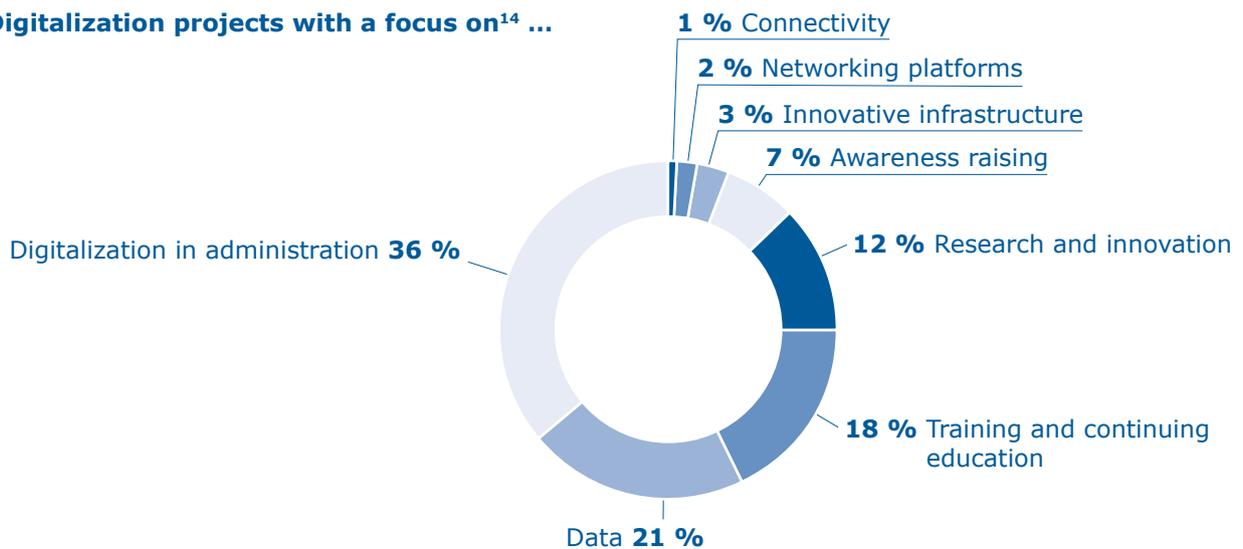
¹³ C95 = application for the basic road haulage qualification
D95 = application for the passenger transport qualification



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4. Key indicators and results in 2022

Digitalization projects with a focus on¹⁴ ...



¹⁴ Data are derived from all project examples reported by the Lower Austrian Provincial organisations to the Technology and Digitalization Unit.



School and university

11 %

of students in Lower Austria enrolled in STEM subjects¹⁵

> 40

Bachelor and Master programmes related to digitalization¹⁶

7,175

Lower Austrian students in technology fields within the NÖ Technopole¹⁷

House of Digitalization

~ 800

companies in the network

Broadband

60,000

households supplied with fibre optic cable by nÖGIG by the end of 2022

Labour market

> 2,200

jobs in technology fields within the NÖ Technopole¹⁷

92

new companies established in technology fields within the NÖ Technopole¹⁷

169

digitalization projects registered with the virtual House of Digitalization

¹⁵ Source: IRIHS Vienna

¹⁶ Source: The Lower Austria university atlas

¹⁷ Source: ecoplus

5.

Outlook

Implementing the Digitalization Strategy for Lower Austria involves the use of cutting-edge measures and development stages to manage specific challenges.

Digital solutions improve and simplify processes and communication. Companies, particularly SME and start-ups, can secure competitive advantages by developing new customer-oriented products and services and increasing their efficiency and productivity. Lower Austria's public administration is also using digital solutions to create a citizen-focused and service-oriented administration, which is why Lower Austria has chosen "**Digital solutions**" as its next annual focus: during 2023, the Technology and Digitalization Unit will organise workshops, work groups, and other activities related to this annual focus. They include lectures on digitalization for the Provincial Government Administration, the Digitalization Forum, and the technology workshops.

At the Digitalization Forum, Provincial Government Administration employees are offered highly topical lectures and information on the annual focus. This provides all administrative offices, their heads and persons assigned digitalization responsibilities with the chance to get together and share information. Thematic work groups on networking within specific areas will also be held once again. The annual focus is also reflected in the content of the **thematic work groups** and **technology workshops** to which all employees are invited to attend.

A further element is the **trend management workshops** which will be rolled out in the specialist departments, followed by the political districts. Here the focus lies on bringing digitalization competencies to the individual administrative offices so that digital tools are properly applied. The implementation itself will draw on previous experiences.

The drive to provide businesses and households in Lower Austria with broadband access will continue, upgrading existing **communications infrastructure** to meet today's technological requirements and digitalization.

The **digi contest 2.0** ideas competition will be run for the second time, encouraging all Provincial Government employees to submit innovative ideas for digitalizing administrative processes to drive digitalization within the **Provincial Government Administration**. The aim is to build on the successful digi contest run in 2019 during which many valuable ideas were submitted, and several of the best project ideas were successfully implemented.

The interactive and multimedia **People + Machines** exhibition is on display at the physical **House of Digitalization**. The exhibition makes digitalization tangible and encourages visitors to find out what is already possible in Lower Austria and discover where developments in digitalization will lead. The **House of Digitalization network** will also continue to expand its SME service portfolio. The network allows key challenges (such as the current "Cyber security – protection from cyber attacks") facing our economy to be jointly mastered, and provides support for companies in Lower Austria in the form of strong partners, both at the House of Digitalization in Tulln as well as at each of the node locations throughout the region. The House of Digitalization functions as the basis for active cooperation with partners across Europe, including the Futurium house of futures in Berlin and Europe's digital pioneers in Estonia, and also with partners networked via the **European Digital Innovation Hubs**. Here, too, Lower Austrian SME can network with other European companies.

