

DigiTrans: Upper Austria becomes test region for automated goods traffic, city- and communal logistics

With the Initiative Connected Mobility (ICM), Upper Austria is equipped with a platform which intensely supports developments in areas of digitalisation, especially in the automotive sector. Numerous companies from the automotive and IT branches are partners on this platform and cooperate in developing technologies for autonomous driving.

7.5M Euros project volume until 2023

From this ICM-platform developed the consortium for the project DigiTrans: DigiTrans is – after ALP.lab in Styria – the second test region for autonomous driving funded by the state. The project volume of 7.5M Euros (6.6M Pound/8.7M US Dollar) until the year 2023 is funded by the Austrian Research and Promotion agency (FFG) and the government of Upper Austria with a combined amount of 3.75M Euros (4.32M US Dollar/3.25M Pound).

At the core are technologies for automatization of freight transportation. Logistics hubs like Ennschafen, the Blue Danube Airport Linz Hörsching as well as partners from the transportation sector are working on the development of Upper Austrian freight transportation to catch up with existing European standards. Aim of the project is to establish the region Linz – Wels – Steyr as well as bordering company and cargo grounds for inland waterway and aviation transport as a test region for a modern, well integrated and multimodal freight transportation.

Heavy duty and special purpose vehicles as innovators

DigiTrans focuses on heavy duty and special purpose vehicles as pioneers for automation and interconnection. Important is also the inclusion of logistics hubs (eg: Ennschafen,

airports and other company areas) as well as focussed regional expansion and shared usage of infrastructure beyond Upper Austria (eg: Vienna, Styria, Bavaria).

DigiTrans aims to secure and further develop international competitiveness of the business location (Upper) Austria with strong automotive supplier and ICT industry. Four aspects create added value for the location and its businesses and research facilities:

1. **Test area for freight transportation providers**
are open to car manufacturers and service providers in order to test system configurations and integrations with automated solutions
2. **Building infrastructure for testing**
to offer new frameworks for validation of new developments in the field of interconnected mobility
3. **Applications for freight transportation and logistics**
The test region offers haulage companies and communal companies to carry out transportation and service tasks together on a new level of quality.
4. **Platform of development**
For new, digital business models for logistics providers (such as platforms for bookings of transportation providers or intelligent freight and loading systems)

Partners in economy and research on board

Founding partners of DigiTrans are, besides the Automotive Cluster the AIT (Austrian Institute of Technology GmbH), LOGISTICUM Steyr, IESTA (Institut für innovative Energie- & Stoffaustauschsysteme e.V.) and the LCM (Linz Center of Mechatronics GmbH). Seventeen companies such as the Industrie-Logistik-Linz GmbH, ASFINAG Autobahnen- und Schnellstraßen-Finanzierungs- Aktiengesellschaft, Ennshafen OÖ GmbH, Flughafen Linz GesmbH, MAN Truck & Bus Österreich AG, Rosenbauer International AG, Reform-Werke Bauer & Co Gesellschaft m.b.H., Hödlmayr Logistics GmbH and others are already working on specific topics and provide important input.

DigiTrans-GmbH as lead partner

The sounding project DigiTrans, completed in 2016, was submitted for full project funding in 2017. In December 2017 the test region was approved by the FFG. For the funding to be disbursed a GmbH had to be founded. For this reason the Upper Austrian Government's Location Agency, Business Upper Austria, founded Verein DigiTrans in January 2018, which operates under the name of DigiTrans GmbH since March 2018. Verein DigiTrans is currently holding shares of 55 per cent, remaining shares are split between HÖDLMAYR INTERNATIONAL AG, REFORM-WERKE BAUER & CO Gesellschaft m.b.H. and FH OÖ Forschungs & Entwicklungs GmbH.

Infrastructure and know-how is built up by the consortium of Verein DigiTrans who also take part in building and operating the DigiTrans structure by paying a cash/in-kind contribution. In turn these companies can use the infrastructure and test region for R&D projects and their own customer projects or strategic projects, in relation to their contribution.

Federal Minister of Transport Innovation and Technology

Hofer: New digital business model for logistics providers are tested through DigiTrans

Mobility will change massively over the next few years. Autonomous driving is a core ingredient in this change. Developments in areas of digitalisation, telecommunication services and internet services enable many entirely new technological developments. The recently passed Climate and Energy Strategy demands more focus on sustainable use of new technologies. "We are standing at the beginning of this development. The fully autonomous vehicle, especially in complex traffic situations, is a vision of the future. The more important it is to test and build upon clear applications. Exactly that is what DigiTrans does. I am delighted to support this test region, together with the Government of Upper Austria, with 3.75 million Euros", says Minister of Infrastructure Norbert Hofer.

Governor of Upper Austria Stelzer: Freight mobility plays major role for business location Upper Austria

“in Upper Austria we direct our focus towards freight mobility and logistics to further develop already existing economic strength fields. With this test field we are able to generate a direct benefit for our local industry” explains Governor of Upper Austria Thomas Stelzer about Upper Austria's motivation in heavily building upon automated freight transportation. The call to recognise and accept this forthcoming change in technology is not only directed towards big companies. “Small and medium enterprises are also invited to concern themselves with the digitalisation of their transport and logistics fields in time”, says Stelzer. DigiTrans works hard on new solutions which are soon to become standard in Upper Austria. The varying areas of use which are being worked on and researched at DigiTrans show only a small fraction of what will be important in working freight transportation of the future.

“We would like to offer modern infrastructure and interconnected automated driving at the business location Upper Austria in order to stay attractive for international enterprises. By offering modern technologies we support the logistics branch of this country and create an environment for economic success with a guaranteed future.”

