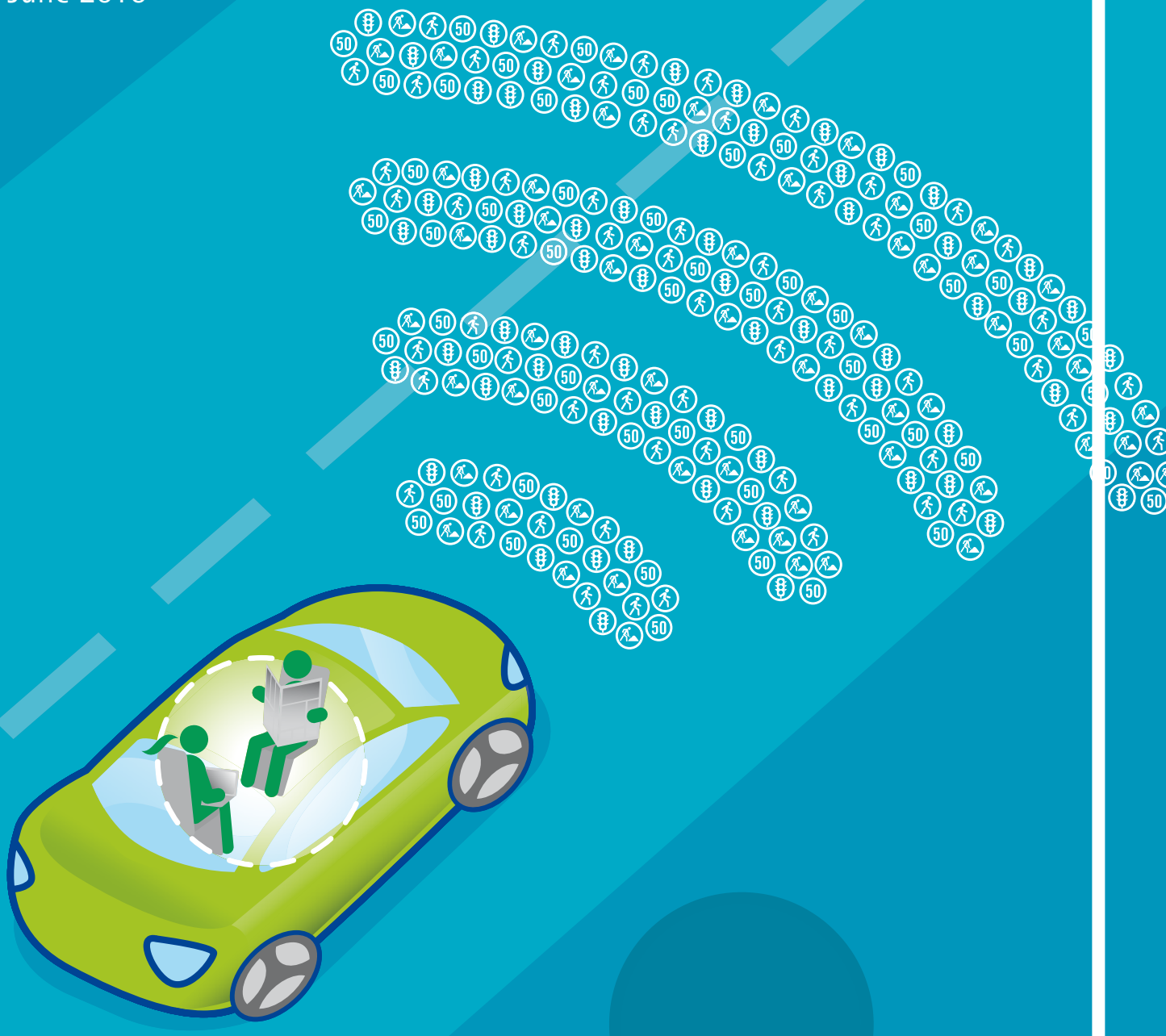
Automated – Connected – Mobile

Action Plan Automated Driving - Executive Summary
June 2016



bmvit

Federal Ministry of Transport, Innovation and Technology

Contents

This executive summary contains information about the process, the defined use cases and the planned measures. More detailed explanations of the evaluations of the use cases and the priority applications as well as detailed descriptions of the individual measures can be found in the German long version.

Foreword

© bmvit / Johannes Zinner

The current technological trends such as digitisation, e-mobility and social developments such as different sharing models will seriously change the way we travel.
All these developments have a significant impact on our society and provide opportunities for road safety, the environment and last but not least for Austria as a business location with all the associated jobs. Automated driving is thus part of a long-term transport policy that always focuses on the people.

That's why, together with 140 experts from the industry, research and public sector, we have developed an action plan that will enable our research industry to test and further develop new technologies under real conditions. This is the foundation upon which our company can further expand our valuable expertise in this area. While doing so, we set the highest demands in the field of road safety: The safety of every road user is the utmost priority in all the developments and possible tests on our roads.

The nine measures included in the action plan will be implemented in the coming years. We have started a process from which all the participants will be able to learn. This is true for infrastructure operators, cities, municipalities and policy makers as well as the industry and research institutions. The impact of technological change on people and the environment will be constantly evaluated. Accordingly, we will continually adjust our measures and incorporate newly gained knowledge. In addition, we will invest approximately 20 million euros to create a good basis for the development of automated driving in Austria. This will trigger further investments in the amount of 20 to 30 million euros by other stakeholders such as the industry and local authorities which will help to generate new, red-white-red technologies.