During 2023, **new and proven methods of providing support** for digitalization will again be offered to companies in Lower Austria. They include customised services for SME provided via the Digital Innovation Hub OST.



More information about digitalization in Lower Austria's schools is available at www.noegv.at/noegv/Digitalisierung/Digitalisierung.html or on the Provincial Government Administration's intranet under digitalization campaign



noegv.at/digireport

The *digi report* is available as an interactive report and to download



6. digi Dictionary

A range of digital technologies are described in the project examples. Some of the key terms are explained below:

Other terms
are explained in the
House of Digitalization
www.virtuelleshaus.at

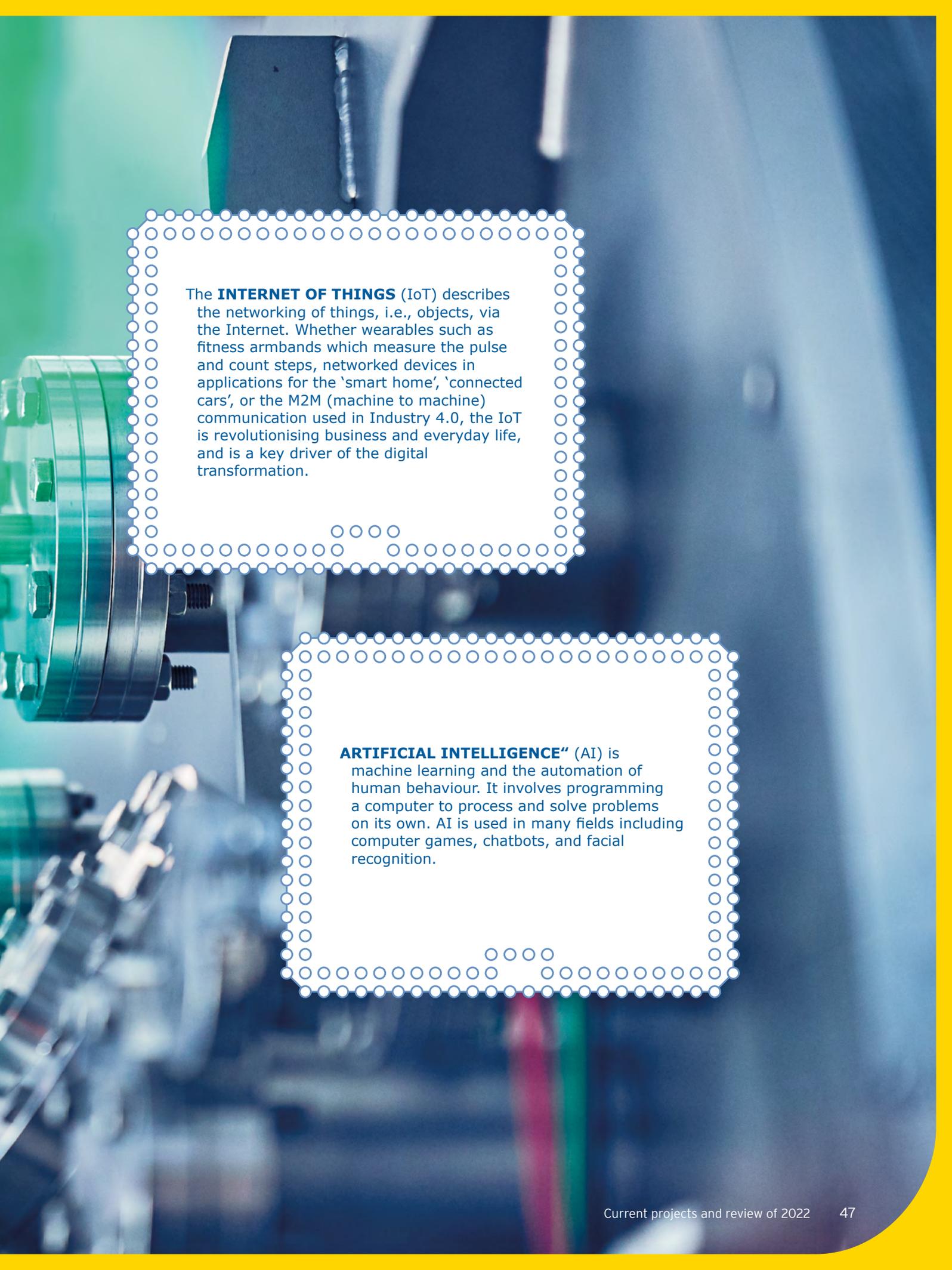


The terms **3D PRINTING**, **ADDITIVE MANUFACTURING** and **GENERATIVE MANUFACTURING** are often used synonymously, describing a manufacturing process in which components are produced in an automated fashion by directly layering or fusing volume elements according to a digital 3D model. The components are typically built up in layers.

AUGMENTED REALITY (AR) expands perceptions of reality.

VIRTUAL REALITY (VR), in contrast, is the computer-generated presentation of a virtual world in real time.

MIXED REALITY combines a user's natural perception with an artificial perception.



The **INTERNET OF THINGS** (IoT) describes the networking of things, i.e., objects, via the Internet. Whether wearables such as fitness armbands which measure the pulse and count steps, networked devices in applications for the 'smart home', 'connected cars', or the M2M (machine to machine) communication used in Industry 4.0, the IoT is revolutionising business and everyday life, and is a key driver of the digital transformation.

ARTIFICIAL INTELLIGENCE (AI) is machine learning and the automation of human behaviour. It involves programming a computer to process and solve problems on its own. AI is used in many fields including computer games, chatbots, and facial recognition.

www.noel.gv.at

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