digi report

The Lower Austria Digitalization Report

Current projects
and review of 2021

Contents

Preface

Lower Austria understands how to exploit the potential of digitalization

We have been actively shaping the digital transformation in Lower Austria through our digitalization offensive for many years. The Provincial Government of Lower Austria and businesses in the region use digitalization to simplify and speed up processes and workflows, creating a communications infrastructure which is hugely beneficial to both Lower Austria's citizens and its employees. Integrating digital media in our schools is becoming increasingly important. The ground-breaking ceremony for the House of Digitalization flagship project in Tulln was another important step for Lower Austria's digital future. All this clearly shows that we understand how to exploit the opportunities and advantages that digitalization offers our citizens. This has become even clearer during these challenging times.

Johanna Mikl-Leitner
Governor of Lower Austria

Forging ahead with innovative technologies

Every year the digi report documents the steps taken to implement the Digitalization Strategy for Lower Austria. Drones in service on Lower Austria's roads, special sensors and artificial intelligence applied in waste disposal, a 3D printer on tour in our schools, and the use of LoRaWAN for a Green Smart City Tulln – these are just a few of the best practice examples covered in the report which illustrate our willingness to adopt digital technologies and the added value this creates. Together with the sample projects, we also provide over 40 figures and indicators which demonstrate how our comprehensive digital approach gives us a consistent lead in terms of expertise and technology.
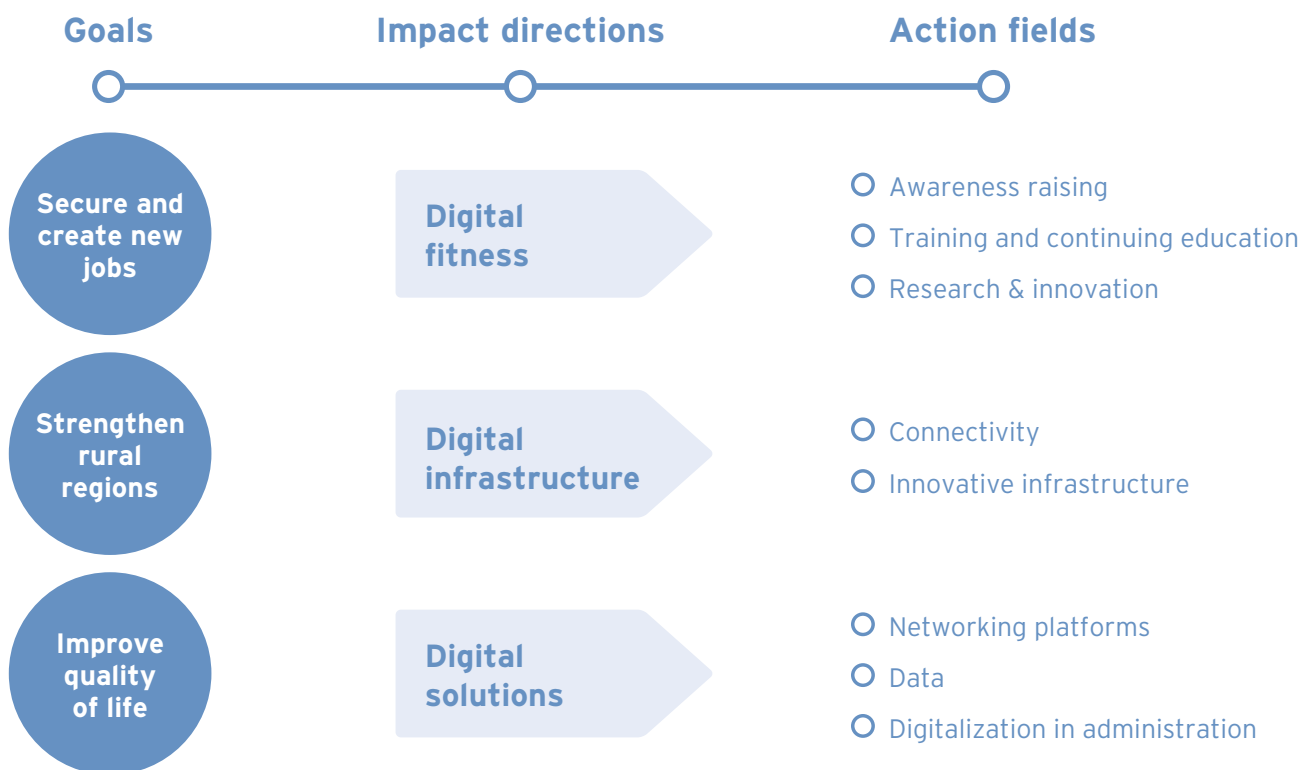
Jochen Danninger
Member of the Provincial Government of Lower Austria

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 the province of Lower Austria. Consequently, eight different fields of action have been developed and within the three impact directions "Digital fitness", "Digital infrastructure", and "Digital solutions".

Goals	Impact directions	Action fields
Secure and create new jobs	Digital fitness	○ Awareness raising ○ Training and continuing education ○ Research & innovation
Strengthen rural regions	Digital infrastructure	○ Connectivity ○ Innovative infrastructure
Improve quality of life	Digital solutions	○ Networking platforms ○ Data ○ Digitalization in administration

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

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

The Department of Economy in the Government of Lower Austria is involved in several EU projects, such as EU Horizon inGOV, **to drive networking and exchange** at EU level. The project findings are also used to support the digitalization process.

Since 2017, **thematic work groups** involving 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.

Education

Science Research

Infrastructure Energy Sustainability

Administration

subject areas

The Technology and Digitalization Unit

in the Department of Economy, Tourism and Technology

networked, coordinated, mobilized

Health

Labour market, Continuing education

Economics

Agriculture

Tourism, Culture, Sport

The Technology and Digitalization Unit was established in 2017, in the Department of Economy, Tourism and Technology.
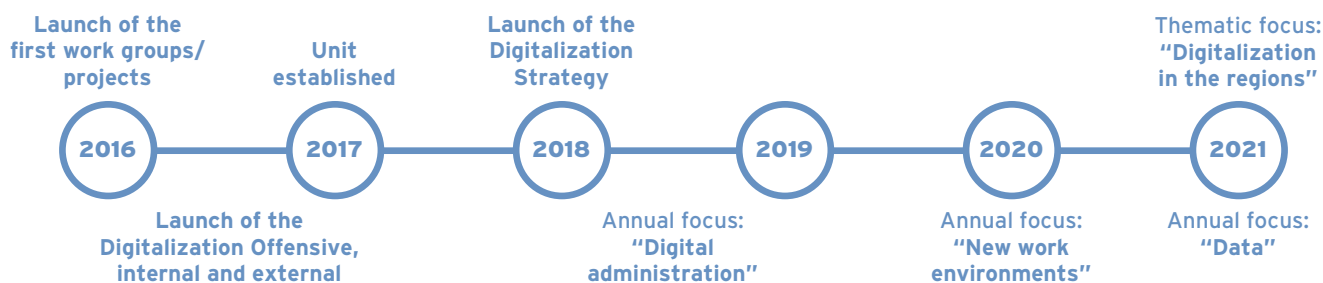
The Unit's key tasks include:
- Supporting the implementation of the digitalization strategy
- Regular internal administrative coordination with the Office of the Lower Austrian Provincial Government, the Division Heads, and the representatives of the political district authorities
- Networking and coordinating 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.

2.
Focus on strategy implementation in 2021

Every year since 2018, implementation of the Digitalization Strategy for Lower Austria has involved choosing a particularly topical and relevant thematic focus specific to the province. Over the year the Technology and Digitalization Unit initiates and runs workshops, projects, events, and other activities to swiftly move this "annual focus" forward.

In 2021 the chosen focus was "Data", together with a further thematic focus on "Digitalization in the regions", as described on the following pages.

Launch of the first work groups/ projects

Unit established

Launch of the Digitalization Strategy

Thematic focus: "Digitalization in the regions"

| 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |

Launch of the Digitalization Offensive, internal and external

Annual focus: "Digital administration"

Annual focus: "New work environments"

Annual focus: "Data"

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.

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Lower Austria Data Catalogue

The Provincial Government Administration works with many different pools of data, lists, and databases. Since September 2021, the Lower Austria Data Catalogue, a metadata wiki, now offers an overview of these databases for the first time. Around 1,400 databases have been catalogued to date and will soon be available to all Provincial Government employees via the Lower Austria Portal for use in searches and as a source of information.

Annual focus: Data

One goal of the Digitalization Strategy for Lower Austria is to use digital solutions to improve quality of life. One action field in this strategy is to use data more intensively. Data are a commodity, one which creates added value when shared and reused. Sharing and exchanging data generates new information which serves to make the data even more valuable. The capacity of businesses and institutions to innovate depends upon the targeted use of data.

For that reason, the Technology and Digitalization Unit chose "Data" as its annual focus for 2021. In workshops, lectures, and other activities, data trends were analysed and potential applications developed.

