PUBLIC RESEARCH SYSTEM

Key benchmark indicators against OECD countries

CURRENT MAIN ISSUES OF DEBATE

According to Statistics Austria, an estimated EUR 11.3 billion (euros) was spent on Austrian research and development (R&D) in 2017. Thus, the projected total sum of Austrian R&D spending rose by 3.6% compared to 2016, reaching 2.1% of gross domestic product (GDP).

In quantitative terms, the private business sector accounts for the largest share of R&D spending (48.2%), or approximately EUR 5.5 billion. This share rose to 63.6% of R&D spending when adding the funds provided by enterprises outside Austria. Thus, Austria is steadily approaching the distribution target for research funding (two-thirds from the private sector, one-third from the public sector) defined in the Austrian Strategy for Research, Technology and Innovation (RTI). A substantial increase in R&D spending has been observed in all funding sectors since 2013.

While R&D intensity is an important indicator, it reveals little about the quality of output and structural change. It is worth noting, however, that the Federal Government’s RTI strategy has created important stimuli for change in several areas and brought about significant progress since its inception in 2011. The key challenge in attaining the target percentage lies in increasing R&D intensity in the private sector. Hence, many of the Government’s measures are designed as incentives and support for the private sector. To promote R&D investment activity, for example, the research subsidy was raised from 16% to 18% during the 2015/16 tax reform, and will increase to 14% from 2018 onward.

In 2016, the Austrian Parliament asked the Government to evaluate the research-promotion system. Taking into account the AWS and FPIS evaluation results from 2017, as well as international best-practice examples, and based on the forthcoming OECD review (expected in 2018), relevant ministries will develop proposals to optimize the structure and financing of the Austrian RTI system.

In addition to the start-up package adopted on 5 July 2016, the Austrian Council of Ministers adopted a package of measures on 8 November 2016 to strengthen competitive financing in research, as well as enhance efficiency to ensure a better input-output relation of RTI-funding and innovation outcomes. In this context, the Austrian Council for Research and Technology Development is analysing the feasibility of a comprehensive research-funding database in Austria, following the recommendation of the Austrian Court of Audit’s August 2016 report on domestic research funding.

Increasing the efficiency and optimizing the funding structure of the Austrian RTI system, as well as developing a national research-funding database, are two objectives featured in the Austrian Government’s 2017-21 programme.

INNOVATION IN FIRMS AND INNOVATIVE ENTREPRENEURSHIP

Key benchmark indicators against OECD countries

CURRENT MAIN ISSUES OF DEBATE

Policy debates on government support for innovation, growth and employment are taking place against the backdrop of several major changes facing Norwegian business and industry: an ageing population, globalisation, technological advances and the petroleum industry’s reduced contribution to the mainland economy. The fall in oil prices in 2014, and the ensuing significant reductions in petroleum-related investments, accentuated these debates. The stimulus measures implemented by the Norwegian Government to mitigate the economic downturn emphasised research and innovation programmes, underlining the role of STI in enhancing competitiveness, growth and value creation, and diversifying the economy. Norway’s potential to foster sustainable development through innovations based on renewable resources is widely acknowledged, and the Government has developed strategies for the bio-economy and the ocean economy. An important message of the ocean strategy is the need to stimulate knowledge transfer from the petroleum industry to other maritime or marine industries.

Technological developments related to digitalisation, new materials and automated production processes, as well as new value chains and business models, feature prominently in many debates. They were a central theme in the Norwegian Government’s white paper on industrial policy. Produced in 2017, the white paper announced the launch of the Digital21 Strategy and the new Norwegian Catapult programme for industrial testing centres. It also addressed topics such as access to finance, workforce training and transfer of expertise between industries.

Climate change and environmental strain also feature prominently in the debates on business innovation, which focus increasingly on sustainability and green growth. The transition to a low-emission society and circular economy are important goals of the Norwegian Governments strategy for green competitiveness and its white paper on industrial policy. The main objective of the announced Proces21 Strategy, will be reducing emissions and supporting sustainable growth in the process-manufacturing industries.