Long distance traffic, local traffic and city logistics

In the two years since the sounding project DigiTrans has developed into an active research region in which work is done on three thematic fields:

Automated long distance traffic (Platooning)

The scenario of use “automated long distance traffic” focusses on HGV platooning for freight transportation over long distances. This means a platooning enabled HGV is automatically driven from a handing over point onto the highway and docks with the platoon. The HGVs drive autonomously in the platoon on a defined section of the highway and are able to dock more platoon enabled HGVs “on the fly”. According to their destinations the HGV are automatically released from the platoon and drive autonomously off the highway to a predefined handing over point. There the goods can be taken over by Use Case “automated local traffic”. HÖDLMAYR INTERNATIONAL AG and platooning is a central topic of another Austrian leading project: Connecting Austria conducts research on cases of

application for HGV platooning with a consortium of thirteen partners, and collaborates closely with the partners of DigiTrans.

Facts “automated long distance traffic”

- Project Platooning
- Project partner, among others, Hödlmayr International AG in cooperation with FFG leading project “Connecting Austria”

Connecting Austria, the Austrian flagship project for automated driving, integrates the major stakeholders from the Austrian community with strong European connections.

Technical content of *Connecting Austria* is the development and assessment of cooperative, connected, (semi-)automated driving, like it may come in the form of platooning. One of the major innovations will be the strict top-down and scenario-based approach with a strong focus on the infrastructure support for automated driving. The project Connecting Austria brings together technology leaders and users from the public and economic sectors to demonstrate four Austria-specific application cases in stages and to carry out and evaluate the R & D required for this purpose. The main objective is the evidence-based generation of assessment bases for the evaluation of the effects of energy-efficient semi-automated truck platoons. This will create the conditions for increasing the competitiveness of leading Austrian industries such as logistics, telematics infrastructure suppliers, automotive suppliers, vehicle development and related research.

Automated local traffic

Automatisation of partial processes in transport and logistic chains is a condition to make transitions as smooth as possible. Automated freight transportation aims, among other things, at optimising up- and downloading processes, reduction of noise and emissions and fuel consumption as well as unlimited operation (eg. 24/7 operation). The field of innovation “automated local traffic” covers distances of 1 -2 kilometres (0.6 – 1.2 miles) which can be on company sites as well as public roads, for example between distribution centres of logistics providers and bordering industrial sites or between closely located enterprise locations / workshops of a manufacturer.

Facts “automated local traffic”

- Project “Airport Linz”
- Project partners, among others, Flughafen Linz (airport Linz), Reform-Werke
- Project lead: AIT

Facts: project “BMW Steyr”:

- Project partners, among others, BMW Motorenwerke Steyr, Industrie-Logistik-Linz
- Project lead: FH OÖ Forschungs & Entwicklungs GmbH / Logistikum Steyr

City logistics and communal logistics

The scenario of application „city logistics“ examines automated driving in an urban environment with its specific tasks and challenges. Typical tasks include automated delivery vehicles, for example autonomous small vehicles delivering goods directly to the customer (at distribution stations, into a car boot) or communal services such as automated winter road maintenance and cleaning services for public and private pavements. A possible Use Case at DigiTrans innovation laboratory are currently considered by the cities Wels and Steyr and Reform-Werke.

Member of Upper Austrian Government Steinkellner: Findings in research and development support road safety in Upper Austria

Upper Austrian traffic infrastructure focusses on Intelligent Traffic Systems and builds on technological, economic and traffic engineering foundations. The development of a secure and environmentally friendly mobility is to be supported on all levels. DigiTrans can increase the willingness to adopt and use assistant systems – also in passenger cars – and with that supports the most important factor in road safety: the human. Interconnected cars, assistant systems, partially autonomous and autonomous cars will make a valuable contribution in reducing the numbers of road accidents. To use the infrastructure at hand in order to reduce traffic jams as best as possible, constant technological research, development and collecting of important insights is necessary. The Automotive Cluster’s

project DigiTrans forms a first foundation for future oriented, modern, and above all, secure mobility for Upper Austria.

AIT offers research and technological competence

"We are delighted about the collaboration on the project DigiTrans. The Austrian Institute of Technology (AIT) has great expertise in the field of autonomous driving and offers extensive competence in technology and research" says AIT director Anton Plimon. At DigiTrans this is interaction between human and machines, integration of automated vehicles in logistic applications and camera based sensor systems for autonomous driving and working processes with machines. "For automatization and robotics many processes have to be rethought and recreated. With DigiTrans efficiency and effectiveness in in-plant logistics will be increased while also providing more safety", says Plimon.

Hödlmayr provides own HGVs and drivers

"For us, being a part of DigiTrans offers great chances in many regards. Through the interconnectedness with research facilities we will be a part of innovation history and will be able to gain experiences with new technologies very early on", explains Chairman Johannes Hödlmayr.

The enterprise of the same name with its location in Schwertberg holds shares of 15 per cent of DigiTrans GmbH and focusses on HGV platooning. During this process two or more HGVs are connected through an "electronic drawbar". With this new technology up to 15 per cent of fuel can be saved. Hödlmayr will take part in a five year test with their own HGV and drivers as part of the project. This project is expected to start later this year.

Reform-Werke develops new vehicle concepts

"For Reform, as a recognised specialist for development, production and marketing of special purpose vehicles, taking part in DigiTrans GmbH means taking an important step for the future. In an environment of changing customer requirements,

shortage of qualified drivers and a wish for automatization of various tasks in city and communal logistics, DigiTrans is an important platform of development for us." Managing Director Dr Clemens Malina-Altzinger is convinced.

Reform has been investing in the development of vehicles with alternative drives, especially in new vehicle concepts, for a long time. They are going to present an entirely new vehicle, which will differ from all previously known vehicles, later this year. This new vehicle is specialised to perfectly execute various tasks required by city and communal logistics.

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