Kick-off talks in the work groups

Within the format of subject-based work groups (such as agriculture, economics, sport, tourism, and culture), digitalization experiences are shared and developed into specific focus topics. Following this year's focus on Data, several kick-off talks were held on topics such as the "dynamic visualisation of data".

Condensed know-how in technology workshops

The technology workshops are an open format for the exchange of know-how within the Lower Austrian Provincial Government and 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 2021 technology workshops were held on the following topics:
- Digital analysis and control of visitor flows
- The use of drones and their data by the provincial administration in fields such as environmental protection or road services
- The impact of BIM (Building Information Modelling) on the provincial administration

Behind the Scenes:
The Landhausschiff and the halls in House 1A were transformed into recording studios.

Pictures above:
Klaus Heissenberger, Head of the Department of Management and Administration/Legal Office, giving a presentation on "How is data protection organized at the Office of the Lower Austrian Provincial Government and at the political district authorities?"

Allan Hanbury, Head of E-commerce Research and Professor of Data Intelligence, Vienna University of Technology, with his keynote presentation "Through data to new insights"

Picture left:
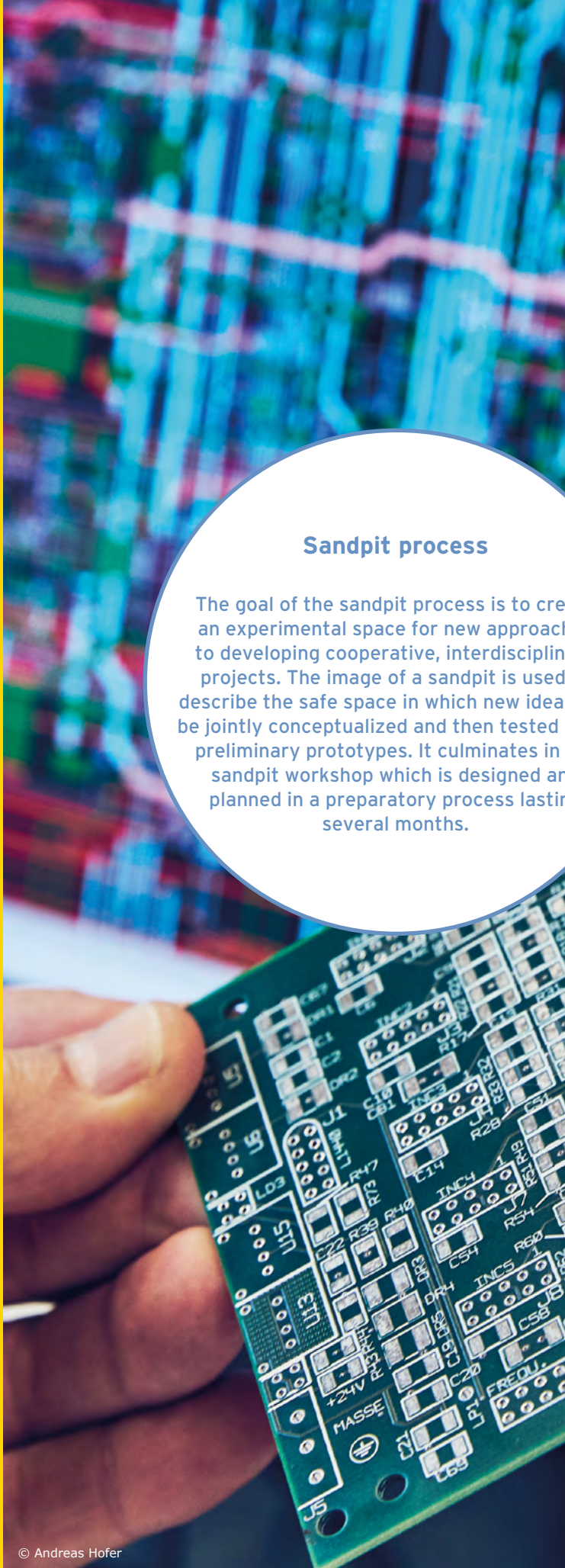Director of the Office of the Lower Austrian Provincial Government Werner Trock

Images: © Department of Business, Tourism and Technology

Diving into data worlds at the Digitalization Forum

In October 2021, the Digitalization Forum took as its motto "Dive into Data Worlds". Led by Provincial Government Member Christiane Teschl-Hofmeister and State Office Director Werner Trock, it was held in an online format for the first time. Heads of all the administrative offices and digitalization representatives were offered a varied programme including a virtual market-place, keynote speeches, several sessions and interactive workshops, and a podium discussion, all delivering valuable information and ideas. The forum covered topics including "data visualisation", "open government data", "synthetic data", and the "creative combination of data sets".

Gerhard Dafert (Deputy Director of the Office of the Lower Austrian Provincial Government), Petra Stummer (Management and Administration Division of the Office of the Provincial Government/Information Technology), and Leopold Bauernfeind (Managing Director of Fabasoft) participated in the panel discussion "Past and Future of Digital Administration". They spanned the topic from the introduction of the digital file 25 years ago to concrete steps for the future, such as the switch to a new Fabasoft version.

Thematic focus: Digitalization in the regions

The sandpit process

When implementing digital solutions, the Lower Austrian Provincial Government has set itself the goal of involving the people intended to benefit from them – Lower Austria's citizens.

Between 30 August and 1 September 2021, 30 participants from the local population, all of whom had applied and been selected in advance, came together for a sandpit workshop in Waidhofen an der Ybbs. Here they discussed, considered, and then selected one potential digital solution to enhance village and community life. The participants were assisted by an expert jury, experienced facilitators, and the Technology and Digitalization Unit which initiated and coordinated the event.

The jury selected two winners from the ideas developed, and these will now be taken to the next stage by the Technology and Digitalization Unit.

Sandpit process

The goal of the sandpit process is to create an experimental space for new approaches to developing cooperative, interdisciplinary projects. The image of a sandpit is used to describe the safe space in which new ideas can be jointly conceptualized and then tested using preliminary prototypes. It culminates in the sandpit workshop which is designed and planned in a preparatory process lasting several months.

Sandpit Workshop
for digital solutions to enhance village and community life in Waidhofen an der Ybbs

Images: © Photo & Video Mostviertel, Konstantin Wenzl; Isabella Hinterleitner

NENA - the neighbourhood network

NENA is the idea for a platform which local citizens can use to submit ideas, as well as to take personal responsibility for helping to realise them. Project suggestions as well as concerns can be submitted. These are then supported, adopted, or implemented by the citizens themselves, companies, associations, or the municipality. This actively strengthens and encourages cooperation at the local level.

THE FRANZ

THE FRANZ is a futuristic, visionary idea describing the future of smart village and community life. It puts people's needs centre stage, bringing together physical spaces and digital assistance. For example, it can use voice control to organise lunches in a co-working space, solve individual mobility problems, and match people's interests to find new social contacts.

digi4Wirtschaft programme

The "digi4economy" (digi4Wirtschaft) programme run by the Lower Austrian Provincial Government and Lower Austrian Chamber of Commerce supports companies in challenging times through new innovations and prospects for the future.

The following funding frameworks were offered:

Key indicators and results in 2021

90
digi Assistant project applications were submitted.

62
digi Idea project applications were approved.

525
digi Investment project applications were approved.

digi Assistant

"digi Assitant" (digi Assistent): external experts help businesses recognise the potential offered by digitalization. Specific implementation plans were drawn up and subsequently submitted to digi4Wirtschaft. The programme cooperated with the Lower Austrian Chamber of Commerce's technology and innovation partners (TIP) to create a simplified submissions process. The many submissions were processed in a quick and unbureaucratic manner by the TIP's comprehensive advisory network. Funding was made available for ideas including networking along the value chain, integrating sensors into products, real time monitoring in quality controls, and redesigning production systems to use robots.

digi Idea

"digi Idea" (digi Konzept): How, to what extent, and in which areas business can effectively exploit digital technologies must be carefully evaluated and planned. The funding framework supports ideas for the digital transformation of business.

digi Investment

"digi Investment" (digi Investition): This framework was used to support particularly activatable investments in plants or components which are directly related to the digital transformation of business. The investments include hardware and software, generative production systems (lasers, 3D printing, etc.) as well as augmented and virtual reality systems.

digi4Wirtschaft projects win Lower Austrian Innovation Award

Two digitalization projects were presented to the jury of the Lower Austrian Innovation Award and issued with certificates of recognition:

BFK Training from Zöbern with its simulator training project

Training with the mobile simulator allows BKF Training customers to learn within a realistic setting. The simulator meets guidelines for the basic qualification and training of drivers for specific vehicles used in passenger and freight transport.

ESA from Viehdorf with its virtual commissioning project

ESA Elektro Automation GmbH is an expert in the field of automation. It plans and builds plants and facilities around the world. Virtual commissioning allows commissioning of these facilities to be directly coordinated and managed from the company's headquarters in Viehdorf. Augmented reality glasses superimpose the individual process steps involved in commissioning directly into the customer's field of vision, giving the customer the confidence that they are implementing the instructions correctly.