Automated driving will profoundly change the mobility of the future. This action plan sets the foundation to further strengthen our business location and to use new technological developments positively for the people.

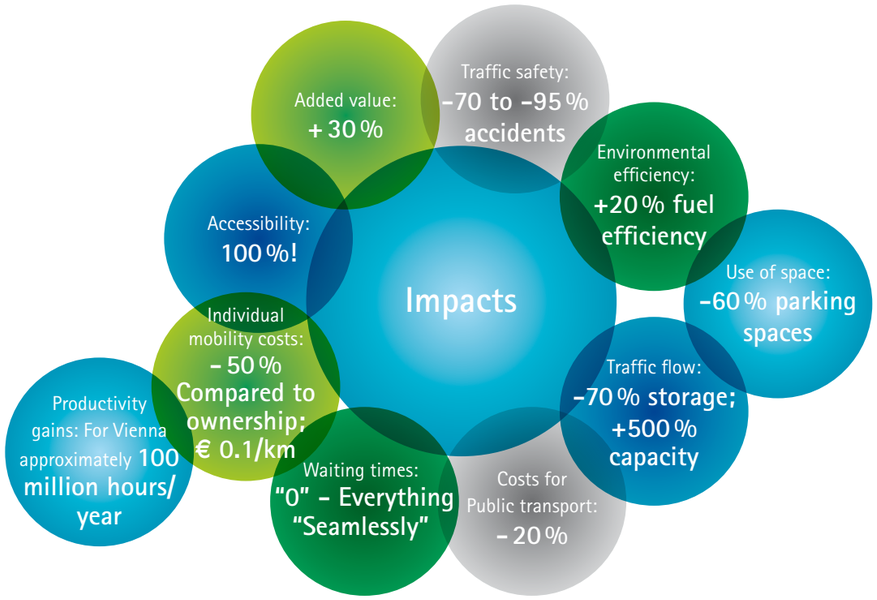
Jörg Leichtfried
Minister of Transport, Innovation and Technology

1 Automated Driving: Potentials & Premises

When talking about the future of mobility today, automated driving is a central theme that is met with a mixture of excitement over the possibilities it can offer and a fear of relinquishing control to an automated system. So what are the potentials of automated driving and how can they be realised?

The competition for marketable deployment is global and intense. For the industry, the concept of automated driving brings the prospect of a large potential for added value. In terms of transport policy, the concept increases the possibilities to fully exploit the potential of intelligent mobility. With regard to technology policy, it concerns the opportunity to participate in the development of new technologies of the future and thus to sustainably strengthen the competitiveness of business locations.

Automated driving will play an essential role in the changes in the transport system due to digitalization, sharing and decarbonisation.[1]



Source: World Economic Forum, OECD ITF, Fraunhofer

1) ERTRAC Roadmap, World Economic Forum Studie, OECD ITF

The goal of the action plan was to organise a process in Austria that involves all the perspectives and interests of all the stakeholders.

The stakeholders include companies from the automotive and IT industry together with infrastructure operators as well as policy makers and management who are all working to network and automate transport, thus making mobility safer, cleaner and more efficient. The action plan will not only take short and medium term issues into consideration, but also long-term issues such as the impact on infrastructure and urban planning processes. In addition to road safety, which is the main focus of the action plan, issues concerning data security and cyber security must also be considered in an international context. For the anticipated potential for added value and opportunities for Austrian actors, the focus should go beyond pure product innovations in hardware and software and include organisational aspects and new service-based business models.

In this context, Austria must answer four essential questions:

- How will automation change the Austrian transport system and how can we influence this?
- What requirements must be met by the future (digital) infrastructure in order to ensure the implementation of automated driving?
- How can demands on the reliability and security of new systems and technologies be ensured, above all in the context of data protection?
- How can the business location Austria, with its strong automotive supply industry and ICT-industry, ensure and expand its international competitiveness in the future?

In doing so, the following premises must be assumed:

- Austria's expertise in semi-automated production, robotics, image processing and sensor technology as well as in artificial intelligence is excellent and internationally recognised. These competencies form the foundation for automated driving. Therefore, they also have to be expanded in the automotive sector.
- Automation can improve efficiency, safety and the environmental impact of the transport system, but it will also have a long-term impact on future urban planning, settlement patterns and mobility behaviour.
  To steer all of these in a common direction, it is necessary for all the stakeholders to adopt a common approach for improving the entire transport system in Austria.
- The bmvit has supported these developments for years with the research programs „IKT der Zukunft" (ICT of the Future) and „Mobilität der Zukunft" (Mobility of the Future) and follows a clear vision for the integration of new technologies into the overall transport system which can be read about in the ITS Action Plan (Intelligent Transport Systems), the C-ITS Strategy Austria (Cooperative Intelligent Transport Systems), the deployment plan "E-Mobilität" (E-Mobility), and projects such as ECo-AT as part of the C-ITS-Euro-Corridor Rotterdam-Frankfurt-Vienna.