Finally, evaluations and impact assessments of government support for innovation feature prominently in the policy debate. The Government aims to increase investments in favour of business innovation through the most effective channels. Several evaluations and impact assessments, including on the R&D tax incentive, the major-project grant and the centre programmes for business innovation, have been performed or initiated in recent years.
**Good examples of policy initiatives: Clear, concise and complete!**

### PLATFORM INDUSTRIE 4.0

**Platform Industrie 4.0**

**Start date:** 2016  
**End date:** N.A.

**Responsible organisation:**
- Federal Ministry of Education and Research (BMBF)
- Federal Ministry of Economic Affairs and Energy (BMWW)

**Description:**
- Platform Industrie 4.0 aims to find answers on the questions of the digitalization of the industry through dialogue. Together, companies and their employees, trade unions, associations, science and politics want to make a big impact.

**Objective:**
- The platform aims to develop joint recommendations for all stakeholders, that serve as the basis for a consistent and reliable framework. The platform will establish alliances and networks at the precompetitive stage which support the evolution of the entrepreneurial skills and energy present in Germany.
- The platform aims to identify all relevant trends and developments in the manufacturing sector and to combine them to produce a common overall understanding of Industrie 4.0. This means that the platform does not operate unrealistically in the market, such as demonstrating centres, research projects or company-led Projects.
- The platform should identify where action is required on standards and norms and should actively express recommendations for national and international committees.

**Related to a theme:**
- Digital Transformation of Industrialization
- Near-to-Market Digital Technologies: Digitisation

**Has a target group:**
- Entrepreneurs: Capital and labour
- Labour Force in Industry: Capital and labour
- Subnational Government: Governmental entities
- Industry Association: Industry associations

**Yearly budget range:**
- €1M-€5M

**Background:**
- Services for SMEs. The platform’s members raise awareness for Industrie 4.0 among companies, particularly small and medium-sized ones – and encourage and help these companies to bring Industrie 4.0 applications into practice. Therefore, a Transfer Network was established in 2017.

**Public access URL:**
- [https://www.plattform4p.de](https://www.plattform4p.de)

**Policy Instruments**

- Technology-oriented
- Exchanges take place via Meetings and events
- Define research priorities
- Actors involved in networking: Suppliers | Public research institutes | Higher education institutes | Firms

### GRANT PROJECTS OF EXCELLENCE IN BASIC RESEARCH

**Grant Projects of Excellence in Basic Research (EXPRO)**

**Start date:** 2017  
**End date:** N.A.

**Responsible organisation:**
- Grant Agency of the Czech Republic (GA CR – Grantová agentura České republiky)

**Description:**
- The grant agency of the Czech Republic (GA CR) [also known as Czech Science Foundation](https://www.gacr.cz/en), offers support through the GA CR Activity Concept for the years 2016 - 2020, which was approved by the Government Resolution of 18 April 2016 No. 341.

**Objective:**
- The goal of the new EXPRO projects is to cultivate research teams led by a top internationally recognized scientific personality or a young scientist with a compelling potential for excellence, to promote support for scientists already axed or could emerge, and thus improve the quality of Czech science.
- Further objective of EXPRO projects is to create conditions for the development of excellent research and increase the efficiency of the allocation of resources for basic research to raise the level of Czech science and to overcome barriers that reduce success in the European Research Council (ERC).

**Related to a theme:**
- Exploratory and High-Risk Research: Public research system
- Competitive Research Fund: Public research system

**Has a target group:**
- Established Researchers: Associates, students and young
- Post-Doctoral Researchers: Associates, students and young
- Higher Education Institute: Research and education institutes

**Yearly budget range:**
- €2M-€9M

**Background:**
- Excellent research is based on top scientists and often through “high risk – high gain” projects which, for example, show in Europe projects such as the European Research Council (ERC).