Lower Austria selects the smartest digitalization project

Between January and April 2021, twelve jury-selected digi4Wirtschaft projects were presented in the Lower Austrian edition of the *Kronen Zeitung* newspaper, on Austrian national broadcaster ORF's Lower Austria programming, and on www.virtuelleshaus.at. Citizens of Lower Austria were invited to select their three favourite projects on www.virtuelleshaus.at. A total of 1,565 votes were cast during the online voting which ended on 30 April 2021 at 23:59. Titled the House of Digitalization network showcase ("Schaufenster Netzwerk Haus der Digitalisierung"), the cooperation continued to the end of the year in the virtual House of Digitalization (HdD).

The winning projects are:

1,565

votes in the "Lower Austria chooses" campaign

Stone4you e.U. – interactive 3D visualisation

The Stone4you 3D visualisation tool allows all types of natural stones to be simply and realistically displayed. This helps to show customers how a natural stone slab can be used, making the purchasing decision easier.

STEINBOCK Allzweckzelte GmbH – handling rods with robots

STEINBOCK Allzweckzelte GmbH has succeeded in using a KUKA industrial robot to optimise capacity utilisation of its production machines and increasing its production volumes. The robot also relieves employees from the stress of monotonous and physically demanding work.

Manfred Zeiner – Mostviertl delicacies around the clock

From apple juice to plum jam: The Zeiner family's Schmankerl Eck offers gourmet delicacies from the Mostviertl region around the clock. What makes it special is that access to the shop is only granted when ID is shown: Anyone wishing to purchase items in the Schmankerl Eck must present their driving licence, photo ID, or electronic health card to a card reader.
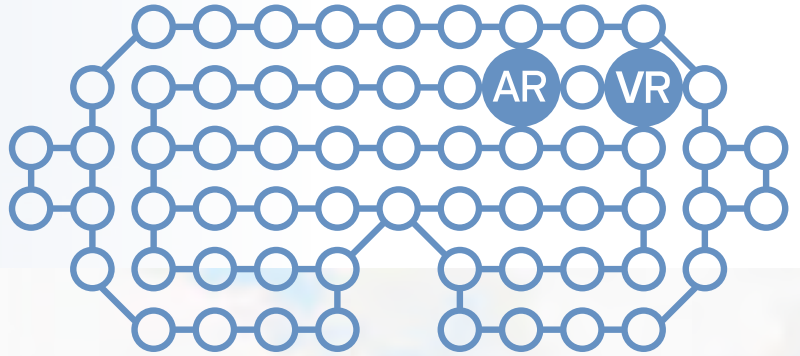
digi4Business from left: ecoplus Managing Director Helmut Miernicki, Member of the Provincial Government Jochen Danninger, Head of the Department of Economy, Tourism and Technology of the Office of the Lower Austrian Provincial Government Kerstin Koren, 2nd place Sebastian Leeb (stone4you), 1st place Albert Steinböck (STEINBOCK Allzweckzelte GmbH), 3rd place Josef Zeiner (Zeillerner Mostg'wölb), WKNÖ President Wolfgang Ecker and WKNÖ Director Johannes Schedlbauer

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3.
Current projects in the eight action fields
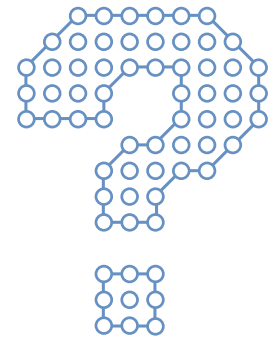
Digital fitness

**Action field:
"Awareness raising"**
The "Awareness raising" action field covers discussions 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 2021

~ 1,000
participants in DiH-OST-/HdD workshops

> 800
offerings currently available in the Lower Austria Science Center

5
projects in the eVRyLab: Train@Train, VR-Walk, VI Train, NOEDIKOM, Scan2VR

65
visits to the eVRyLab at IMC FH Krems[1]

Better trade – retail and online

The "Better trade – retail and online" digitalization offensive gives interested SMEs the chance to take part in up to ten modules dealing with the subject of improved retail and online trade. The series of workshops for commercial enterprises, developed by the Lower Austrian Chamber of Commerce and the Lower Austrian Provincial Government in cooperation with the Digital Innovation Hub at the House of Digitalization (DiH-OST) and the FH St. Pölten, is free to participants. The modules covered topics such as "Better Visibility on Social Media", "Better Visibility on Google (SEO)", "Better Legal Security" and "Better Visibility with Videos".

After a trial run in Tulln in 2021, the free workshops will be expanded to Amstetten, Scheibbs and Melk in spring 2022.

[1] Visitors to the eVRyLa were companies, schools, private individuals, and project partners.

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Lower Austria Science Center

sciencecenter.noe.gv.at is a central website for science and research in Lower Austria and is aimed at all target groups. It is divided into the categories of training and development, sponsorships and services, the Lower Austria university atlas, grants and prizes, a thesis topic exchange, science as a hobby and at school. In 2021 a booking platform was added to the site.

Preventative IT security for SMEs

Numerous studies and current criminal statistics confirm that cyber threats to businesses are constantly on the increase. For this reason, in 2021 the focus on "Preventative IT Security for SMEs" was launched in the House of Digitalization network. Since then, preventative measures and services for SMEs have been developed and offered by the House of Digitalization network in cooperation with partners including the Lower Austrian Provincial Government, the Lower Austrian Chamber of Commerce, FH Wiener Neustadt, FH St. Pölten, the Danube University at Krems, riz up, Niederösterreich Werbung, the Ministry of Defence, the Ministry of the Interior, the Advisory Board for a Safe Austria (KSÖ), and many businesses.

In 2021 numerous businesses were given advice and support in the form of free on-demand videos, webinars, workshops, and face-to face events. The participants were given illustrative examples and valuable tips relevant to their own specific business situations. The "Preventative IT Security for SMEs" programme will be extended in 2022.

Lower Austria Media 3D Print Challenge 2022–2024: 3D printer on tour

In many industrial manufacturing sectors, 3D printing (see the digi dictionary) has become an indispensable technology in routine production. Lower Austria Media gives pupils at pre-vocational schools in Lower Austria the chance to gain experience in 3D printing, working through each development stage to the finished product. During the Lower Austria Media 3D-Print Challenge "3D Printer Tour", 3D printers travel from school to school over a period of three years. Twelve Prusa i3 MK3S+ 3D printers are being made available to the participating schools free of charge for three weeks during term time. When the project ends in 2024, the 3D printers will be offered to the participating schools on loan.
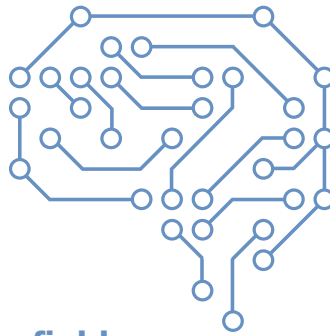
Training on the topic of digitalization at

www.virtuelleshaus.at

Digital fitness

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 2021

> 260
webinars run for > 4,000 primary school teachers

135,304
books borrowed from the online library noe-book.at

> 400
subscribers to the Young digital researchers ("Jugend forscht digital!") YouTube channel

122
webinars run by the Department of Personnel Matters A

~ 6.000
users (since July 2021) of the digital learning workshop

Launch of laptop and tablet classes in Lower Austria

Digitalization offers pupils new, up-to-date, and attractive ways of learning. Autumn saw the start of the distribution of laptops and tablets to educational establishments throughout Lower Austria: 93% of schools in Lower Austria are taking part in the scheme voluntarily, with over 30,000 end devices being handed over to the pupils. This device initiative was accompanied by a range of educational measures, designed, amongst others, to raise awareness of the importance of managing social media responsibly. At the same time, a variety of learning apps, digital exercise platforms, and free learning materials were offered for use both in the classroom as well as at home. A correspondingly broad selection of training and continuing education offerings were made available to teachers to ensure optimal use of these materials.

© Andreas Hofer

Handysignatur: Ausbildung von 1.000 „Registration Officers"

Demand for the issue of mobile phone signatures has risen hugely, particularly during the corona pandemic. For that reason, the Provincial Government of Lower Austria's IT Department trained around 1,000 Registration Officers for the political district authorities and municipalities within a period of just three weeks. To date, 35% of Lower Austria's population have a mobile phone signature. This represents an increase of 57% over May 2021.

The digital Lower Austria Learning Workshop

Since the 2021 summer holidays, families in Lower Austria have had access to the digital Lower Austria learning workshop ("NÖ Lernwerkstatt"), a new online platform. The pilot project, run by NÖ Familienland GmbH, provides all families with easy access to digital learning support. It offers a matchmaking platform which networks students at universities and colleges of teacher training with pupils needing digital learning support, as well as a holiday TV channel with a comprehensive media library of workshops and talks on a variety of subjects, high quality tutorials and downloads, and information on follow-on offerings.