2 The Action Plan: Process & Structure

Based on the described assessment, the process of developing the Automated Driving Action Plan was initiated focussing on the two goals of creating added value and positive impact:

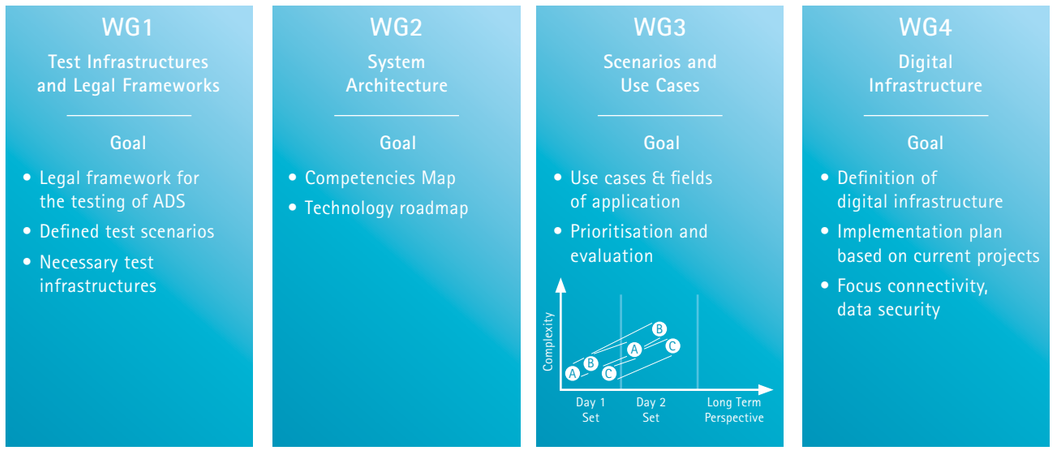
- Automated driving opens up new potential for added value, the realisation of which should build on the technological expertise of the Austrian industry.
- Automated driving develops its positive impact as a driver for change in the transport system towards more efficiency, more safety and better environmental modality implemented in the specific application fields of automation.

The actors in Austria can benefit from an outstanding, unique selling proposition in an international context, namely the sophisticated digital transport infrastructure.

The core element of the process is the definition of scenarios in the form of „use cases" that include various application examples for automated driving.

With these requirements in mind, the action plan aims to provide the necessary framework for these new transport technologies by involving the Austrian industry and economy, city and provincial representatives, infrastructure and transport operators and research institutions. To establish these conditions, the action plan includes a program of nine concrete actions in support of research, development, testing and validation as well as the first implementation steps.

Approximately 140 stakeholders from the industry, research, public authorities and operators were involved in the strategy process. The targets were developed in four thematically organised working groups (WG).



Test Infrastructure and Legal Framework

Currently, only very limited possibilities exist for testing automated systems.
The goal is the development of various multi-use test infrastructures consisting of simulation - test station - test track - real operation. In addition, a Code of Practice will also be developed. The legal framework should be adapted and updated for testing in public areas.

Results:

- Screening of relevant legal matters (national & international)
- Amendment to the Motor Vehicles Act
- Development of a Code of Practice
- Definition of goals and criteria for test environments
- Development of funding conditions

System Architecture

For automated driving to have an impact on transport policy, networking between vehicles and between vehicles and the infrastructure is essential.
The construction of such a system architecture requires a mapping of the respective technology fields of competence and the integration of the relevant networks.

Results:

- Definition of the relevant system competencies
- Referencing and systematisation of various technology roadmaps
- Alignment of technology competencies with the (primary) fields of application

Scenarios and Use Cases

The definition of scenarios for automated driving (e.g. motorways, urban applications, last mile, freight transport, etc.) is of central importance for the action plan. Evaluation criteria were also developed with regard to traffic safety and economic, environmental and social inclusion for the use cases as a field of application for automated driving.

Results:

- Development and definition of seven use cases
- Classification of the use cases based on a criteria matrix
- Evaluation and prioritisation of the use cases based on different impact dimensions

Digital Infrastructure

Austria already has a basic nationwide digital infrastructure (Graphenintegrations-plattform GIP (Graph Integration Platform), Verkehrsauskunft Österreich VAO (Traffic Information Austria)). This will be further developed in terms of automated driving.
Close attention should also be given to the topics of connectivity, safety and security.

Results:

- Definition of the components of the digital transport infrastructure (video detection, HD maps, traffic information, control, C-ITS, weather information, etc.)
- Common perspective: Efficient and affordable combination of a "connectivity" from mobile networks and Car2X

3 Scenarios and Use Cases

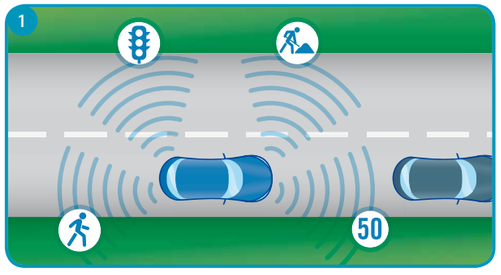
Additional information
www.bmvit.gv.at/automatisiert

From a holistic standpoint, the development of automated driving is still in its infancy. A broad, impact-oriented view that goes beyond the pure technological aspects or automation levels (SAE levels)[2], is therefore particularly important from the outset. Such an impact analysis can only be prepared in the context of possible future scenarios or use cases and examples of potential applications with the involvement of all the stakeholders and users.