**Public access URL:**
- [https://www.gacr.cz/attachment/29911/4BF14C5B122F14E](https://www.gacr.cz/attachment/29911/4BF14C5B122F14E)

**Policy Instruments**

- Maximum duration: ~36 months
- Maximum amount of grant awarded in euros: €100K-€500K
- Type of activity: Basic Research
- Requires a form of collaboration: With other academic partners | With international partners
- Selection criteria: Track record of applicant | Scientific impact anticipated | Societal impact anticipated | Alignment with national research priorities

---

**Translation:**

**PLATFORM INDUSTRIE 4.0**

**Platform Industrie 4.0**

**Start date:** 2016  
**End date:** N.A.

**Responsible organisation:**
- Federal Ministry of Education and Research (BMBF)
- Federal Ministry of Economic Affairs and Energy (BMWW)

**Description:**
- Platform Industrie 4.0 aims to find answers on the questions of the digitalization of the industry through dialogue. Together, companies and their employees, trade unions, associations, science and politics want to make a big impact.

**Objective:**
- The platform aims to develop joint recommendations for all stakeholders, that serve as the basis for a consistent and reliable framework. The platform will establish alliances and networks at the precompetitive stage which support the evolution of the entrepreneurial skills and energy present in Germany.
- The platform aims to identify all relevant trends and developments in the manufacturing sector and to combine them to produce a common overall understanding of Industrie 4.0. This means that the platform does not operate unrealistically in the market, such as demonstrating centres, research projects or company-led Projects.
- The platform should identify where action is required on standards and norms and should actively express recommendations for national and international committees.

**Related to a theme:**
- Digital Transformation of Industrialization
- Near-to-Market Digital Technologies: Digitisation

**Has a target group:**
- Entrepreneurs: Capital and labour
- Labour Force in Industry: Capital and labour
- Subnational Government: Governmental entities
- Industry Association: Industry associations

**Yearly budget range:**
- €1M-€5M

**Background:**
- Services for SMEs. The platform’s members raise awareness for Industrie 4.0 among companies, particularly small and medium-sized ones – and encourage and help these companies to bring Industrie 4.0 applications into practice. Therefore, a Transfer Network was established in 2017.

**Public access URL:**
- [https://www.plattform4p.de](https://www.plattform4p.de)

**Policy Instruments**

- Technology-oriented
- Exchanges take place via Meetings and events
- Define research priorities
- Actors involved in networking: Suppliers | Public research institutes | Higher education institutes | Firms

**GRANT PROJECTS OF EXCELLENCE IN BASIC RESEARCH**

**Grant Projects of Excellence in Basic Research (EXPRO)**

**Start date:** 2017  
**End date:** N.A.

**Responsible organisation:**
- Grant Agency of the Czech Republic (GA CR – Grantová agentura České republiky)

**Description:**
- The grant agency of the Czech Republic (GA CR) [also known as Czech Science Foundation](https://www.gacr.cz/en), offers support through the GA CR Activity Concept for the years 2016 - 2020, which was approved by the Government Resolution of 18 April 2016 No. 341.

**Objective:**
- The goal of the new EXPRO projects is to cultivate research teams led by a top internationally recognized scientific personality or a young scientist with a compelling potential for excellence, to promote support for scientists already axed or could emerge, and thus improve the quality of Czech science.
- Further objective of EXPRO projects is to create conditions for the development of excellent research and increase the efficiency of the allocation of resources for basic research to raise the level of Czech science and to overcome barriers that reduce success in the European Research Council (ERC).

**Related to a theme:**
- Exploratory and High-Risk Research: Public research system
- Competitive Research Fund: Public research system

**Has a target group:**
- Established Researchers: Associates, students and young
- Post-Doctoral Researchers: Associates, students and young
- Higher Education Institute: Research and education institutes

**Yearly budget range:**
- €2M-€9M

**Background:**
- Excellent research is based on top scientists and often through “high risk – high gain” projects which, for example, show in Europe projects such as the European Research Council (ERC).

**Public access URL:**
- [https://www.gacr.cz/attachment/29911/4BF14C5B122F14E](https://www.gacr.cz/attachment/29911/4BF14C5B122F14E)

**Policy Instruments**

- Maximum duration: ~36 months
- Maximum amount of grant awarded in euros: €100K-€500K
- Type of activity: Basic Research
- Requires a form of collaboration: With other academic partners | With international partners
- Selection criteria: Track record of applicant | Scientific impact anticipated | Societal impact anticipated | Alignment with national research priorities