The virtual learning materials supplement the analogue learning workshops run by the NÖ Familienland GmbH since 2020 at many locations during holiday camps. The digital Lower Austria learning workshop now provides access to those children not taking part in supervised holiday programmes.

Webinars for kindergarten teachers

Around two-thirds of the 400 advanced training programmes offered to Lower Austria's more than 4,000 kindergarten teachers were held in the form of webinars due to corona. The range of online courses reflected the wide spectrum of elementary teaching. Teachers were able not only to improve their digital skills, but also to broaden their subject-related knowledge.

Strengthening teachers' digital skills also serves to support the future implementation of **noeKIGAnet** (more information on page 35). In addition to the advanced training programme, in spring online user training was held for all Lower Austrian kindergarten and special kindergarten teachers, as well as intercultural employees.
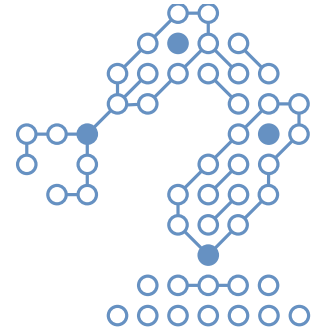
Digital fitness

Action field: "Research and innovation"

New digital opportunities for technological product, process and organisation 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 2021

2
digitalization funding programmes: digi4Wirtschaft and 3D printing bonus[2]

5
innovation funding programmes: Prototype construction, R&D, promoting innovation in small enterprises, RTI Call, technology

115
approved proposals for innovation funding

677
approved proposals for the digi4Wirtschaft programme[2]

Horn and Tulln are digital recycling pioneers

The Horn and Tulln municipal associations are running pilot projects to test innovative technologies for use in recycling glass and household waste disposal. They demonstrate the climate-relevant potential offered by modern, digital, and efficient waste management. The projects are applying high-tech systems such as special sensors, intelligent platforms, artificial intelligence, and radio technology (see digi dictionary on page 42 and 43). The information they gather is recorded in detail and analysed, providing insights into waste separation and glass recycling enabling which allow vital improvements to be made. The dynamic disposal system also paves the way for proactive waste management. For example, during the test phase, the average filling level of the emptied containers improved by 30 percent. The number of overfilled containers was reduced by more than 80 percent. This resulted in improved quality, less noise, and lower carbon emissions, with a simultaneous increase in efficiency.

© Andreas Hofer, Location FOTEC

IDM identity and IT authorisation management system

IDM facilitates the seamless management and documentation of all persons and their IT authorisations, combined with a digital ordering and approvals process. Automatisms are also used to directly connect to selected systems. The system will shorten the processing time for issuing or deleting authorisations within the Provincial Government Administration of Lower Austria, while offering greater transparency by making the process and changes visible at any time.

Using AI to optimise winter service routes

In future, artificial intelligence (AI; see digi dictionary on page 43) will be used to optimise winter service routes, and flexibly adapt route planning according to changing framework conditions. Compared to drawing up the winter service routes manually, using AI will simplify and speed up the administrative workload and lead to faster scenario planning, in turn enabling the service departments to react more quickly.

Implementation will be undertaken in several phases: A study will determine the actual potential before being used to define the next steps and evaluate the first optimisation findings. A model prototype of an operable optimisation model will also be developed. Assuming the project study indicates potential for optimisation, the project will be extended and expanded to include features such as the use of digital planning tools, and the dynamic evaluation of external factors such as the weather or traffic impacts.

d4agrotech: Digitalization for sustainable food production

Jointly launched by the Provincial Government of Lower Austria and AIT[3], the d4agrotech[4] initiative applies AI methods (see digi dictionary on page 43) such as Deep Learning to conduct comprehensive surveys and undertake intelligent assessments of agricultural data. The aim is to support reliable forecasting and sound decision making for needs-based cultivation. Over the next five years, AIT scientists at the site in Tulln will be working with partners to develop digital systems used to derive specific solutions for the managers of agricultural enterprises. Companies and industrial partners will be actively involved in the project to ensure that the new know-how and innovative methods can quickly be put to use. The initiative is intended to generate higher yields, healthier products, more environmentally friendly operations, and a more sustainable circular economy.

[3] Austrian Institute of Technology
[4] Data-driven and AI-based digital system solutions for sustainable agriculture 4.0

Digital infrastructure

Action field: "Connectivity"
Connectivity means giving society, businesses, and the public authorities the chance to consider the issue of digitalization and the opportunity to assume individual responsibility for digital matters. Digital controls which incorporate data security and data sovereignty turn existing infrastructures into intelligent infrastructure.
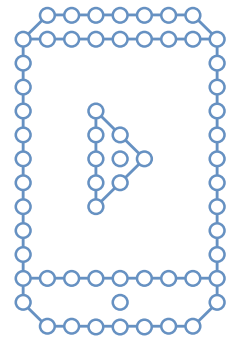
Key indicators and results in 2021

38
municipalities in which the preparations for expanding broadband have been completed.[5]

61,741,573
route calculations on AnachB.at (website and app)

In
25
municipalities in which broadband expansion has started.[5]

LoRaWAN – Green Smart City Tulln

The town of Tulln plans to increasingly test more smart digital solutions in future. One key element will be to augment the municipal infrastructure with innovative LoRaWAN technology (see digi dictionary on page 43) for data transmission. The various potential applications will be tested in 2022 following installation of the infrastructure. For example, selected public green spaces and all newly planted trees in the city will be equipped with humidity sensors. This allows efficient, resource-saving, and targeted watering which will improve care during the early years of growth. Other applications, such as waste management, route optimisation, and smart metres, are being developed and successively launched.

The experience gained from applying new technologies will be shared with other towns and municipalities to make digital solutions tangible and comprehensible. Once applied, this will make work processes more efficient and improve the quality of life.

© Andreas Hofer

Lower Austria Atlas – new version for mobile devices

The Lower Austria Atlas (https://atlas.noe.gv.at/) offers a broad range of maps and data and is specialised in Lower Austrian (geo) information. The new version can now be used on smartphones and tablets for the first time. It also has a user centring function, for easier orientation outdoors.

Fibre optic infrastructure: "Lower Austria model"

Lower Austria is the country's only province with a master plan for comprehensively expanding its powerful broadband infrastructure, laying fibre optic cables which run directly to individual households. This will give almost all Lower Austria's 800,000 households and commercial enterprises access to high-speed broadband. However, this requires a major effort from all the stakeholders involved.

Urban areas – supplied by telecoms companies: The free market works well in densely populated areas. Here it can be assumed that traditional telecoms companies will provide sufficient broadband infrastructure.

Rural areas – fibre optic cable right to the front door, with the aid of a private financing partner: The Province of Lower Austria has commissioned nöGIG (Niederösterreichische Glasfaser-infrastruktur GmbH) to install open, public and future-proof fibre optic infrastructure for communities with a population of up to 5,000 inhabitants. Already, 35,000 households and

businesses have been provided with broadband access during the pilot phase with another 100,000 households due to be added during the current phase. The province and an investment partner have agreed on an investment package of EUR 300 million for the financing. Broadband expansion started in 25 municipalities in 2021. Preparations for expanding broadband were completed in another 38 municipalities in 2021. Added to this are the many connections in newly built residential and commercial premises provided by market players A1 and Kabelplus.

Peripheral regions: In June 2020 the Provincial Government of Lower Austria agreed additional funding to the sum of EUR 100 million to lay fibre optic cable for all households and businesses in almost all of the province's peripheral regions. Applications for this funding are only permissible at municipal level and serve to supplement federal funding. It will provide up to 115,000 households and businesses with access to fibre optic infrastructure.

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 2021

8,450
new e-vehicles
registered

1,800
Provincial Government
employees equipped
with softphones[6]

266
fast charging points
(charging capacity
over 50 kW) in Lower
Austria

2,221
normal charging points
in Lower Austria

28
organisations used
FOTEC 3D printers

IoT platforms and IoT showcases

A project for Internet of Things (IoT) platforms (see digi dictionary on page 43) and IoT showcases has been established together with Lower Austrian university partners. An action was plan developed and the competences and research focus areas which the Lower Austrian research partners can contribute was determined. In a first step, the focus will be on the "Administration", "Utilities", and "Agriculture" application areas. The transmission technologies needed for the planned IoT use cases will be analysed. A selection of interesting IoT use cases from the application areas will also follow, implemented in the form of real showcases. The project results should be available in 2023. The cornerstone for the project was laid by the Technology and Digitalization Unit of the Office of the Provincial Government together with ecoplus – the Provincial Government's business agency which is a partner to the Next2Met Interreg Europe project.

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[6] Softphones are equipped with the key functions of a landline telephone via a programme on the mobile end device.

© R. Herbst

Self check-in at the Lower Austria fire brigade and security centre (NÖ FSZ)

A self check-in terminal is currently being tested at the NÖ FSZ as a means of reducing the administrative burden. This allows participants in training modules to enter and sign in to booked events themselves. It also offers each participant the option to make their own selections from the lunch and dinner menus.