Use cases structure the fields of application of automated and connected driving, separating them from each other by highlighting different criteria (e.g. traffic safety or capacity utilisation and thus efficiency), thus resulting in a portfolio of specific fields of application for which technologies can then be developed. The role of the appropriate digital infrastructure and thus also the involved infrastructure operators and mobility providers is an essential component in all scenarios and will thus also ensure a unique selling proposition for Austria in an international context.

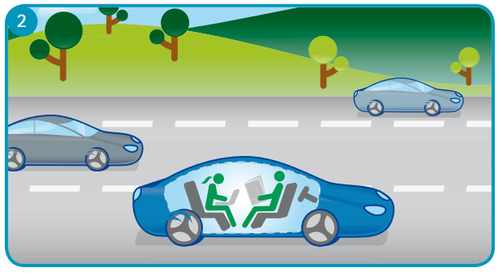
Under this action plan, seven use cases were defined, with three being identified as priority use cases since they could be implemented quickly and offered a particularly high potential for added value.

The three priority use cases (1, 3, 5) and their possible underlying application examples provide the basis for the concrete measures of the action plan (starting from 2016 to 2018). These measures are intended to both ensure the legal framework for testing and validation, as well as promote the well organized construction of suitable research, development and test infrastructures.



Priority Use Case 1:
Security+ through an all-round view

Driver assistance systems with information and warning functions and sensor-based automatic systems contribute to improving road safety in the immediate surroundings of the vehicle in traffic on motorways and expressways. In combination with infrastructure-side information, the efficiency can be significantly increased.



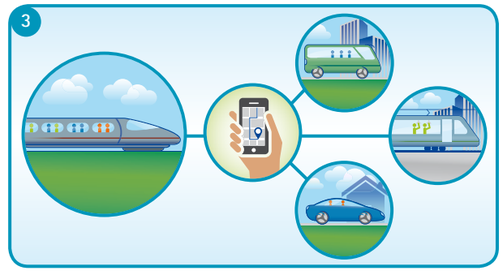
Use Case 2:
"Save Time"

Automatic driving on motorways and highways makes it possible to completely transfer the task of driving to the system, enhancing driving comfort and offering new freedom of action so that the time on the road can be used productively for work or other activities such as information/entertainment or even for rest.

2) http://www.sae.org/misc/pdfs/automated_driving.pdf

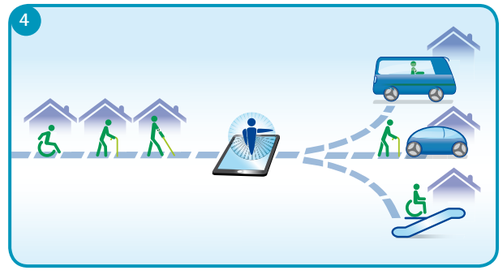
Priority Use Case 3:
"New Flexibility"

Automated and connected vehicles allow high flexibility in an intermodal transport system. Route optimisation, driving times tailored to personal preferences, secure and convenient connection mobility with intermodal transfer points, in urban and rural environments, include new vehicle concepts and information and booking services Through ON-Demand, not only is the flexibility of the mobility users increased, but the environmental impact is also decreased.



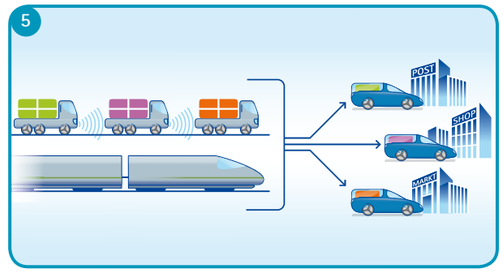
Use Case 4:
"Be Mobile, Stay Mobile"

Automated and barrier-free mobility solutions with new features and solutions for people with reduced mobility as well as older users can make a significant contribution to the forward-looking expansion of social mobile participation.



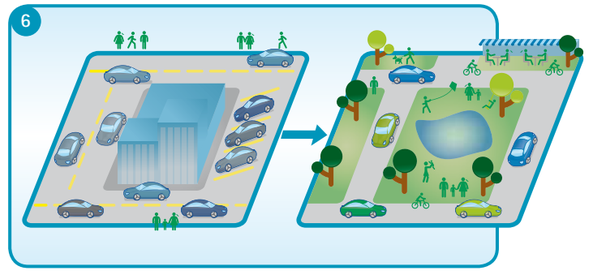
Priority Use Case 5:
"Well Supplied"

Efficient, automated and connected freight transport can help to relieve the traditional transport routes and thereby fulfil the social and economic changes for improved logistics (also for the "last mile"), general interest services and quality of life.



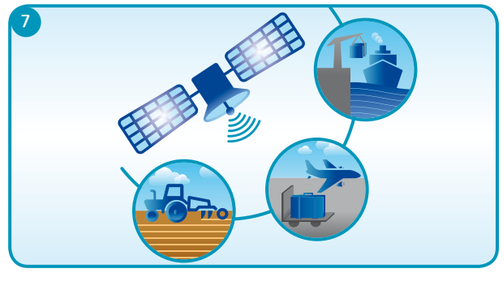
Use Case 6:
"Mobility Makes Space"

Automated mobility as part of a modern mobility planning. Automated transport systems are part of concepts that provide mobility as a service. Public spaces can be used for other purposes and mono-functional transport areas can be designed as meeting places.



