

Enhancing the performance of national and regional research and innovation systems

Checklist of issues

1. Promoting research and innovation is considered as the key policy instrument to enhance competitiveness and job creation, address major societal challenges and improve quality of life and is as such communicated to the public

- Public action in all relevant policy areas including education and skills, the functioning of product and service markets, financial markets, labour markets, entrepreneurship and the business environment, industrial policy, cohesion/spatial planning, infrastructure/ICT as well as taxation and at all levels, is designed and implemented in a strategic, coherent and integrated framework geared towards fostering innovation and strengthening the knowledge base.
- Where policies and funding are focused on specific priorities, these are increasingly oriented towards addressing major societal challenges, such as energy/climate change and health and ageing, and deriving competitive advantages from finding new solutions to tackle them.

2. Design and implementation of research and innovation policies is steered at the highest political level and based on a multi-annual strategy. Policies and instruments are targeted at exploiting national/regional strengths within an EU context ("smart specialisation")

- An effective and stable centre-of-government structure is put in place, typically steered by the top political level, which defines broad policy orientations on a multi-annual basis and ensures sustained implementation. Such structure is backed up by networks involving industry, regional and local authorities, parliaments and citizens, stimulating an innovation culture and building mutual trust between science and society.
- A multi-annual strategy defines a limited number of priorities, preceded by an international analysis of strengths and weaknesses at national and regional level ('smart specialisation') and provides a predictable policy framework. The strategy duly reflects EU priorities, avoiding duplication and fragmentation of efforts, and actively seeks to exploit opportunities for joint programming and cross-border co-operation. Bilateral co-operation with non-EU countries is based on a clear strategy and where possible co-ordinated with the other EU Member States.
- An effective monitoring and review system is in place, making full use of output indicators, international benchmarking and ex-post evaluation tools.

3. Innovation policy is pursued in a broad sense going beyond technological research and its applications

- A broad concept of innovation including innovation in services, improvements of processes and organisational change, business models, marketing, branding and design is actively promoted, *inter alia* through more interdisciplinary work.

→ Supply and demand-side policies are developed in a consistent manner.

4. There is adequate and predictable public investment in research and innovation

→ It is recognised that public funding assumes an important role to provide a high quality knowledge infrastructure and as an incentive for maintaining excellence in education and research including access to world-class infrastructures, building regional S&T capacity as well as supporting innovation activity also during economic recessions. As a consequence, public investments in education, research and innovation are prioritised and budgeted in the framework of multi-annual plans to ensure predictability and long term impact and drawing on structural funds where available.

→ Public funding aims at leveraging greater private sector investments. Innovative financing solutions (e.g. public-private partnerships) and the use of tax incentives are explored and implemented. Reforms are implemented to reflect changing conditions and ensure optimal returns on investments.

5. Excellence is a key criterion for research and education policy

→ Research funding is allocated on a competitive basis and there is an adequate balance between institutional and project-based funding of research. Institutes are evaluated on the basis of international criteria and projects are selected on the basis of the quality of proposals and expected results, subject to external peer review. Funding to researchers is portable across borders and institutes. Results from public research funding are protected and published in a way to encourage their exploitation.

→ Higher education and research institutes enjoy the necessary autonomy to organise their activities, apply open recruitment methods and are able to draw on alternative sources of funding such as philanthropy.

→ Research careers, including doctoral studies, are sufficiently attractive in financial and professional development terms compared to international standards and incentives exist to attract top international talent from other parts of the world.

→ Scientific production is based on transnational cooperation. Research institutions have established strategic partnerships and are networked with institutions from other countries in Europe and beyond. Researchers move across Europe and co-operate in scientific and technological production.

6. Education systems provide for a sufficient supply of high-skilled graduates including in technical professions

→ Policies and incentives are in place to ensure a sufficient supply of science, technology, engineering and mathematics (post)graduates and an appropriate mix of skills among the population (including through strong vocational and education and training systems) in the medium-to-longer term.

- Education curricula focus on equipping people with the capacity to learn and to develop transversal competences such as critical thinking, problem solving, creativity, teamwork, and communication skills. Entrepreneurship training is widely available or included in curricula.

7. Partnerships between higher education institutes, research centres and businesses, at regional, national and international level, are actively promoted

- Where possible, research efforts are accompanied by instruments to support the commercialisation of innovative ideas. Policies and instruments such as innovation/knowledge clusters, knowledge transfer platforms, and voucher systems, are in place to encourage co-operation and knowledge sharing and at creating a more favourable business environment for SMEs.
- Researchers and innovators can move easily between public and private institutes. There are clear rules on IPR ownership and sharing and support systems are in place to facilitate knowledge transfer, the creation of university spin-offs and to attract (venture) capital and business angels.

8. Framework conditions promote business investment in R&D, entrepreneurship and innovation

- Policies to promote innovation, entrepreneurship and enhance the quality of the business environment are closely connected.
- Consistent with the Small Business Act for Europe, rules for starting up and running a business are simple and designed from an SME perspective. The legal framework is transparent and up-to-date. Rules are effectively enforced. Markets are dynamic and competitive. The willingness to take risks is promoted. Entrepreneurs are not discriminated against if they have failed the first time around.
- An efficient, affordable and effective system for the protection of intellectual property is in place and the market for innovative products and services is constantly kept up to date through an efficient standard-setting system.

9. Research and innovation in businesses is publicly supported in a simple, easy to access, and high quality way

- There is a limited number of well targeted, clearly differentiated, and easy to access support schemes consistent with support available at EU level.
- Funding support is tailored to the needs of companies, particularly SMEs. The emphasis lies on outputs rather than on inputs and controls. Bureaucracy is kept to a minimum, selection criteria are straightforward and time to contract and to payment is as short as possible. Funding schemes are regularly evaluated and benchmarked against comparable schemes in other countries.

- National funding is allocated through international evaluation procedures and encourages trans-national cooperation. Rules, procedures and time-tables are aligned to facilitate participation in EU programmes and co-operation with other Member States.
- Specific support is often available to young innovative companies to help them commercialise ideas rapidly and promote internationalisation.

10. The public sector itself is a driver of innovation

- The public sector provides incentives to stimulate innovation within its organisations and in the delivery of public services.
- Active use is made of public procurement of innovative solutions to improve public services. Tenders are based on output based performance specifications and contracts awarded on the basis of qualitative criteria which favour innovative solutions rather than lowest price only. Opportunities for joined procurement are exploited.
- Government-owned data is made freely available as a resource for innovation.