### Using drones in Lower Austria's road services

Advancing technological developments make drones an extremely efficient alternative for carrying out a variety of activities in road construction and maintenance. Drones are tested in pilot projects before being applied in actual road services. Current applications include bridge inspection, documenting construction progress, and drone-based accounting for construction projects during the evaluation phase. If the test phase determines that drones offer advantages such as enhanced safety, greater efficiency and cost savings compared to conventional methods, then they will be used in regular operations. The advantages drones offer are already being effectively exploited in areas including land surveys, assessing and documenting storm damage, and inspecting rocky slopes. A special drone for photogrammetric surveys or a conventional camera drone are used according to the application in question and the project goal.

Inspection app for the water inspection authorities (via noegis-mobile)

In accordance with the Austrian Water Rights Act, all bodies of water in Lower Austria are subject to regular water inspections. In order to meet these obligations, all stretches of water and all facilities with a permit under the Water Act must be inspected, with the results of the surveys comprehensively documented. A mobile control programme for the systematic inspection of bodies of water was developed using the noegis-mobile/geo information micro apps (winner of the 2019 digi contest). The programme is designed, among others, to document the time of inspection, determine defects, and instigate measures to repair the damage. In future, the data compiled during the water inspections will be regularly synchronised with the data recorded in the Lower Austria water information system (WIS). The cartographic background data needed for the inspections are taken from the NÖGIS database and presented in the app.

noegis-mobile allows other apps for different application uses to be developed at a later stage.
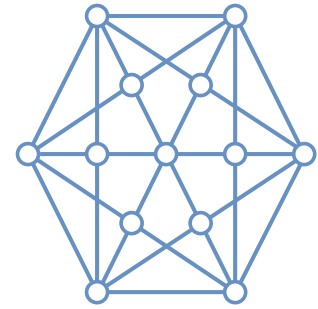
Digital solutions

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 2021

27,000
LGA employees provided with information via the new app

42,558
visits to the www.igelhausen.at website

>15,000
visits to www.kultur4Kids.at

~6,000
downloads,
~3,000
listeners and
~1,000
subscribers to the Kultur4kids podcast

Kultur4Kids – Website und Podcast

The new www.kultur4kids.at website went online in spring 2021, helping to raise awareness of the broad range of cultural offerings available for children and families. It directs families to suitable programmes relevant to their location, available time, and interests.

The first cultural podcast for children in the German-speaking region offers child-friendly teaching of cultural history and geography. Designed for different age groups, the well-known ORF presenter Robert Steiner is joined by Sophie Berger to invite listeners to join them on a narrative journey through the four regions and their special locations. The weekly podcast episodes are accompanied by crafting instructions as a means of encouraging children's creativity.

© Natur im Garten, Screenshot www.igelhausen.at

Lower Austria environmental report – digital and interactive

The Lower Austria environmental report is now available online at www.umweltbericht.at It is an interactive, specialist reference work, offering in-depth background information, data, flagship projects, links, and downloads. The clear, direct, and accessible format ensures that the increasingly broad-ranging and complex report on environmental activities is now easier to read. The digital version of the report is complemented by the magazine *Blicke*.

Nature in the garden – the garden becomes digital

The **www.igelhausen.at** website presents gardening know-how, built up over the past 20 years by the "Nature in the garden" initiative, in a simple, interactive, and low threshold format. The knowledge platform is designed in the form of a virtual village, guiding visitors to the city hall and village square, as well as through thematic areas, such as flower meadows, kitchen gardens, and a playground, all in virtual form. It also offers useful tips and short videos on a variety of subjects.

Other platforms include the **BAUMNAVIGATOR** (www.willbaumhaben.at), giving advice on trees, and the **HECKENNAVIGATOR** (www.willheckehaben.at), for information about hedges. Both websites offer individuals and communities wide-ranging information about ecologically important trees and shrubs. Adjustable filters (e.g., plant height, speed of growth, climate tolerance, etc.) are offered to restrict search parameters and help find the ideal trees and shrubs for a specific location.

The NÖ LGA virtual careers centre

Customer service is a priority at the NÖ LGA, Lower Austria's provincial health agency. With just a few clicks, applicants can enter their data directly into the NÖ LGA's personnel system where they will be centrally monitored and digitally processed. A job alert informs job seekers when a vacancy arises which meets their stated search parameters. The careers centre at the NÖ LGA offers detailed information and videos on careers for all those looking for job and career opportunities in Lower Austria's health and care sector. The NÖ LGA uses this targeted personnel recruitment tool not only to announce vacancies in companies and relevant information about applying, but also to provide a range of background information, and including comprehensive search options. The wide range of online offerings is being constantly expanded.

The House of Digitalization project

The Provincial Government of Lower Austria is implementing an entire bundle of measures to accelerate the digital transformation of the local economy, and to help companies on this path. The flagship project is the House of Digitalization (HdD), implemented by ecoplus Digital in a three-stage development process. The individual steps are interlinked, similar to the pieces in a puzzle.

House of digitalization
The network.
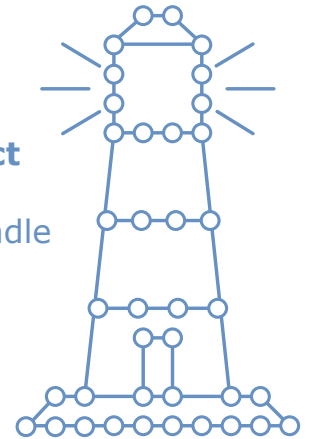
Key indicators and results in 2021
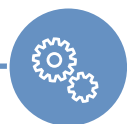
600
companies in the network

40
events held in the HdD network

1,000
entrepreneurs, experts and interested parties reached via events, videos, streams

May 2021:
Start of construction of the physical house - topping-out December 2021

Network – the project motor

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

An important tool is this endeavour is the "Digital innovation hub – East" (DiH-OST) for projects which can be quickly implemented and have a direct impact. The practical projects support all types of beneficiaries, from foresters to bakers, wine growers to refuse collectors. More than 500 SME employees have taken part in DiH-OST programmes to date. This national success model is due to be raised to European level in 2022 when the House of Digitalization applies to become a European Digital Innovation Hub. The application focuses on "smart and sustainable business".

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House of digitalization
The virtual house.

House of digitalization
The actual building.

**www.virtuelleshaus.at –
online information hub**

In a second step, in 2019 a virtual House of Digitalization was established at www.virtuelleshaus.at, functioning as an information hub for the project. www.virtuelleshaus.at was relaunched in early 2021 and 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.

Here companies find an overview of all the services relating to digitalization issues, such as Preventative IT Security for SMEs, and current educational programmes in the field of digitalization. It also shines the spotlight on the innovative digitalization projects run by Lower Austrian companies: the "Lower Austrian showcase" presents and explores the most innovative projects within the digi4Wirtschaft (see on page 16) funding framework.

**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. The House of Digitalization will be developed into the key contact point for digitalization in Lower Austria. Extending over 4,200 m^2, it is an architectural highlight at the Campus Tulln. The building will incorporate an entrance area with information point, a showroom and event area, a space reserved for the Wiener Neustadt University of Applied Science, a gastronomy area with outdoor dining, office units, and incubator spaces. Each year an exhibition theme will be explored in its 500 m^2 of showroom space. The showroom is intended to rapidly become Lower Austria's most modern event centre, offering a new event experience with impressive presentation potential. In addition to the Wiener Neustadt University of Applied Science, space in the House of Digitalization will be primarily rented to service institutions which can support and advise SMEs in their digital transformation.
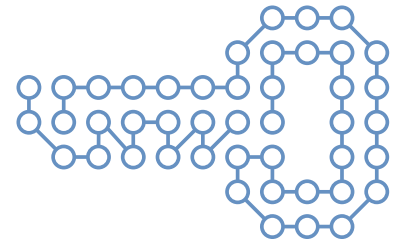
Action field: "Data"

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 2021

1,400

databases accessible via the Lower Austria Data

In **77**

NÖ LGA healthcare institutions[7] new software for the vaccination passport has been introduced.

51.46 %

more e-forms submitted to the Provincial Government of Lower Austria than in 2020

333,888

e-forms submitted to the Provincial Government of Lower Austria

~ 750

museums presented on www.noemuseen.at

1,200

museums, collections and projects included in the Lower Austria museums database

Kindergarten statistics survey tool KIM: Focus on children

Every year statistics on Austria's kindergartens are submitted to Statistics Austria. From autumn 2021, the kindergarten statistics will be gathered by noeKIGAnet (see on page 35). For private kindergartens, day care centres and after school care, it was only possible to collect the data in the previous format up to autumn 2020 (kindergarten year 2020/21). The "Focus on children" (KIM) project was a new solution submitted during the 2019 digi contest. The project idea reached the final of the competition and has now been implemented: Since October 2021, an online form is used to gather data from the supporting bodies and institutions which is then stored in a newly programmed database. Reviews were undertaken after the first round for quality assurance purposes. The system was subsequently advanced to become the standard process.