Use Case 7:
"Special Assistant"

Forms of ground-based mobility, including the associated service functions, are viewed outside the main applications in everyday mobility. Examples include the development of special machines or personal assistants that are automated and increasingly used in special environments such as airports, agriculture, ports, etc.



Information about the action plan and all the actions and measures can be found at www.bmvit.gv.at/automatisiert.

3.1 Review of the Use Cases

In addition to the main evaluation criteria of traffic safety, efficiency, environmental compatibility and added value, the following evaluation criteria are also taken into consideration:

- National deployment requirements
- Potential for new business models and services
- Impact on mobility behaviour and society
- Integration with other societal objectives (climate, health, quality of life, etc.)
- Technological maturity
- Digitalisation /integration of IT-systems
- Strengthening R&D expertise
- Support for new concepts in spatial planning and urban planning

4 The Deployment: Measures & Time Frame

For the entry into automated driving an integrated program with nine actions with corresponding concrete measures was defined under the Action Plan for a Day-1 Deployment Period from 2016 to 2018.

4.1 Enable & regulate Test Drives

Based on the defined use cases and concrete applications, the bmvit will draft regulations that will serve as the foundation for testing and validating the identified fields of application and Advanced Driver Assistance Systems Technologies.

The regulations will allow drivers to transfer certain driving tasks to the assistance systems and automated or connected driving systems in the vehicle. This relates on the one hand to systems that have already been approved and are in series production (e.g. the traffic jam assistant), but that due to the existing "driver responsibilities" are currently not allowed to be used. On the other hand, they should also apply for completely new systems in the test stage that will also have to meet specific requirements. There will be no general legalisation of new, not yet standardised technologies.

How? Draft ammendment to the Motor Vehicle Act (KFG); Enactment

Who? bmvit

When? Draft Regulation Q2/2016

4.2 Development of a Code of Practice

Through the development of a Code of Practice, the conditions for testing will be clearly defined and standardised. Standardised procedures for reporting test and validation drives make faster and more efficient access to testing facilities possible.

The Code of Practice defines important modalities for automated driving:

How? Code of Practice (COP) - Process Instruction

Who? bmvit

When? Q3/2016

4.3 Initial Studies for the Construction of Test Environments

To clarify questions about the necessary infrastructure, operation, financing, and integrated approach that are required for the construction and use of test environments, a call for tender for evaluations and preliminary studies will be started.

Additional information www.ffg.at

The goal is to support four to six complementary ideas or concepts in terms of content and organisational structure.

How? Call for tender for evaluations/preliminary studies for the construction of the operating structures for test environments
Funds: € 1 million

Who? bmvit, FFG

When? Call for tender for evaluation: Q2/2016; Results Q1/2017

4.4 Build up Test Environments

In order to develop a focused competence, for instance around clusters and platforms as well as with the involvement of infrastructure operators and research institutions, an integrated research, development and test environment will be created with the involvement of all the necessary stakeholders. The establishment of an efficient operator structure should ensure the medium to long term operation.

This long-term ability to perform systematic testing should enable all the stakeholders (suppliers, OEMs, infrastructure operators, public authorities, service providers, research institutions) to learn together and should also strengthen Austrian companies in European and international competition. The duration for the test environment should therefore be at least five to ten years. The fundamental orientation of all the test environments is on the automated vehicle and its interaction with the overall traffic while ensuring safety, environmental compatibility and efficiency.

When developing the action plan, the following criteria for the orientation and impact of the test environments were defined:

- Focus on Austrian actors and priority use cases
- Systematic testing and validation of products, components, vehicles and services
- Comprehensive consideration of test and validation issues
- Real world test station simulation
- Joint learning for suppliers, vehicle manufacturers, infrastructure managers, public authorities, service providers and research institutions
- International positioning of Austrian skills and actors
- Cooperation with international test environments
- Focal point of the coordinated national and international initiatives (technology funding programs "showcase")
- The generation of future added value and securing jobs must be shown
- Presentation of future added value and the securing of jobs

How? Construction and operation of integrated test environments and structures
Funds: € 10 million (bmvit);
2-3 test environments for the first three years

Who? bmvit, FFG; cooperation with the provincial governments

When? Q3/2016 (Fast Track), Call for tender for the operation of the test environments Q2/2017

4.5 Development of a Technology Funding Portfolio

Additional information
www.ffg.at

Based on the national technology and innovation roadmap initiatives (ECSEL, A3PS) and in accordance with international technology roadmaps with strong links to Austrian industry and research actors (e.g. ERTRAC or EPOSS), the development of the system and technology competence "Automatisiert-Vernetzt-Mobil" (Automated-Connected-Mobile) will be strengthened through a coordinated funding instrument portfolio.

Measure 1: Bundled Portfolio
It will strengthen the synergies and the cooperation of the existing FTI programs; this applies especially to the FTI programs "Mobilität der Zukunft" and "IKT der Zukunft". These programs are closely linked with the test environments to be constructed and allow cooperation with other technology fields such as production technology, simulation, technology assessment, vehicle-to-human interaction and communication with intelligent machines.