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[7] 27 Provincial/university clinics and 50 nursing, care and support centres

© Andreas Hofer

PA 2.0 – a personnel management instrument in the Lower Austria Provincial Government Administration

With over 8,000 users and 200 million stored datasets, PA 2.0 is the large application developed by the Provincial Government Administration's IT department. Key updates include the PA 2.0 app on Android and iOS, the responsive design, the end-to-end user focus, and the booking terminal for mobile working.

Intelligent data processing in Lower Austrian clinics

The volumes of information available to physicians during treatment increases year on year. This brings the challenge of optimally managing this flood of information within a limited period. Over the past years, the NÖ LGA and its clinics have made huge efforts to structure this information as far as possible so that it can be more easily processed. For the first time, the Patient Summary Software presents the structured data (diagnoses, medication, laboratory values, etc.,) at a glance, removing the need for physicians to wade through many and various documents. The intelligent data processing gives physicians in Lower Austrian clinics an immediate overview of all the key health parameters of the patients they are treating.

BERGE digital: Mountain railways digitalization offensive

ecoplus Alpin GmbH is actively driving the conversion of Lower Austria's skiing areas into year-round mountain attractions. One of the development approaches is to digitalize routine processes in marketing and sales. Consequently, an online sales and marketing platform will be built for use by the various providers of mountain experiences and tourist destinations. Using instruments including dynamic pricing and customer relationship management, the platform is intended to increase economic potentials as well as guest convenience. The project is notable for its cooperation with cable car companies which are not part of ecoplus Alpin. The platform's scalability, plus the way it unifies the customer journey to offer a better market overview, is of strategic and economic interest. ecoplus Alpin GmbH works closely with Niederösterreich Werbung and associated tourist destinations. The project will be gradually implemented in 2022.
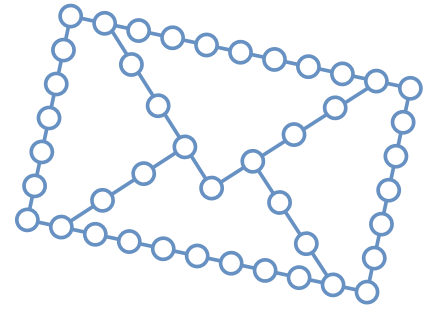
Digital solutions

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.
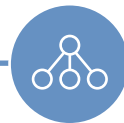
Key indicators and results in 2021

~ 500
applications to the new funding management programme for the purchase of female quality calves[8]

17.39
years saved for the Provincial Government Administration by using online forms

~ 180
forms published online by the Lower Austria Provincial Government Administration

Lower Austria SAP – Digital finance

Over the coming years, the current accounting software, now more than 40 years old, will be replaced by the SAP S/4HANA system. This system incorporates financial planning and budgeting, financial accounting, procurement, and central business partner management. Related issues and work steps can be simply mapped in an integrated system. This reduces – or even eliminates – the number of necessary work steps.
Since February 2021, around 150 representatives from all the administrative offices have been working to refine a draft concept which is due for completion in early 2022. In 2022 the SAP system will be tested in several pilot offices, and training will be offered for all employees who will use the system.

[8] The new online programme will automatically accept and process personal data and other data once it has been entered for the first time. The programme examines all funding preconditions, allowing funding to be managed quickly, efficiently, and transparently.
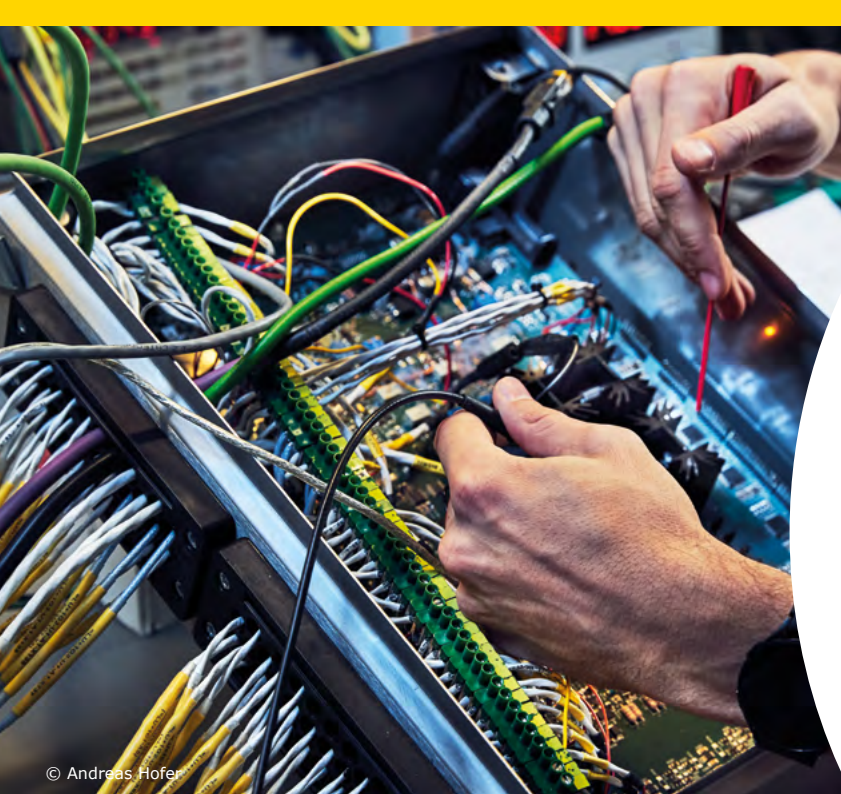
© Andreas Hofer

noeKIGAnet in use in all 1,060 state kindergartens in Lower Austria

The digital kindergarten administration programme noeKIGAnet simplifies organisational workflows and creates a new, digital interface for kindergarten-relevant data. Standardising and unifying data collection in a shared system significantly simplifies the administrative process and makes it less bureaucratic.

NÖ LGA employee app

Following the corona pandemic, the LGA employee app was launched in record time to provide all 27,000 employees at 78 locations with fast, transparent, and comprehensive information, about COVID measures, daily routines in the clinics/psychiatric centres, and administrative matters, on a daily basis. The tool also serves as a jobs and training exchange, a virtual employee magazine, and makes available numerous templates, documents and supporting information which is needed on a daily basis to read and download. As well as a web version, the app can be installed on all mobile end devices, ensuring up-to-date and rapid communications and a broad reach. Classifying users by location (clinic, psychiatric centre, or LGA headquarters) also allows information to be published to specific target groups. The open access area of the app also offers health-related information for the public in Lower Austria.

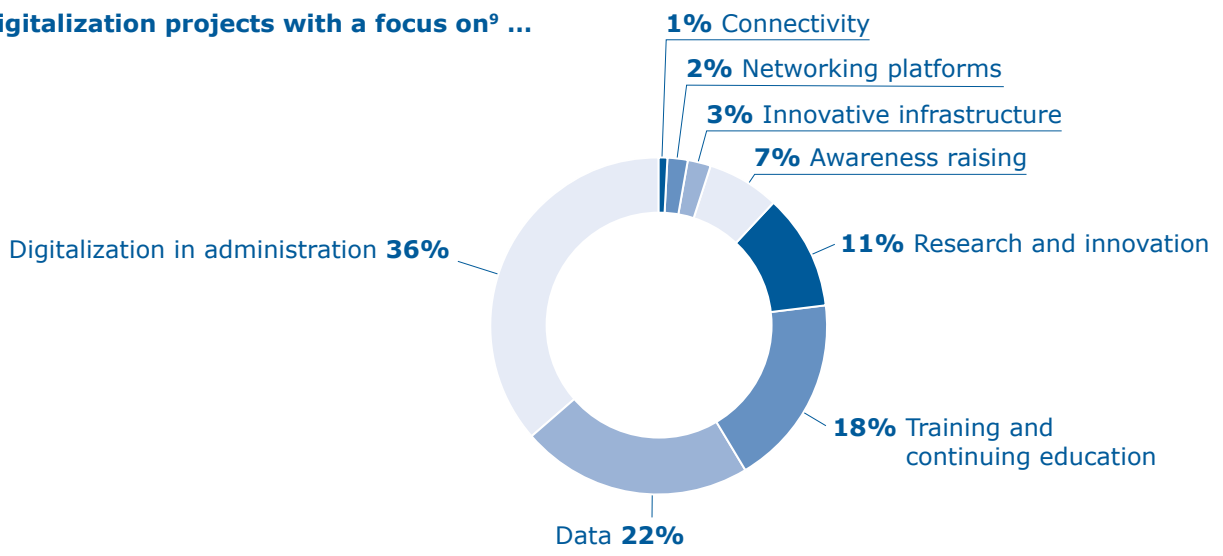### Energy certificate and installation database

The energy certificate database will allow all energy certificates issued in Lower Austria to be electronically recorded. The installation database will electronically register the data from heating systems, air conditioning units, and heat pumps, as well as "electric resistance heaters".
The periodic inspection reports (exhaust measurements, inspections, etc.) will also be recorded. The information will be entered into the database by authorised specialists (architects, builders, plumbers, chimney sweeps, etc.). The responsible authorities and promotional bodies have online access to the energy certificate and installation database in accordance with their legal rights. For the first time, the data will be digitally and systematically recorded in a unified system for all Lower Austria. The corresponding legal basis was established in Lower Austria's building regulations, and the database will go into operation in July 2022.

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4.
Key indicators and results in 2021

Digitalization projects with a focus on[9] ...

1% Connectivity

2% Networking platforms

3% Innovative infrastructure

7% Awareness raising

11% Research and innovation

Digitalization in administration **36%**

18% Training and continuing education

Data **22%**

132 completed digitalization projects[9]

146 ongoing digitalization projects[9]

[9] Data have been recorded since 2017 and are derived from all project examples reported by the Lower Austrian provincial organisations to the Technology and Digitalization Unit.

School and university

692

students in Lower Austria completed studies related to digitalization

>30,000

end devices handed out to pupils at schools in Lower Austria

34

degree programmes[10] in Lower Austria related to digitalization

House of Digitalization

600

companies in the network

Labour market

7,008

employees in Lower Austria work in the field of information and communication[11]

1,000

entrepreneurs, experts and interested parties reached via events, videos, streams

[10] For degree programmes at FH St. Pölten, IMC FH Krems, FH Wiener Neustadt and Porsche FernFH, and the New Design University during the 2021/2022 academic year
[11] Source: Federation of Austrian Social Insurance Entities

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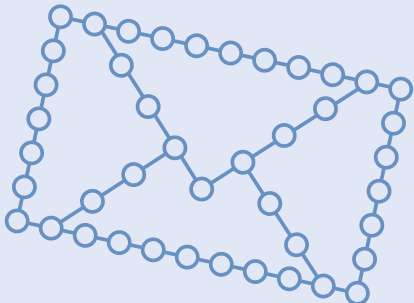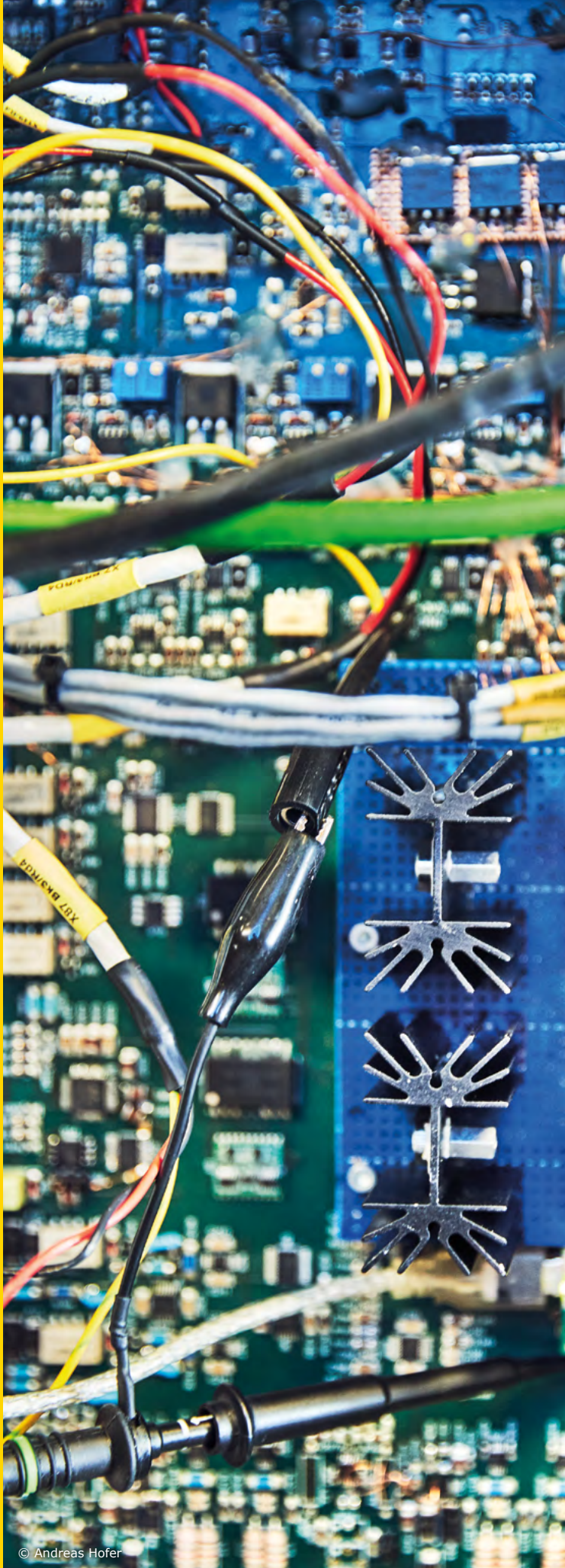
25 years of LAKIS electronic files in the Provincial Government Administration

The NÖ LAKIS office communications project was launched 30 years ago and introduced into the first departments five years later. For twenty-five years, electronic files have been a key element in Lower Austria's modern administration and are used in all departments and political district authorities. A rapid transition to mobile working was achieved during the corona pandemic.

With the conversion to the new Alpha version (Fabasoft eGov-Suite 2021) in November 2021, in terms of server infrastructure, Lower Austria's Provincial Government Administration is now well equipped for the coming years. The new user interface (UI) also features a responsive design for easier operation on mobile end devices, as well as a convenient full text search function.

25 years of LAKIS in figures

~ 7 million files

~ 23 million reference numbers

~ 365 million documents
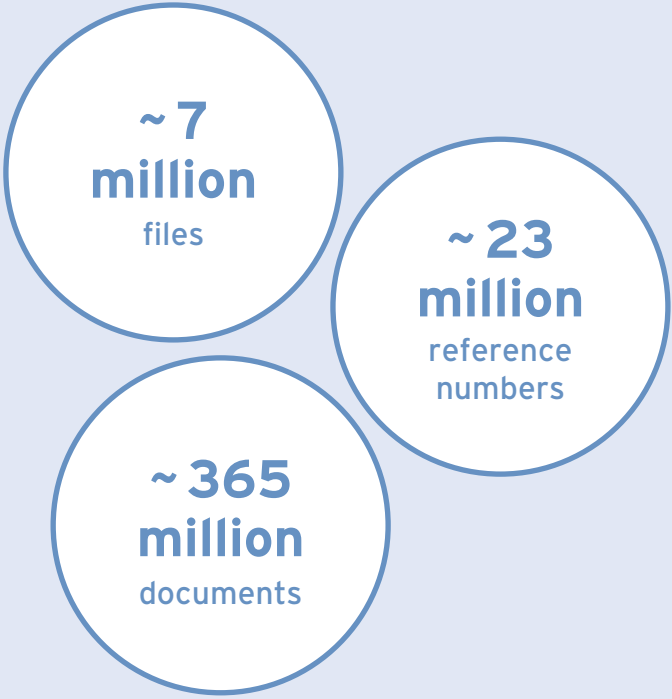
**New record
for submitted e-forms**

Im Jahr 2021 gab es einen großen Anstieg bei
der Nutzung von E-Formularen in der nieder-
österreichischen Landesverwaltung. Grund dafür
war vor allem die beträchtliche Nachfrage bei
Formularen im Bereich COVID-19.

333,888
forms were submitted
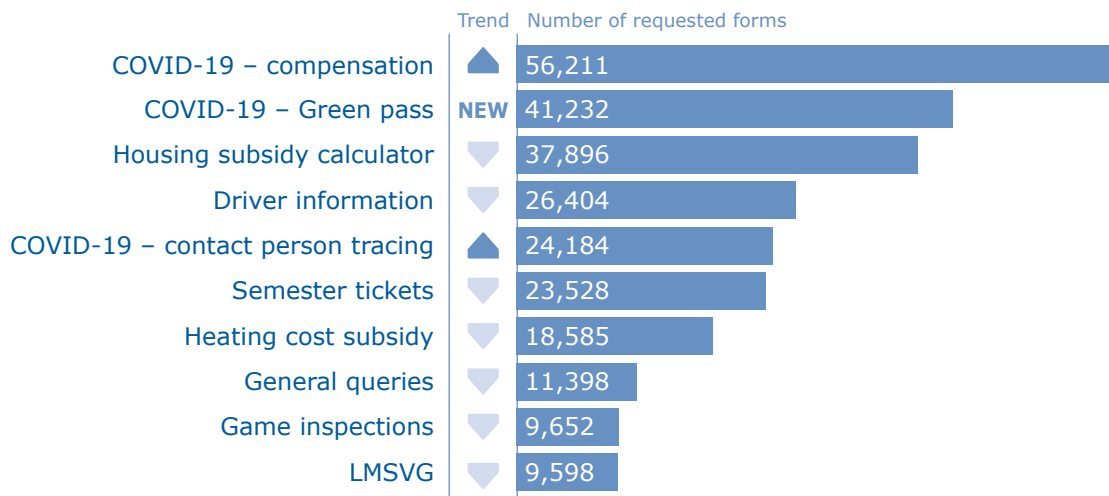in 2021 – a 51.46%
increase over the
previous year.