Measure 2: International Network
In addition to key national topics, a strong international orientation will also be followed in order to develop synergies in cooperation with stakeholders from other countries, including:

- Support of international cooperation between research organisations and companies
- Support of participation in European and international technology initiatives and programs
  - ECSEL Joint Undertaking: National co-financing in the amount of € 4 million for automated driving in the call for tender in 2016
  - Horizon 2020: Targeted involvement of Austria in strategically important projects
  - Promotion of international research partnerships through transnational calls for tender (DACH, ERA-Net Cofund...)

How? FTI-Initiative "Automated-Connected-Mobile"
Funds: € 6 million for three years

Who? bmvit, FFG

When? Further development of the program portfolio and implementation of cross-program calls for tender: from 2016 support from international partnerships: on-going

4.6 Ensuring the Digital Infrastructure as a Strength

Additional information
www.austriatech.at

Technologies and solutions already available in Austria, especially in the context of C-ITS, traffic information, traffic management and geographical information systems, are also an outstanding international USP in the context of new mobility concepts. Integrating these technologies and solutions into the test environments will also provide them with a clearly recognisable unique selling proposition.

Measure 1: Equipping of test environments with a digital infrastructure
In particular the digital infrastructure on the high level ASFINAG road network is a clear USP for the participation of the automotive industry at an Austrian test track or test environment. Therefore, in the next two to three years the main focus will be on introducing automated driving in the central organisation and structured management of the test drives with the involvement of the relevant road operators.

Starting in 2017, at least one test environment that is integrated with the digital infrastructure will be realised. Thus, the automotive industry can be presented with an attractive offer right from the very beginning, while at the same time further strengthening Austria's international USP.

Measure 2: Rollout of the C-ITS Basic Functions
The availability of C-ITS functionality is a prerequisite for safely linking automated vehicles with the infrastructure and other vehicles. Therefore, a main priority is to ensure the basic C-ITS functionality in the first pilot regions of the deployment currently underway. Further development priorities will be coordinated with the provinces and cities in accordance with the Austrian C-ITS deployment strategy.

The bmvit, together with ASFINAG and other Austrian actors, are already working to ensure the implemented infrastructure and corresponding C-ITS services offered are harmonised with the neighbouring countries (including along the C-ITS corridor NL-DE-AT). Thus, the Austrian infrastructure will be attractive for the entire European automotive industry as a test region and the potential added value for Austria's industry will be strengthened.

Measure 3: Roadmap Digital Infrastructure
Highly accurate, dynamic and appropriately authorised road maps in the vehicle, developed and maintained with the defined involvement of the relevant road operators, represent a key prerequisite for automated driving. Therefore, the Graph Integration Platform (GIP) must be further developed in terms of the requirements for automated driving. This highly accurate GIS data is required for the generation of a precise environment model. Also dynamic information, which is currently reserved for use by the Verkehrsauskunft Österreich (VAO), must be further developed in terms of timeliness (keyword real-time), accuracy and completeness.

The necessary development steps will be jointly determined and are a central part of the bmvit roadmap for digital infrastructure.

Measure 4: Integration of the Digital Infrastructure in the ITS Action Plan
The focus on the digital infrastructure described above will be considered in cooperation with the established test environments/test tracks and integrated in stages during the next scheduled calls for tender for the ITS Action Plan.

In close cooperation with the transport infrastructure and telecom operators and the participation of research and industry partners, a competence centre specializing in implementation know-how for digital infrastructure is to be established.

How? Digital infrastructure as a basis for testing and deployment scenarios for automated driving; bmvit C-ITS Deployment Strategy, calls for tender for the ITS Action Plan with a focus on DTI

Who? ASFINAG, bmvit, provinces and municipalities, telecom operators, industry

When? Test environments & C-ITS deployment starting Q3/2016
Roadmap DTI Q3/2017
ITS Action Plan Measures Catalogue 2017
Tender for ITS Action Plan 2018

Foundations of the digital infrastructure

- Connected Vehicle <> Infrastructure
- Communication technologies & protocols
- Information management
- Traffic management
- Positioning (Galileo)
- HD maps
- Sensors, sensor networks and monitoring systems
- IT hardware and software

4.7 Ensuring Scientific Competencies

Additional information
www.ffg.at

In addition to strengthening the technological expertise, the systematic development of scientific expertise is essential for the further development and sustainability of new technologies. This should be guaranteed by the specific development of endowed chairs as well as a call for dissertations.

In a first step, a call for at least one endowed chair should be made for one of the following topics:

Topic 1: "Autonomous Vehicle Operation"

Topic 2: "Traffic Operation and Planning of Autonomous Vehicles"
- The infrastructure, interaction in mixed traffic (autonomous/non-autonomous)

How? Development of scientific expertise with the help of endowed chairs; dissertations

Who? bmvit, FFG, together with the industry and research organisations

When? Beginning 2017

4.8 Development of Evaluation Tools

The deployment steps for automated driving and the test environments and technology programs created for its realisation should be evaluated for their impact on safety, efficiency and environmental compatibility.

The defined use cases form the basis for the testing and deployment scenarios. The use cases are not purely technology-based, but are aimed at further, comprehensive impact and benefit levels.

How? Detailed scientific impact analysis including issues of acceptance and ethics
Funds: € 300k for evaluation of impacts, including definition of key performance indicators

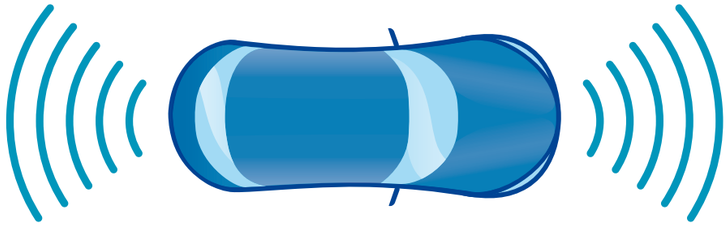
Who? bmvit; FFG, R&D community

When? Start 2017

4.9 National Contact Point for Automated Driving

Additional information
www.austriatech.at

An efficient implementation of the planned actions requires a clear structure and a definition of the interfaces and coordination mechanisms between the actors. To support the bmvit, AustriaTech has been defined as the national point of contact and central point of contact to facilitate the coordination processes with the industry, infrastructure operators, provincial governments and technology platforms.



In addition, AustriaTech will expand their expertise in automated and connected driving and
- act as an information centre for activities in automated driving in Austria (legal and technological advice etc.)
- offer support for international partnerships for Austrian projects and organisations through a strong international network
- offer support for national and RTI implementation projects
- establish a monitoring of all the relevant Austrian and international projects and activities
- support the development of joint actions (roadmaps, etc.) as an agency of bmvit
- ensure the exchange of information and the dissemination of results

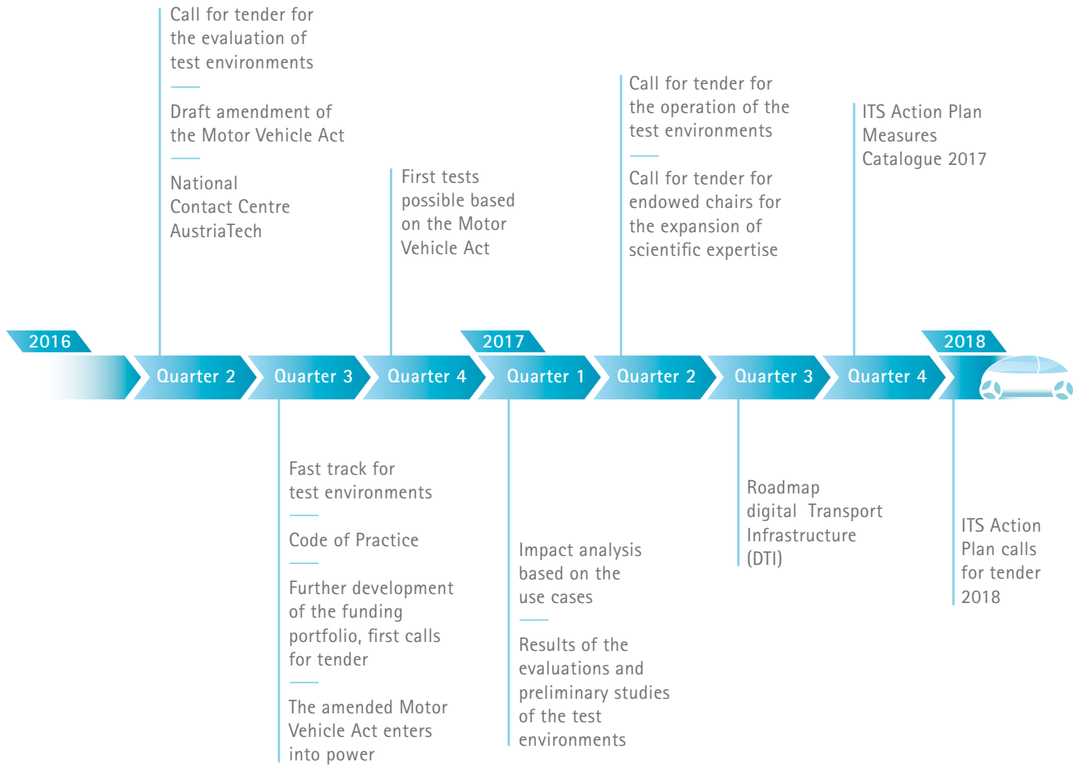
How? Expansion of AustriaTech expertise and establishment of a contact and information centre; establishment of national and international monitoring

Who? AustriaTech

When? Beginning 2016

5 Schedule

The planned schedule for the implementation of the measures is as follows.



6 Outlook

With this action plan, the Austrian Ministry for Transport, Innovation and Technology has launched a long-term process and set clear priorities and steps for the future rollout and use of automated vehicles and mobility services. This action plan sets the guidelines for ensuring safe, efficient and environmentally sound mobility while simultaneously strengthening the Austrian economy.

Since the technologies and organisation forms for an automated and connected transport system have experienced rapid development, it is important in the future to support this process and to evaluate the actions and measures set. A sustainable integration of these new technologies in our future mobility system is only possible with the involvement of all the stakeholders, from infrastructure operators to research companies all the way to the relevant companies and platforms from the industry.