135,946
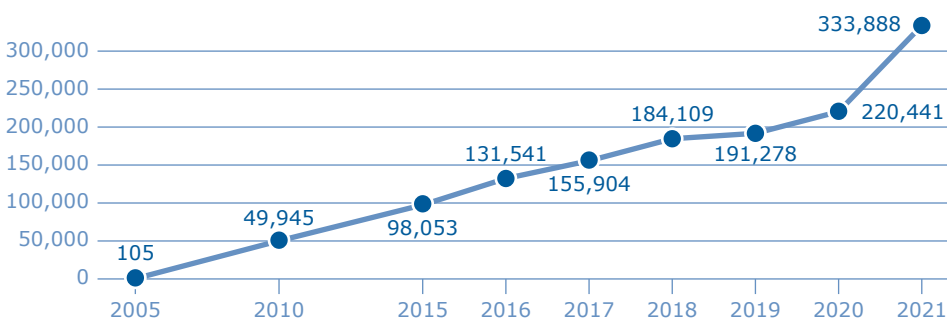processed forms
were related to
COVID-19.

Ø 7,141
forms a day were
called up in 2021.

The COVID-19 forms also feature among the top
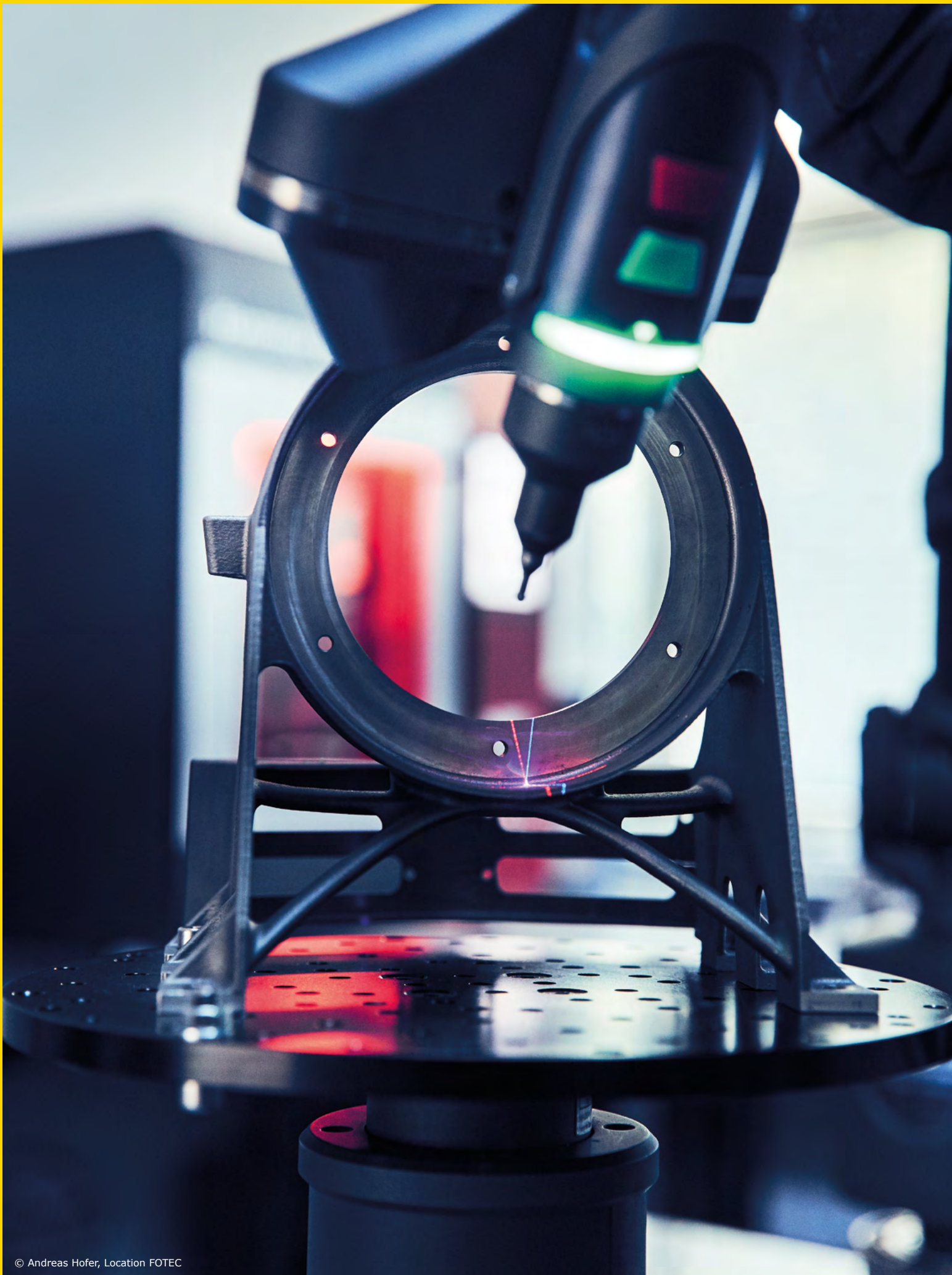10 most requested forms in 2021[12]:

	Trend	Number of requested forms
COVID-19 – compensation	▲	56,211
COVID-19 – Green pass	NEW	41,232
Housing subsidy calculator	▼	37,896
Driver information	▼	26,404
COVID-19 – contact person tracing	▲	24,184
Semester tickets	▼	23,528
Heating cost subsidy	▼	18,585
General queries	▼	11,398
Game inspections	▼	9,652
LMSVG	▼	9,598

Since 2005 there has been a positive trend
towards the use of e-forms.

300,000									333,888
250,000									
200,000						184,109		220,441	
150,000				131,541	155,904		191,278		
100,000			98,053						
50,000		49,945							
0	105								
	2005	2010	2015	2016	2017	2018	2019	2020	2021

1,700,231
forms were
submitted between
2005 and 2021.

5.
Outlook

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

Citizens, businesses, and the public authorities willing to take on the challenge of applying new technologies all have the potential to reap significant benefits. Consequently, **"Digital fitness" has been chosen as the annual focus for Lower Austria in 2022**. It will demonstrate the newly emerging digital opportunities and trends and highlight the practical applications they offer. During 2022, the Technology and Digitalization Unit will organise workshops, work groups, and other activities related to this focus. These include digitalization talks which are again being offered for the Provincial Government Administration, and tailor-made services for SMEs supported by DiH-OST.

The **digi contest 2.0** ideas competition will be run for the second time, to drive **digitalization within the Provincial Government Administration**. It encourages all provincial employees to submit innovative ideas for digitalizing administrative processes with the Provincial Government. The **Digitalization Forum** is also being hosted once again, to present provincial employees with digital developments, and with Governor Johanna Mikl-Leitner handing out awards to the best ideas submitted during the digi contest. Priority will then be given to implementing these ideas.

The **House of Digitalization** has planned three main impact directions for 2022: Despite COVID, priority goes to completing construction of the House of Digitalization within the scheduled construction period and allocated budget.

It is scheduled to open in spring 2023. The House of Digitalization network will also continue to expand its service portfolio for SMEs. The key focus will lie on submitting proposals for a European Digital Innovation Hub which would offer new opportunities for Lower Austria. Numerous new cooperations and partnerships with a variety of partners are also in the pipeline for 2022. The third focus is clearly implementation: A wide range of pilot projects, including smart traffic projects, LISA – closing the last mile in Tulln, smart parking solutions for municipalities, and advising companies on IT security, will be tested and implemented in 2022. Scalable projects will also be launched.

During 2022, **new and proven options for providing support for digitalization** will again be offered to companies in Lower Austria. One example is the ecoplus Kickstart Digitalization programme, which will run pilot tests in 2022.

The drive to provide businesses and households in Lower Austria with broadband access will continue, upgrading existing **communications infrastructure** to meet the demands of modern technical advances and digitalization.

noe.gv.at/digireport

digi report available
as an interactive report
and to download

6.
digi dictionary

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 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 term **BIG DATA** describes quantities of data which are so large, complex, short lived, and partially only weakly structured that they cannot be processed using traditional data processing methods based on SQL databases. **Big Data Analytics** or **Predictive Analytics** are the terms used to describe the analytical methods for determining correlations within these large and unstructured volumes of data and to present them, usually in graphic form.

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.

Other terms are explained in the House of Digitalization

www.virtuelleshaus.at

LoRaWAN stands for "Long Range Wide Area Network" and is used for the energy-efficient transmission of data over longer distances. This technology can manage hundreds of sensors within a network, connecting them with a multitude of IoT application cases. The minimal energy consumption is a decisive advantage of this technology – sensors can operate for up to 10 years before their batteries need changing, keeping maintenance expenditures low.

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.