Since the action plan includes the first short to medium-term measures for the next three years, the development and definition of follow-up activities has been a focus from the very start. The aspects that have emerged as particularly relevant in the development process until now relate above all to:

- The continuous adaptation of the legal framework in close coordination with international legislation
- The expansion of the digital infrastructure to strengthen the Austrian unique selling proposition
- The expansion to other modes of transport and the interfaces between the various modes of transport
- Stronger international networking and collaboration
- Dissemination and communication of the results and impacts of the application scenarios
- The integration of electrical and environmentally efficient drive systems

Through the appropriate design of actions and measures in the framework of the process "Automatisiert-Vernetzt-Mobil", future national strength fields will thus also be best developed and the Austrian stakeholders and respective involvement and participation at the European level will be ensured.

7 Additional Information

Additional information:
- www.bmvit.gv.at/automatisiert
- infothek.bmvit.gv.at
- A3PS ADAS-Roadmap: adas.a3ps.at
- Ecsel Automated Driving Roadmap: www.ecsel-austria.net
- ERTRAC Automated Driving Roadmap: www.ertrac.org

Workgroup Heads
- WG 1: Sabine Kühschelm (bmvit), Martin Russ (AustriaTech)
- WG 2: Stefan Poledna, Andreas Eckel (TTTech)
- WG 3: Dirk Holste, Hans-Jörg Otto (AIT)
- WG 4: Bernd Datler, Manfred Harrer (Asfinag)

SAE level	Name	Narrative Definition	Execution of Steering and Acceleration/ Deceleration	Monitoring of Driving Environment	Fallback Performance of Dynamic Driving Task	System Capability (Driving Modes)
Human driver monitors the driving environment						
0	no Automation	the full-time performance by the human driver of all aspects of the dynamic driving task, even when enhanced by warning or intervention systems	Human driver	Human driver	Human driver	n/a
1	Driver Assistance	the driving mode-specific execution by a driver assistance system of either steering or acceleration/deceleration using information about the driving environment and with the expectation that the human driver perform all remaining aspects of the dynamic driving task	Human driver and system	Human driver	Human driver	Some driving modes
2	Partial Automation	the driving mode-specific execution by one or more driver assistance systems of both steering and acceleration/deceleration using information about the driving environment and with the expectation that the human driver perform all remaining aspects of the dynamic driving task	System	Human driver	Human driver	Some driving modes
Automated driving system ("system") monitors the driving environment						
3	conditional Automation	the driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task with the expectation that the human driver will respond appropriately to a request to intervene	System	System	Human driver	Some driving modes
4	high Automation	the driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task, even if a human driver does not respond appropriately to a request to intervene	System	System	System	Some driving modes
5	full Automation	the full-time performance by an automated driving system of all aspects of the dynamic driving task under all roadway and environmental conditions that can be managed by a human driver	System	System	System	All driving modes

8 List of Abbreviations

Abbreviation	Explanation
A3PS	Austrian Association for Advanced Propulsion Systems
ADS	Automated Driving Systems
ADAS	Advanced Driver Assistance Systems
AIT	Austrian Institute of Technology
ASFINAG	Autobahnen- und Schnellstraßen-Finanzierungs-Aktiengesellschaft
AT	Österreich / Austria
BMVIT	Bundesministerium für Verkehr Innovation und Technik
Car2X	Car to infrastructure communication
C-ITS	Cooperative Intelligent Transport Systems
COP	Code of Practice
DE	Deutschland / Germany
DACH	Region Deutschland - Österreich - Schweiz / Region Germany - Austria - Switzerland
DTI	Digital Transport Infrastructure
ECSEL	Electronic Components and Systems For European Leadership
EPOSS	The European Technology Platform on Smart Systems Integration
ERA-NET	European Research Area-Network
ERTRAC	European Road Transport Research Advisory Council
F&E	Forschung und Entwicklung / Research and Development
FFG	Österreichische Forschungsförderungsgesellschaft
FTI	Forschung, Technologie und Innovation / Research, Technology and Innovation
GIP	Graph Integration Platform
GIS	Geographic Information System
HD	High Definition
ICT	Information and Communication Technology
IKT	Informations- und Kommunikationstechnik / Information and Communication Technology
IT	Information Technology
ITS	Intelligent Traffic Systems
IVS	Intelligente Verkehrssysteme / Intelligent Traffic Systems
NL	Niederlande / Netherlands
OEM	Original Equipment Manufacturer
PT	Public Transport
ÖV	Öffentlicher Verkehr / Public Transport
R&D	Research and Development
SAE-Level	Stufen des automatisierten Fahrens nach dem Unternehmen SAE International / Level of automated driving according the company SAE International
USP	Unique Selling Proposition
VAO	Verkehrsauskunft Österreich / Traffic Information Austria
Vision Zero	The goal of reducing the number of deaths and serious injuries on the roads to zero
WG	Working Group

Legal

Owner and Publisher
bmvit - Austrian Ministry for Transport, Innovation and Technology
Radetzkystraße 2, 1030 Vienna
www.bmvit.gv.at

Coordinated by
AustriaTech – Gesellschaft des Bundes für technologiepolitische Maßnahmen mbH
E-Mail: automatisierung@austriatech.at
Tel .: +43 1 26 333 44

Design
beyond.ag

Print
Offset 5020 Druckerei & Verlag GmbH, 5072 Siezenheim

June 2016